SUSTAINABLE AND INCLUSIVE PROGRAM IN BELIZE

BL-L1041

STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT

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ABBREVIATIONS AND ACRONYMS

BAHA	Aquaculture Stewardship Council
BAIMS	Belize Agriculture Information Management System
BCUL	Belize Credit Union League
BIS	Bureau of Industry and Security
BSGA	Belize Shrimp Farmers Association
BTB	Belize Tourism Board
BTFS	Bit Torrent File System
BTZ	Belize Tourism Board
BWS	Belize Water Services Ltd
CAHSU	Central America Health Sciences University
CATHALAC	Water Center for the Humid Tropics for Latin America and the Caribbean
CC	Climate Change
CCAD	Comisión Centroamericana de Ambiente y Desarrollo
CCSI	Climate Change Solutions International
CDF	Critical Decision Factors
CEPAL	Economic Commission for Latin America and the Caribbean
CIAT	International Center for Tropical Agriculture
CIPAV	Center for Research on Sustainable Production Systems Agricultural
CSA	Climate-Smart Agriculture
DOE	Departament of energy
ESMF	Environmental and Social Management Frameworks
ESMS	Environmental and Social Management System
ESMS	Environmental and Social Management System
ESP	Specific Investment Loan
ESPS	Environmental and Social Performance Standards
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	Food and Agriculture Organization of the United Nations Statistical Databases
FLS	Farm Labor Survey
FP	Farm Plan
GDP	Ggross Domestic Product
GEF	Global Environmental Facility
GHG	Greenhouse Gas
GMO	Genetically Modified Organisms
GOB	Government of Belize
GWP	Global Water Partnership
ICA	Institute of Archeology
ICP	Informed Consultation and Participation
ICT	Information and communication technologies
IDB	Interamerican Development Bank

IFAD	International Fund for Agriculture Development
IFPRI	International Food Policy Research Institute
IGN	National Geographic Institute
IICA	Instituto Interamericano de Cooperación para la agricultura International
ILO	Labour Organisation
INEGI	National Institute of Statistic and Geography
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Chang
LAC	Latin America and the Caribbean
LDN	Land Degradation Neutrality
LFPR	Labor Force Participation Rate
LFS	Labor Force Survey
LIC	Land Information Centre
MAFSE	Ministry of Agriculture, Food Security, and Enterprise of Agriculture
MSEM	Micro, Small, and Medium Enterprises
MTCA	Ministry of Tourism and Civil Aviation
NBSAP	National Biodiversity Strategy and Action Plan
NCCO	National Climate Change Office
NGO	Non Governmental Organizations
NICH	National Institute of Culture and History
NMHS	Hydrology Unit of the National Weather Service
NMS	National Meteorological Service
NPAS	National Protected Areas Secretariat
PAHO	Pan American Health Organization
PCA	Environmental Compliance Program
PEU	Program Execution Unit
PMU	Project Management Unit
PPP	Plans, Policies, and Programs
SEA	Strategic Environmental Assessment
SESA	Strategic Environmental and Social Assessment
SESF	Specific Environmental and Social Framework
SGBV	Sexual and Gender-Based Violence
SIB	Statistical Institute of Belize
SNAP	National System of Protected Areas
SO	Strategic Objective
SRF	Strategic Reference Framework
SWOT	Strengths, Weaknesses, Opportunities.,
TC	Technical Cooperation
ToRs	Terms of Reference
UB	University of Belize
UNCCD	United Nations Convention to Combat Desertification
UNCSD	United Nations Conference on Sustainable Development
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund

VOC	Volatile Organic Compounds
WB	World Bank
WHO	World Health Organization's
WWF	World Wildlife Fund

CHAPTER 1: EXECUTIVE SUMMARY

CHAPTER 1: Executive Summary

ES1.1. Background

The Government of Belize (GoB) requested the Interamerican Development Bank (IDB) support through a Specific Investment Loan (ESP) to increase opportunities for vulnerable populations, promoting natural resource-based economic activities in the post-COVID-19 context. The operation identified as the "Sustainable and Inclusive Belize" Program as BL-L1041 is prepared by the Belize Ministry of Agriculture, Food Security, and Enterprise of Agriculture (MAFSE). This Program's main objective is to maintain and create adequate jobs and improve incomes in the Agriculture and Tourism sectors prioritizing vulnerable populations such as indigenous people, afro descendants, migrants, women, and the young. The operation seeks MSEM's profitability, climate resilience/decarbonization, environmental sustainability, and market access by providing non-reimbursable financial support, technical assistance, and training. The Strategic Environmental and Social Assessment (SESA) aims to guide the overall implementation of ththis operation's Environmental and Social Assessment and Management

ES1.2. Study Areas

The Area studied for the preparation of this analysis embraces the total Area of Belize, 22,066 $km^{2,}$ with an approximate population of 400.000 people.

ES1.3. Structure of the Report

This report is structured into eight (8) chapters: Chapter One (1) is the Executive Summary. Chapter (2) is the Introduction and establishes the background, objectives, the project's description, and the methodological process developed. Chapter Three (3) Program Description; Chapter Four (4) comprises the applicable regulatory framework, institutional framework, IDB standards, and related strategic policies, plans, and programs. Chapter Five (5) presents the strategic socio-environmental characterization. Chapter Five (6) shows the Strategic Options; Chapter Seven (7) includes the Socio-environmental assessment of Impacts and Risks; Chapter Eight (8) Environmental and Social Management System.

ES1.4. Methodology

The methodological framework used for the Strategic Socio-environmental Assessment is based on adapting the guidelines developed in the course: "Concepts, evolution, and perspectives of the Strategic Environmental Assessment" (Partidario, 2011), where the SESA is an instrument to support decision-making decisions of a strategic nature, in policies, plans, and programs. The methodology implemented combines the vision of a planning process with the logic of environmental evaluation, which systematically works consecutive stages within a strategic framework to achieve the proposed objectives. The study's Baseline corresponds to secondary information on Belize obtained from different institutional web pages, specialized studies of organizations, database analysis, and reports from various information sources according to the needs of the Program.

ES1.5. Program Description[1]

The operation will finance goods and services structured in the following components:

Component 1. Support to MSMEs and cooperatives (US$ 11,245,000): The permission to MSMEs and cooperatives is oriented to increasing the quantity and quality (meeting higher technical, social, climate, and environmental standards) of goods produced and services provided in the selected sectors, creating added value and reducing losses and production costs. This component will support (i) the planning at the farm, farmers' organization, and MSME levels in the context of climate change and environmental issues, and (ii) several investments to increase the agricultural sales, reduce the post-harvest losses and reduce the production cost by the farmer's organizations and MSMEs, through the implementation of Business Plans.

Component 2: Policy and Institutional Strengthening (US$ 2´755,000): This component will support the training of rural youth, leading farmers, and MAFSE staff in sustainable agriculture and climate change. It is expected that young people, women, farmers, and technical staff will receive training in the causes of climate change, agricultural consequences of global warming, use of climate-smart practices and technologies, and sustainable management of agricultural land, forest, and agroforestry ecosystems to reduce vulnerability to climate change and improve carbon sequestration.

ES1.6. Socio-environmental characterization

The intervention areas of the Program are located in Belize in Central America. This country covers 46,620 sq km (18,000 sq miles) with approximately 22,967 sq km (8,867 sq miles), including 280km of coastland. The mainland makes up 95 % of the territory, and 5% is represented by more than 1,060 small islands or Cayes[2].

Belize's climate is influenced by three major global/regional climate systems: the Atlantic Ocean Climate System, the Pacific Ocean Climate System, and periodically by North American climate systems changes. The average temperature in Belize is approximately 80°Ft, with average highs of 85° and lows of 73°[3].

The country has two distinct physiographic regions. The first region is the Maya Mountains dominate the central portions of the country, rising to over 1,000 meters above sea level at their highest point. (LDN et al., 2020). The second region comprises the northern lowlands and the southern coastal plain. The topography in the north and coastal areas is relatively flat and low-lying, rising from one (1) meter above sea level in the coastal regions to 250 meters above sea level in the country's extreme west[4].

The land has been categorized into five agricultural land classes, ranging from Class 1 to 5. In general, the soils of these Classes present moderate to severe limitations for agriculture, including drainage, shallowness, low fertility, and lack of moisture in the dry

[1] FAO-IDB, 2022. Draft Cooperative Program "Sustainable and Inclusive Belize Project
[2] NCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change
[3] Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, Belmopan, Belize, 2016. National Biodiversity Strategy and Action Plan, Belize.
[4] Simpson LA. 2010. A Manual of Soil Conservation and Slope Cultivation. Ministry of Natural Resources and Environment, Forest Department. UNDP-GEF. Belmopan, Belize.

season. It is estimated that 16% of Belize's land has the capacity for mechanized agriculture without significant financial and technological investment[5].

The most significant change in land cover between 2000 and 2015 is the loss of forest cover to cropland and pasture. Agriculture (cropland) has grown considerably since 2000, having shown an expansion of 44.96% in 2015. Increases in land degradation and increased land use with lower productive potential and population growth may contribute to further unsustainable forest conversion. The continued reduction of areas under forest cover will decrease Belize's ability to offset GHG emissions (LDN 2020). The use of traditional cultural practices of the "slash and burn" system used by farmers as traditional practices, together with a steep slope and high rainfall conditions, predispose the soils to erosive processes with surface runoff, particularly in the southern zone of Belize[6].

The country has 39 identified river basins, of which 16 are classified as primary and 23 as sub-basins[7]. Groundwater is one of the primary sources of water resources in rural Belize, where 95% of freshwater comes from underground deposits, which are generally extracted through manual pumps and rudimentary systems[8]. According to DOE, 2008 one of the leading water resource problems is the contamination of surface sources at rivers, lakes, mangroves, and coasts.

From 2000 to 2004, Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and Panama imported almost 33 kg of pesticides per year, with 403 active ingredients. 22% of this amount corresponded to pesticides classified as extremely dangerous according to their acute toxicity, 33% were pesticides with two or more moderate or severe topical effects, and 30% had four or more products due to chronic toxicity. Between 2005 and 2009, Belize increased from 408 to 514 tons ay/year in the total quantity of pesticides imported[9].

The country is highly susceptible to natural disasters that regularly affect the country, such as hurricanes, tropical storms, floods, and droughts. In recent years, it has been within the path of the Atlantic Tropical Cyclones[10], which has generated the impact of different hurricanes and tropical storms in its territory with the consequences of relevant socioeconomic losses.

Climate change has significantly increased the rising sea level, the increasing frequency and intensity of tropical storms, the increasing temperatures, and changing the patterns and observed climatic trends in Belize are considered alarming[11]. The IPCC's 2050 projections for Central America predict increasing temperatures causing increasing evaporation losses, decreasing precipitation, shorter rainy seasons and longer dry seasons, increased frequency and intensity of heavy rain events causing rapid runoff or flash floods with consequently increasing erosion, more intense hurricanes and a general rise in extreme events like droughts and floods.

[5] LDN, 2020. Land Degradation Neutrality Target Setting Programme. Final Report.
[6] UNDP-GEF, 2010. A Manual of Soil Conservation and Slope Cultivation.
[7] GWP, (Global Water Partnership) et al., 2011. Situación de los recursos hídricos en centroamerica.
[8] GWP, (Global Water Partnership) et al., 2011. Situación de los recursos hídricos en centroamerica.
[9] Bravo V, et al., 2015. Importación de plaguicidas peligrosos en salud en America Central durante el periodo 2005-2009.
[10] GEF, 2017. Belize Technology needs assessment mitigation
[11] 2019, Green Climate Fund. Consideration of funding proposals - Addendum III

Belize has a variety of terrestrial, marine, and freshwater ecosystems[12]. The country has been more classified explicitly as having eighty-five (85) terrestrial ecosystems, fifteen (15) marine ecosystems, and forty-three (43) different river ecosystems[13]. The country is recognized as global Biodiversity where there is a continuous dependency based on natural resources[14]. The principal pressures and threats to Biodiversity and Ecosystems in Belize are related to Land-use change (deforestation, forest fragmentation, mangrove clearance, wetlands filling); Climate Change; Unsustainable exploitation of natural resources; Pollution (agrochemicals, industrial/urban effluent, solid waste, sewage, sedimentation); Anthropogenic fires; Invasive species; Unsustainable Tourism Practices (exceeding guide/visitor ratios, exceeding limits of acceptable change, poor boating practices, illegal wildlife interactions, negative impacts from large-scale cruise ship tourism) and Natural disasters[15] .

The country has 419,199 people, between rural and urban areas. The total population is distributed in 45%, that is, 187,249 people in urban areas and 55%, corresponding to 231,950bpeople in rural areas (Estimated 2018-2020. Census, 2010). The distribution between men and women is similar where 50 % males and 50% females. The population of Belize is ethnically diverse and multicultural, made up of four main ethnic groups: Creole, Garifuna, Maya, and Mestizo[16]. According to the 1991 population census, approximately 30,000 to 40,000 immigrants lived in Belize, while other sources have cited more than 60,000 immigrants, who make up about a fifth of the total population. (CEPAL, 2005).

Belize, in 2010 was in the last position (131) on the Global Gender Gap Index in the area of political empowerment of women. In addition, the United Nations has classified Belize as out of place regarding the promotion of gender equality and the empowerment of women, the goal #3 of the Millennium Development Goals (UNDP 2013). This classification was based on the proportion of women employed in the non-agricultural sector and the proportion of women's seats in the National Parliament.

The World Bank's 2009 Belize Country Poverty Assessment shows that the population living below the poverty line increased from 34% in 2002 to 41% in 2009. The proportion of households living below the poverty line increased from 25% in 2002 to 31% in 2009[17].

Concerning land tenure, the country is divided into national land (owned by the Government, including lease-land), forest reserves, private land, and Indian reservations. The forest reserves are held and administered by the Government. However, large tracts of current forests are logging concessions, while others are protected. In some cases, for example, in the district of Toledo, the system around indigenous peoples is a mix of reservations, leases, private land, and informal arrangements (Kongsager, R. 2017).

[12] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.
[13] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.
[14] Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, Belize, et al., 2016. National Biodiversity Strategy and Action Plan 2016-2020.
[15] NBSAP, Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, Belize, et al., 2018. National Biodiversity Strategy and Action Plan 2016-2020.
[16] Ministry of Health, 2014. Belize Health Sector Strategic Plan
[17] CIAT; World Bank. 2018. Climate-Smart Agriculture in Belize. CSA Country Profiles for Latin America and the Caribbean Series.

The Agriculture and Food Sector remains one of the main pillars of the Belizean economy. It is considered by the Government to be one of the main engines of economic growth. (Ministry of Agriculture, 2015). The economy contributes approximately $590 million annually to economic output, representing 80% of domestic exports, and directly employs 17.9% of the Belizean population (Ministry of Agriculture, 2018).

ES1.7. Environmental and Social Impacts and Risks

The operation has been classified as **Category B** by the IDB due to the possible indirect environmental and social impacts on natural habitats and indigenous territories by MSMEs financed for the agriculture and tourism sector operation. Environmental and social impacts are likely to be moderate, temporary, and localized, for which mitigation measures are readily available[18].

The impacts identified correspond to direct impacts because, according to the analysis carried out, the Program will not have indirect effects, nor will it contribute to their generation. Likewise, due to the nature of the Program towards the inclusion of vulnerable groups such as indigenous peoples, Afro-descendants, migrants, women, and youth within the framework of climate resilience and environmental sustainability, most of the impacts have been identified as positive but due to related activities. With the execution of agricultural activities, construction of infrastructure, and equipment assembly in the Program components, negative impacts require socio-environmental control measures.

- **Positive Impacts**

In the construction stage, the Program will generate positive impacts such as:

The potential positive impacts are: Farm management, Reduction of contaminants due to good agricultural practices, Recovery of fauna and its connectivity, Decreased loss or deterioration of aquatic systems, Increase in sustainable economic activities, Improvement of productivity, and Increase in the dynamics of associativity, Improvement health protection, Employment increase, Increase in the labor force, Support the Improvement of degraded lands, Promote the use of equipment with green technologies, Increase and consolidation of vegetal covers, Proper use of forest resources, Improvement of infrastructures to support economic activities, Inclusion of the vulnerable population, Cost minimization implemented environmental technologies, Efficiency in production systems, Improvement in post-harvest activities, Land use planning, New economy activities.

- **Negative potential impacts and Risks**

The negative impacts of the Program are identified in the construction, operation, and closure stages. The following is a general analysis of the negative impacts and relevance of the standards for the Program:

[18] IDB, 2022. Initial Environmental and Social Review Summary

➢ Potential Environmental impacts and risks

Increased pressure for water use: The risk associated with reducing water resources generated by the increase in crops and the demand for water in agriculture can cause social conflicts over water use. The water available for social use will receive more significant pressure to ensure that the production systems improve productivity and area. The excessive use of water for agricultural activities plus other consumptive uses in certain hydrographic basins of the country can generate a risk of imbalance in the hydrological cycle of water.

Soil removal: Removing the soil during the construction works in the preliminary and excavation phases of execution will generate movements of the land and solid waste considered moderate in scale. In some areas of Belize with soil susceptibility characteristics, soil removal can generate risks related to erosion, loss of nutrients, contamination, and physical alteration of soil.

Increased pressure on protected areas: The excessive influx of tourism to Protected Areas can generate risks for these areas related to disturbance of fauna, destruction of vegetation, contamination by waste, erosion of roads, extraction of natural objects, among other aspects.

Wastewater (black and gray) will be generated in the different execution activities, operations, or close of the projects, for example, the production of excreta by the people who work on the site and the use of water for the different construction activities.Discharging domestic, construction, agricultural, and livestock wastewater without treatment causes contamination of receiving water bodies, reducing the quality of surface and groundwater, putting the population's health and the integrity of ecosystems at risk.

Likewise, the risk associated with the inappropriate use of chemical products is generated by producers who do not want to adopt environmental practices that reduce the use of agrochemical fertilizers and continue to make inefficient use of these products with effects on aquatic ecosystems.

Noise pollution and dust generation may be generated by using machinery and equipment to execute works and by increasing vehicle traffic around the site where the work is being carried out. Likewise, particulate dust may be generated, excess dust resulting from handling inert materials such as cement and clay. Excessive and constant noise can significantly cause risks to human health when sounds exceed 65 decibels (dB). Likewise, air pollution can increase the risk of respiratory infections, heart disease, and stroke.

Presence of solid waste: The solid waste generated in construction activities is classified according to the composition and quantity generated, the process from which it comes and the technology used in the processes it prevents. At a general level, solid waste from a work is classified as: i) General solid waste: includes metal waste, paper, cardboard, wood mixtures, fabrics, paint cans, plastics, pieces of used materials, foams, waterproofing, etc.; ii) Stone waste: Includes inert waste products from demolitions, construction remains, residues from solidified mixtures such as concrete, cement, brick, stucco, clay, stone, mortar, etc; iii) Hazardous waste. Among the main potential impacts due to the presence of garbage is the visual impact, the presence of animals and the formation of leachates that can generate risks when these leachates fall on the soil and water resources.

➢ Potential Social impacts and risks

Pressure towards land use change: The pressure for the change of land use for the implementation of agricultural projects or some type of infrastructure can generate a risk of reduction of forest cover, especially in areas with degraded soil characteristics.

Change in the social environment due to project activities in the Program's benefits under the opening of dialogue processes. This impact has associated risks: (i) The risk is related to the implementation mechanisms for the Program's execution. The inclusion of vulnerable groups will require time and spaces for dialogue, especially with indigenous peoples, which may delay the start of some subprojects. (ii) The risk associated with discrimination in the participation of women when they need to attend to housework and, at the same time, carry out other agriculture activities that require more time to start the subprojects. (iii) The risk associated with the non-appropriation of new planting techniques by indigenous people. (iv) Detriment of labor conditions for migrants.

Increase in migrations and territorial dynamics: The increase in international migrants may lead to unfavorable working conditions for them compared to working conditions for Belizeans

Occupational accidents during the assembly and operation stages. The risk is associated with occupational safety. Some of the Program's beneficiaries may acquire equipment that they do not know how to handle, generating exposure to accidents due to their ignorance. Also, some people will be exposed to occupational hazards in the different phases of the Project.

Other associated risks are:

The risk associated with land speculation: This risk may arise considering that the Program will support agricultural activities based on land, which could generate interest in land cost speculation. The impact of this speculation could be received by some landless people, especially vulnerable groups, who could seek alternatives to participate in the Program's benefits by buying or leasing the land.

The risk associated with possible cross-border effects: The territorial conflict of more than 11,000 km2 requested by Guatemala from Belize, which is currently in the International Court, may increase migrations and implications of social disputes over the territory.

The risk is associated with monitoring the socio-environmental component in the subprojects of the Program. This risk can arise due to two factors: first, the limited presence of professionals or technicians in this specialty in the country, and second, the low economic income that working in Belize would represent for a foreign professional.

ES1.8. Socio-environmental management measures

The environmental and social measures establish a set of actions to prevent, mitigate, restore, or compensate for the different environmental and social impacts and risks evaluated in the SESA. The environmental and social measures for the ESPS Program are detailed below:

Program 1 Soil management and control. The purpose of this Program is to prevent the possible impact on the soil quality due to the Program's works. Likewise, the Program seeks to control erosive processes and soil compaction in areas susceptible to environmental degradation. The following actions are proposed for this program: i) Soil protection and management of erosive processes, and ii) Management of earthworks and surplus material

Program 2: Micro-watershed management: The proposed actions are based on managing natural resources and their relationship with the environment, especially water resources. This program seeks to support the maintenance of the hydrological cycle and its relationship with the flora and fauna populations, the resilience of socio-ecological systems, and the provision of Ecosystem Services. This Program includes i) Training and awareness in water resource management; ii) Micro-watershed Management Plan; iii) Protection of recharge areas and springs; iv) Training in the substitution of fertilizers and pesticides by bio-inputs and IPM.

Program 3: Protection of the forest and biodiversity: This Program seeks to establish environmental actions for the prevention, control, mitigation, and correction of the potential damage that some project activities of the Program could produce on forest resources. This Program include: i) Awareness in Protection and conservation of strategic ecosystems; ii) Environmental education and resilience to climate change.

Program 4: Good Environmental Practices: The purpose of the Good Environmental Practices Program is to incorporate good environmental performance for the different projects of the Program as a complement to the ESPS, the environmental regulations, and technical regulations. This Program includes: i) Pollution control of polluting liquid substances; ii) Management of noise, air emissions and atmospheric effects and, iii) Solid waste management.

Program 5: Strengthening for the Participation of vulnerable groups: The objective of this Program is to achieve a harmonious relationship between the community and the development of the Projects with the purpose of generating sustained effects over time. This Program includes: i) Linking strategy for vulnerable groups; ii) Dialogue of knowledge; iii) Protocol of equal working conditions; iv) Indigenous People Plan19 and v) Gender, and Diversity Action Plan[20].

Program 5: Environment and Tourism: This program seeks to strengthen tourism management in Protected Areas. The purpose is to raise awareness of establishing the visitor load capacity[21] of visiting sites to prevent excessive use and the environmental consequences that derive from it. This Program include: i) Awareness of good practices of sustainable tourism; ii) Participatory management and sustainable tourism.

Program 7: Occupational health: The proposed program to mitigate the impacts and risks of the Health and Environment. This Program aims to guide mitigation actions on people's health, safety, and well-being on issues related to health conditions and the obligation of companies or contractors to provide safe spaces and activities that protect people. This Program includes: i) Management of accidents and occupational risks.

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19 IDB-Hulse,2022. Sustainable and Inclusive Belize Program. Sociocultural Analysis and Indigenous Peoples Plan.

20 IDB-FAO, 2022. Sustainable and Inclusive Belize Program. Gender, Youth, and Indigenous People Assessment

21 The Tourist Load Capacity is defined as the maximum number of visitors above which the ecosystem cannot maintain its productivity, adaptability, and regenerative capacity.

ES1.9. Conclusions

Once the impact and risk assessment has been carried out, the following conclusions are reached:

- As a result of the assessment process, it was verified that operation BL-L1041 continues to be classified as "Category B," where the socio-environmental impacts are of a small and medium scale of intervention. Likewise, it is expected that the impacts resulting from the different activities implemented by the Program will be temporary, and localized and that socio-environmental measures will be available for their management.

- As a result of the negative impact analysis, the following ESPS are activated: ESPS 1: Assessment and Management of Environmental and Social Risks and Impacts; ESPS 2: Work and Working Conditions; ESPS 3: Efficiency in the Use of Resources and the Prevention of Contamination; ESPS 4: Community Health and Safety; ESPS 6: Conservation of Biodiversity and Sustainable Management of Living Natural Resources; ESPS 7: Indigenous Peoples; ESPS 8: Cultural Heritage; ESPS 9: Gender Equality and ESPS 10: Participation of Stakeholders and Information Disclosure

- At the level of risks, the following were identified: (1) The risk associated with water reduction; (2) The risk associated with the inappropriate use of chemical products; (3) The risk is associated with forest loss; (4) The risk is related to the implementation mechanisms for the Program's execution; (5) The risk is associated with discrimination in the participation of women; (6) The risk associated with the non-appropriation of new planting techniques; (7) The risk is associated with generating of possible social conflicts due to inequity; (8) The risk associated with working conditions; (9) The risk associated with the detriment of natural resources, or health impacts; (10) The risk associated with health and safety.

- Once the assessment of the impacts was carried out, it was determined that no impact qualifies as a "Severe impact." The potential impacts in the construction, operation, and closure stages are due to specific interventions in spatial terms. Later, the environment will return to the initial conditions in a short period. For this reason, the impacts are considered internally. That is, they can be fully controlled by the prevention and correction measures contemplated within the Environmental Management Plan.

CHAPTER 2: INTRODUCTION

CHAPTER 2: Introduction

2.1. Objectives[22]

2.1.1. General Objective

The general objective of this consulting was to prepare a Strategic Environmental and Social Assessment to identify the environmental and social risks and impacts of the Program, following the framework of the IDB's socio-environmental policy and the Environmental and Social Performance Standards (ESPS).

2.1.2. Specific Objectives

The specific objectives of the consultancy were: (i) Prepare the Environmental and Social Management System (SGAS) specific to the Program. (ii) Prepare the Strategic Environmental and Social Assessment (SESA) and the Environmental and Social Management Frameworks (ESMF). (iii) Support the preparation and execution of a public consultation process with stakeholders.

2.2. Methodological Framework

2.2.1. Baseline

The study's Baseline corresponds to the collection and compilation of secondary information on Belize obtained from different institutional web pages, specialized studies of organizations, database analysis, Geographic Information Systems, and reports from various data sources according to the Program's needs. The primary information of the study corresponds to the field visits to the Borrower, areas of influence and the information provided by the actors in the public consultation process carried out for the Program.

2.2.2. Intervention Area

The intervention area of the Sustainable and Inclusive Belize Program includes the total area of Belize, 22,966 km^2.

2.2.3. Socio-environmental area of influence

The socio-environmental area of influence of the Program corresponds to the geographic area resulting from the analysis of the identification and evaluation of the socio-environmental impacts and potential risks. This area spatially determines the Program's implications on the vulnerability of the socio-environmental components in a specific geographical framework according to the Physical, Biotics, Social, Economic, Management, Legal, and Heritage topics.

[22] IDB, op. Cit

2.2.4. SESA

The methodological framework used for the preparation of the SESA takes as its starting point the guidelines developed in "Concepts, evolution, and perspectives of the Strategic Environmental Assessment." (Partidario, 2011)[23]. Under this methodological framework, the Strategic Environmental Assessment is a systematic instrument for identifying, analyzing, and prior evaluating impacts of a strategic nature that will serve as support for decision-making. The methodological process includes the following phases:

Phase 1: Context analysis

- **Definition of the scope of the SESA**

The selected model is the "parallel model," depending on how the evaluation object is designed in parallel, independent, but coordinated with the SEA (Partidario, 2011). In this case, "the object of the evaluation" is the "Sustainable and Inclusive Belize Program," designed while the Strategic Environmental and Social Assessment is developing.

- **Characterization of the national context**

The national context is characterized by the development of the socio-environmental Baseline and the knowledge of the national regulatory framework based on the perspective of sustainable development. The systemic perspective of sustainable development postulates that development results from balanced management between the environmental, social, economic, and institutional dimensions where the following functions:

  - The environmental subsystem guarantees the environmental sustainability of the development.
  - The social subsystem has special priority since it contains the end of development, that is, improving the quality of life of human beings.
  - The economic subsystem includes production, trade, goods and services, infrastructure, and settlements.
  - The institutional subsystem seeks to promote and control, under laws, regulations, and instruments, the organization of society towards the proposed development objective.

Phase 2: Strategic analysis

This phase constitutes the central part of SESA and focuses on applying strategic analysis tools to guide decision-making under the following activities:

- Characterization of the Strategic Reference Framework comprises the scope of the plans, policies, and programs (PPP) in which the Program is evaluated.

[23] "Course on Strategic Environmental Assessment", Santiago de Chile, October 2011, Taught by Dr. Rosario Partidario

- Definition of the strategic objectives: This activity includes the identification, discussion, and analysis of those critical issues to achieve the Strategic Objective of the Program.

- Identifying the main socio-environmental aspects is based on the national context and the analytical framework of the different systems, resulting in the main aspects of the problem that characterize the environment in which the Program will be developed.

- Strategic Formulation is those elements that allow, facilitate, prevent or hinder achieving the objectives set out through the Strategic Objective (SO) of the Program.

- Stablish of Strategic Options and critical factors for decision

- Evaluation: It includes the Assessment of each critical factor under selected criteria and indicators, looking for, above all, that they are representative of the factor analyzed.

  The methodological process for the environmental and social evaluation is based on a matrix evaluation and interdisciplinary group work. The matrix includes the definition of program actions and environmental components likely to have a potential impact or risk. The analysis is carried out for the Construction, Operation, and Closing stages, including the post-closing stage. Below is a general overview of each step:

  1) Identification of environmental Factors

  Once the critical factors were identified, they were grouped by socio-environmental components, taking the strategic reference framework and the environmental and socioeconomic characterization as a starting point.

  2) Socio-environmental impact interaction matrix

  The identification of impacts was carried out by elaborating an interaction matrix whose entries in the columns correspond to the Strategic Options related to the Program actions with the potential to cause a change or impact, either positive or negative.

  The interaction between Strategic Options and environmental factors according to the stage of development of the Program makes it possible to identify and describe the perceived changes. Each interaction is assigned a code consisting of the consecutive letter identifying the project action and the following number identifying the environmental factor.

  2) Identification and characterization of impacts

  The identification and characterization of the impacts allowed them to be classified into direct, indirect, and cumulative impacts under the following definitions:

  - **Direct Environmental Impact** refers to that impact that is appreciated immediately or in a short period.

  - **Indirect environmental impact** refers to the effect's perceptible after a long time.

  - **Cumulative Environmental Impact** is an impact whose effect results from past impacts or what is happening in the present.

Phase 3: Validation

This activity identifies and establishes a group of relevant stakeholders to enrich the SESA development process and consult and validate the analysis results.

2.2.5. Premises and limitations of the study

a. Premises

P1. The socio-environmental evaluation was carried out for Components I and II of Operation BL-L1041, whose actions aim to support the agricultural and tourism sector in Belize. This support involves adopting new technologies and support for the construction of small physical structures. For this reason, the scope of this study does not apply to specific physical works or activities to be carried out by each project beneficiary since the particular actions must comply with current national environmental regulations and the IDB's ESPS at the time of execution.

P2. Environment or natural ecosystems. Considering that some of the subprojects of the Program may be located in Protected Areas of Belize, it is established that the actions proposed by the Program must be consistent with the ecosystemic purpose of these areas. The socio-environmental evaluation assumes that the subprojects will be located on land previously established for "agricultural use" and will not require a change from forest use or protection to crops. In other words, no program activity will be aimed at carrying out inappropriate interventions in protected areas.

b. Limitations

L1. One of the main limitations of this study is the lack of up-to-date statistical information since most of the secondary information records are outdated.

L2. The maps presented in the document correspond to secondary information because at the level of Geographic Information Systems, no free-use digital files were found, which did not allow better spatialization of the data.

CHAPTER 3: PROGRAM DESCRIPTION

CHAPTER 3. Program description

3.1. Background[24]

Like many countries in the region, Belize has presented the consequences of the COVID-2019 pandemic, affecting different national development sectors. Some of the most relevant affectations in Belize are the agricultural and tourism sectors. The agriculture sector is a significant source of income for Belizeans, primarily low-income households (Hersh et al., 2019). This sector could play an essential role in fighting rural poverty, which is significantly higher than urban poverty (59% vs. 43% – SIB, 2018), and in improving the country's food security and nutrition, in a context where 6% of the population are undernourished and 13% of children under five years of age are stunted (FAOSTAT, 2020; IDB, 2020). Most Belizean farmers are small to medium-sized landholders: 25% work on farms with less than 2 ha, and 57% with less than 8 Ha.

Moreover, the agricultural sector faces meaningful climate change (CC) and environmental sustainability challenges. Models developed by IFPRI suggest that the area and the yields of beans, corn, and vegetables will decrease due to CC, and yields increase will be negatively affected for sugarcane, tropical fruits, rice, and cacao. Furthermore, due to negative CC impacts on agriculture, Belize will be the most affected of all LAC countries in terms of poverty (+1,28%), crop imports (+13.5%), and a decrease in GDP (-1.8%) (Banerjee et al., 2021). According to the Yale Environment Performance Index 2020, which measures efforts to support healthy populations while minimizing the threats of agriculture to the environment, Belize ranks 155 of 180 countries, with a low 19,9/100 score, losing 10.1 points since 2010 and far below the 32.7/100 regional average.

The tourism sector faces several structural challenges which are fundamental for the sector's long-term competitiveness and sustainability. First, limited tourist expenditure: Even though the tourism sector showed a positive growth rate before the pandemic, most of it was associated with cruise ships instead of overnight visitors, generating more expenditure per capita (IDB, 2020). The second is a lack of a skilled labor force (Chow, 2019). The third is the vulnerability of the country's valuable natural resources. It is estimated that Belize's coral reef and mangroves provide goods and services around US$559 million annually (Cooper et al., 2009), supporting activities such as diving, snorkeling, and sport fishing, with 60% of Belize's yearly tourists visiting Belize Barrier Reef and offshore islands (Cherrington, 2014), and providing shoreline protection against erosion and coastal flooding. However, the concentration of the tourism footprint in a limited number of hot-spots destinations in the coastal area has contributed to the degradation of natural resources, which is aggravated by the lack of appropriate sanitation and solid waste disposal systems in some underserved areas (Chow, 2019; IDB, 2020). To seize the opportunity generated by the pandemic to "build back better," tourism development in Belize should (i) integrate crisis response strategies into tourism policies, particularly intending to increase risk governance of tourism destinations; (ii) harness the potential to develop regional or domestic tourism to increase resilience in times of global obstacles; (iii) strengthen the local entrepreneurial capacity to enhance and qualify the tourism value chain, increasing competitiveness and livelihood alternatives; (iv) All at the same time as protecting its natural resources, which form the base of its attractiveness.

[24] BID, 2022. Project Profile

3.2. Objectives and components [25]

The objectives of this operation will be to improve incomes in the **Agriculture and Tourism** sectors, prioritize vulnerable populations such as indigenous peoples, afro descendants, migrants, women, and youth and promote sustainable livelihoods in the agriculture and tourism sectors. The operation seeks to improve MSMEs' profitability, climate resilience/decarbonization, environmental sustainability, and market access by providing non-reimbursable financial support and technical assistance and training. The operation will finance goods and services structured in the following components:

Component 1. Direct support to farmers, agricultural groups and MSMEs for sustainable and inclusive development (IDB: US$11,245,000).

Sub-component 1: Environmentally sustainable, and climate resilient farming systems. To promote the adoption of environmentally sustainable practices, increase climate resilience and agricultural productivity, the project will finance the following activities:

a. ***Technical Assistance (TA),*** with gender and socio-cultural approaches, will be provided for 2 to 3 agricultural cycles. Technical assistants will accompany beneficiary farmers in: (a) the elaboration of a farm plan, a roadmap to improve the farm's organization and management to achieve profitability and sustainability goals; (b) the implementation of the farm plan, including follow-up visits to provide technical advice on production, climate-smart and environmentally sustainable practices, and or standards required to enter formal markets; and (c) farm management (e.g. basic accounting) and, access to market information (e.g. market requirements, financing opportunities, etc.); (d) Support to registration in BAIMS (requirement to obtain financing), if needed. Technical assistants will also organize and facilitate collective training and learning-by-doing activities such as farmers field schools. A gender approach to TA will be implemented to promote women' participation (i.e. considering domestic burden, childcare, language barriers, etc. The eligibility criteria will ensure that indigenous farmers will be included, and MoU will be signed with indigenous authorities (alcaldes) to ensure participation of indigenous women.

b. ***Green Innovation Vouchers (GIV)*** will be provided to farmers to partially finance the implementation of their farm plans with the support of the technical advisers. The eligibility criteria for the investments to be financed are: (i) inputs/equipment must be are included in the pre-established menu of authorized technologies , (i.e. climate-smart and environmentally sustainable inputs and equipment to support: farm diversification, agroforestry and silvopastoral systems, fodder banks, high quality planting material,; good practices in soil and water management, substitution of chemically synthesized fertilizers and pesticides by bio-inputs, ; water storage and drip irrigation with solar pumps;, cover structures,; among others); (ii) the inputs/equipment selected by the farmers contribute to the implementation of their farm plan; (iii) the inputs/equipment are exchanged with the GIV through a private provider accredited by the project. GIVs will have a maximum amount of US$2,000, and will be provided (along with TA) to approximately 1,500 farmers, who will meet the following eligibility

[25] IDB, 2022. Proposal for Operation Development. Sustainable and Inclusive Belize Program

criteria: (i) present proof of land tenure security, according local standards (i.e. not necessary an property title; it could be possession ,right, community or collective land usufruct); and (iii) being a small farmer (from 0.5 acres to 20 acres); and (iii) commit to register in the BAIMS, if not yet the case. Beneficiary farmers for TA and GIV will be selected among the eligible ones through public random, except in indigenous areas where culturally appropriate selection mechanisms will be implemented, validated by the communities. Previous communication campaigns with cultural relevance (e.g. language, communication channels, etc.) will massively inform about the opportunities offered by the project, the eligibility criteria, the complaint mechanisms, etc. 250% of vouchers will be reserved for women, and 15% to indigenous farmers.

Sub-component 2: Sustainable and Inclusive Agri-Food Markets to increase competitiveness and access to markets, the project will finance:

a. ***The preparation of Green Agri-Business Plans (GABP)*** for approximately 40 Farmers Groups (FGs), with an estimated total of 1000 individual beneficiaries, considering an average of 25 member for each FG; and 80 MSMEs, with an estimated total of 320 individual beneficiaries, considering an average of 3 employees for each MSME. MSMEs (not FGs) will have to present evidence of having conducted business activities for at least one year prior to registering in the project. The GABP will include investments that aim to improve access to markets, with emphasis on environmental sustainability and/or climate resilience, including: storage, processing, transportation, market intelligence, compliance with formal requirements (registrations and legal certificates), certifications (i.e. environmental, fair trade, etc.), digitalization, diversification, ; among others. To elaborate the GABPs, the project will finance and managerial advice to FGs/MSMEs through “business advisors”. The business advisor will also provide, during an estimated period of 3 years, technical assistance to the FG/MSME in topics such as: formalization/registration and elaboration of financial statements, business management, financing, and market opportunities among others.

b. **The implementation of Green Agri-Business Plans (GABP)** for approximately 20 FGs (estimated total of 500 individual beneficiaries) and 40 MSMEs (estimated total of 160 individual beneficiaries). To that purpose, FGs could receive a grant up to a maximum amount of US$75,000; and MSMEs could receive a grant for a maximum of US$25,000. To be eligible to financing, the GABP will meet the following criteria: (i) proof of formal legal status of the FG/MSME; (ii) proof of land tenure when the GABP includes the construction of infrastructure facilities; (iiii) profitability and financial viability assessment; (iv) socio-environmental management strategy; (v) others included in the MOP. Qualification criteria of GABPs; will include (ii) evidence that investments to be implemented are low carbon or environmentally sustainable (e.g. solar panels, waste reuse or reduction, circular economy practices;(iii) others included in the MOP. It is expected to finance initiatives of innovative environmentally friendly technologies; transformation and value addition of production, maintenance and improvement of quality, reduction of losses and waste, storage, and collection (improvement of processes within the production process), diversification of products and use of by-products (new markets), among others. Eligible GABP’s expenses will include TA and training; small infrastructure facilities, goods, equipment and machinery; costs of formalization, certifications and registrations; as well as all the costs associated with the implementation of the socio-environmental management strategy that will be part of the GABP.

Sub-component 3: Sustainable and Inclusive Tourism. To address competitiveness, sustainability, and resilience entrepreneurship the project will finance:

a. **The preparation of Sustainable Tourism Business Plans (STBP)** for approximately 200 MSMEs in the tourism sector. Eligibility criteria for beneficiary MSMEs will include: evidence of having conducted business activities for at least one year prior to registering in the project. The STBP will include investments that aim to reduce negative environmental externalities, enhance innovation and digitalization, and support and market intelligence. To elaborate the STBPs, the project will finance managerial advise to MSMEs through "business advisors. The business advisors will also provide technical assistance to the MSMEs in topics such as: formalization/registration and elaboration of financial statements, business management, financing, and market opportunities, among others.

b. ***The implementation of approximately 150 STBP***, for an average amount of US$15,000. To be eligible to financing, the STBPs will meet the following criteria: (i) proof of formal legal status of the MSME; (ii) proof of land tenure when the STBP includes the construction of small facilities; (iii) profitability and financial viability assessment; (iv) socio-environmental management strategy; (v) others included in the MOP. Qualification criteria of STBP will include: (i) evidence of the STBP's financial sustainability; (ii) evidence that investments to be implemented are low carbon or /environmentally sustainability (e.g. individual sewage/waste management solutions, reuse or reduction, circular economy practices, among others) (v) others included in the MOP. Eligible STBP's expenses will include: training, goods, equipment, and machinery, costs of formalization, certifications and registrations; as well as all the costs associated with the implementation of the socio-environmental management strategy that will be part of the STBP.

Component 2. Enabling environment for sustainable and inclusive development (IDB US$2´755,000).

To contribute to the sustainability and scaling-up of results, this component will finance:

a. ***The creation of a Skills Development Ecosystem*** for sustainable and inclusive the agriculture and tourism sectors. This includes: (i) The establishment of an industry-led body (hereafter the skills consortium) to identify skills needs, set standards, and chart career pathways; (ii) design and implementation of certified training programs to MSMEs owners and MSMEs employees, and to future service providers (such as agricultural technical advisors) in the areas of sustainable tourism and agriculture; (iii) A train-the-trainer program; (iv) strengthening of quality assurance mechanisms for the skills development system which includes mapping of training providers' characteristics and enhancement of quality standards to measure training provider performance based on quality of teaching and learning outcomes.

b. ***The upscale of the existing "Climate Risks Information System"*** (CRIS) to a "Climate and Environmental Risks Information System". to incorporate key environmental information for the long-term competitiveness and sustainability of the agriculture and tourism sectors and enhance system-users approach.

c. ***Market information Systems***. This includes the strengthening of Agrilinks Belize, a platform that links farmers to buyers; as well as to support the development of the first stages of a Tourism Market Intelligence System at BTB.

d. ***The design and pilot implementation of Green Certification Schemes*****.** One pilot will be implemented for the tourism sector and, one for the agricultural sector, considering the potential benefits to develop linkages between both sectors the pilots will ideally be implemented in the same territory to obtain economies of scale.

e. ***Communication and public information campaigns*** on climate and environmental risks and on resilient, low carbon and environmentally sustainable practices in agriculture and tourism, to increase awareness and enhance more responsible behavior from MSMEs and visitors.

Other (IDB: US$1,000,000). This category includes administration, monitoring, evaluation, and auditing costs.

3.3. Beneficiaries of the Program

The beneficiaries will be small landholder farmers, members of agricultural groups, and owners and employees of MSMEs in the agriculture and tourism sectors. Sub-component 1.1 is expected to directly benefit 1500 individual farmers (375 women; 225 indigenous people;130 migrants); Sub-component 1.2 is expected to benefit 10 farmers organized in groups and 320 owners and employees of agricultural MSMEs; and Sub-component 1.3 is expected to benefit approximately 1400 owners and employees of tourism MSMEs. Component II will benefit approximately 650 trainees under the Skill Development Ecosystem, while other outputs will benefit all the actors in the tourism and agricultural sectors. The operation will have a countrywide coverage.

3.4. Socio-environmental area of influence

The area of influence includes the spatial scope where the present and potential environmental and social impacts to occur as a result of the execution and operation of the project activities are manifested.

The socio-environmental area of influence of the BL-L1041 project was determined based on the analysis and identification of the potential socio-environmental impacts and the risks in which the project could have implications for the vulnerability of the environmental components. As a result, the following areas of influence were defined:

Direct Influence Area: This area is defined within the limits of the physical space where the project activities affect the socio-environmental components of the area, considering the direct impacts, including those of greater or lesser magnitude and intensity.

Indirect area of influence: Understood as the physical space where the project could generate indirect impacts; that is, those that occur in a different space from where the action that generated the socio-environmental impact took place.

1. Direct Influence Area (DIA)

For the delimitation of the Area of Direct Influence (AID), the following criteria were used (Figure 1):

Criterion 1: Location of the activities of the Agricultural sector

Belize's agricultural sector operates in the rural areas of the country. These rural areas are located in the districts of Corozal, Orange Walk, Belize, Cayo, Stan Creek and Toledo.

Criterion 2: Location of tourism sector activities

Belize's tourism sector is developed mainly in rural areas of the country, specifically in national protection areas such as Forest Reserves, Nature Reserves, Nature Parks, Private Reserves, Wildlife Sanctuaries, Marine Reserves, Natural Monuments, Archaeological Reserves, Bird Sanctuaries, and Spawning Aggregation Reserves.

In addition, internationally recognized sites are also located in the rural area, such as (i) Two large forest nodes: the Maya Mountains and Part of the "Selva Maya"; (ii) Two RAMSAR sites (wetlands): Crooked Tree, Sarstoon; (iii) The Belize Barrier Reef is a globally significant network of the marina

Figure 1. Areas of socio-environmental influence

Source: Own elaboration, 2022.

2. Indirect Influence Area (IIA)

For the delimitation of the Area of Indirect Influence (IIA), the following criterion was used:

C1: Political-administrative delimitation

The politically administratively delimited major urban areas and minor population centers in Belize have been determined as the Indirect area of Influence (Figure 1). This Area of Indirect Influence will have indirect socioeconomic effects in that it may generate or strengthen distribution centers for the sale of products in the agricultural and tourism sectors, depending on the development of the different Program projects.

CHAPTER 4: REGULATORY FRAMEWORK

CHAPTER 4. Regulatory Framework

The Sustainable and Inclusive Belize Program is governed by the regulatory framework of the National Constitution of Belize, by its laws and regulations. The Constitution is the supreme law under section 2 and takes precedence over sub-national or sectoral legislation and regulations. The agriculture and tourism sectors in implementing the Program are governed by national, subnational, or sectoral laws. The agriculture sector is governed by the Ministry of Agriculture, Food Security, and Business. This Ministry has a Department of Agriculture and another of Cooperatives, which are in charge of carrying out the functions for developing and controlling the agricultural sector.

The Ministry of Tourism and Relations with the Diaspora governs the tourism sector, in charge of dictating the policies and regulations for this sector. The Ministry has a Department of Tourism Operations and another of Foreign Investment Tourism Operations, responsible for the sector's sustainable development.

4.1. Regulatory framework applicable to the Project

The most relevant aspects of the country's regulatory, institutional, and policy framework are presented below concisely. In addition, the applicable laws, regulations, and rules with their executing institutions at the national, subnational, or sectoral level relevant to the Project's environmental and social aspects are included. Next, Tables 1,2,3 and 4 show the Laws and Regulations applicable to the Program, with a brief description.

Table 1. Laws and Regulations for the Agricultural Sector

Reference	Date	Government level	Key points	Description	Requirements applicable to the Project	Responsible Authority
AGRICULTURE SECTOR						
Forest Law, Cap. 213	Revised Edition 2000	National	Establishes forest and mangrove reserves. It shows the norms for its administration. Specifies the requirements for legal production. Set compensation and penalties.	This law seeks to protect and conserve forests and mangroves. In addition, it establishes the requirements for legal production, compensation, and penalties in case of non-compliance with these regulations.	The project will develop actions to improve agricultural production, seeking the protection of forests and must follow the regulations established for its legal production.	Forest Department, Ministry of Sustainable Development, Climate Change and Disaster Risk Management
National Lands Act, Cap. 191	Revised Edition 2000	National	Classification of National Lands. Disposal of National Lands. Exceptions. Leases. Sale of National Lands. Reserve Regulation. Resolution of land occupation conflicts.	This Law establishes the classification of National Lands, their uses, and exceptions. It creates the regulation of the Reserves and issues the formulation of the resolution of conflicts of occupied lands.	The areas involved in the Project must abide by the National Land Law, in terms of its use, regulation and classification.	Ministry of Nature Resources
Land Development Authority Act, Cap. 181	Revised Edition 2000	National	Establishes the regulations to acquire, develop and improve, including providing infrastructure for roads, bridges, drainage, and irrigation. Promotes increased land development. The standard for the possession, rental, and operation of machinery for agricultural development.	This law issues the rules for land development in its acquisition, possession, rental, and operation of agricultural machinery. In addition, it promotes land development to improve infrastructures such as drainage and irrigation.	The Project can propose the development of lands that are still unexploited at the level of agriculture. It will offer land development through small-scale infrastructure improvement.	Ministry of Nature Resources
Banana Industry Act, Cap. 205	Revised Edition 2000	National	Regulation of the banana industry. Establishes prohibitions on plantations in areas designated for banana cultivation. Requirements for the issuance of licenses.	The agreement aims to ensure that international trade in specimens of wild animals and plants does not constitute a threat to their survival.	The project may develop new crops to create new adequate jobs, which must take into account the areas where banana cultivation is prohibited, according to this Law.	Ministry of Agriculture, food security and enterprises
Citrus (Processing and Production) Act, Cap. 277	Revised Edition 2000	National	Regulation for issuing export control and processing licenses for the citrus industry. Establishes control for citrus production. Determines citrus prices between individual growers and the Association.	Los cultivos nuevos o los existentes donde se contemple la producción de cítricos deberán seguir los controles y regulaciones según esta Ley. Esta Ley determina la regulación para las licencias en caso de control y procesamiento de productos cítricos.	The project may develop new citrus crops or improve existing ones, which must consider these regulations and controls established in this Law.	Ministry of Agriculture, food security and enterprises

Sugar Industry Act, Cap. 283	Revised Edition 2000	National	Establishes the requirements for the issuance of licenses and manufacturing of sugar cane. Establishes control regulations for the sugar cane industry.	This law establishes the requirements for issuing the license for new sugar cane crops. In addition, they must follow the controls and regulations of the sugarcane industry.	The project may develop new sugar cane crops or improve existing ones; to maintain or create new jobs, which must take into account the regulations of this Law.	Ministry of Agriculture, food security and enterprises
Corn Law Cap. 288	Revised Edition 2000	National	Establishes the powers and duties of the Grain Commission. Establishes the Grain Growers Association. Promotes the development of the grain industry. Promotes grain utilization.	This Law promotes the development of the grain industry, seeks the association of grain growers and the use of their derivatives.	The project may implement new corn crops, and create new enterprises for which it must follow the recommendations of this Law.	Ministry of Agriculture, food security and enterprises
Bee Control Act, Cap. 206	Revised Edition 2000	National	Establishes the requirements for the registration of owners and apiaries. Sets the granting of permissions. Establish the regulations of the apiaries.	This Law establishes the requirements for new apiaries and their owners, registration, and granting the respective permits.	The project may develop new apiaries or improve existing apiaries, to improve the profitability of MSMEs, which must consider the regulations under this Law.	Ministry of Agriculture, food security and enterprises
Comprehensive National Law on Water Resources, Act.	Edition 2010	National	Establishes the water controls for its extraction and use. Shows the regulation of licenses for the extraction of water. Plan the necessary permits.	This Law establishes that all projects that have to use water resources must follow the controls of use and extraction.	The project may develop actions that will require water resources, therefore, it is necessary to know and follow the existing controls and regulations to comply with this Law.	Ministry of Nature Resources
Water and Sewer Act, Chapter 222	Revised Edition 2000	National	Functions of the Authority. Establishes the regulation to issue licenses for the extraction of industrial water. Laws to prevent the misuse and contamination of water. Establishes penalties for contamination of water for human consumption.	This Law establishes that all irrigation and flooding projects for crops are considered industrial water extraction and must follow the set regulations.	The project must consider this Law to develop new crops where it will not be possible to misuse and contaminate the water. Regulations for obtaining licenses for industrial water extraction must be followed.	Ministry of Nature Resources
Pesticide Control Act, Chapter 216	Revised Edition 2000	National	Establishes the control and registration in the control table of pesticides allowed and prohibited in Belize. It also issues licenses for its manufacture and importation. Please keep a record of restricted pesticides and documents of places that sell them.	This Law establishes the control and registration of pesticides used and prohibited in the country for use in agriculture.	The project will develop actions for crops and pesticides, taking into account the list of permitted and prohibited pesticides in the area of influence.	Court may authorize the City, Village or Town Council in whose district the building, place or way is situated

Belize Agricultural Health Authority Act, Chapter 211	Revised Edition 2000	National	Strengthen information systems and needs for agricultural health. Organizes and plans agricultural health programs. Promotes the development of private participation in agricultural health programs.	This Law organizes, plans, and promotes agricultural health in the country with the participation of the private sector.	The project will apply the existing regulations to maintain and follow the rulesthority of health regulations in the country's crops.	Agricultural Health Authority, Ministry of Agriculture, Food Safety and Entrepreneurship
Prevention of Plant and Animal Diseases by Fumigation, Inspection of Fish and Fishery Products, No. 211S	2003 Edition	National	Establishes regulations to prevent plant and animal diseases. Carry out inspections of fishery products.	Statutory body designed to modernize Agricultural Health Services in Belize	The project must follow the regulations for fumigation and inspection of the crops to be developed.	Agricultural Health Authority, Ministry of Agriculture, Food Safety and Entrepreneurship
Registration and Registered Pesticides: uses, restrictions and precautions,	2003 Edition	National	Pesticide control. Registration of pesticides used—certification of pesticide users.	The statutory body is responsible for the control, registration, and certification of pesticide users in Belize.	The project will follow the regulation of control and registration of pesticides to be used in the tasks to be developed.	Pesticide Control Board, Ministry of Agriculture, Food Safety and Entrepreneurship
Belize Development and Marketing Corporation No 281	2003 Edition	National	It helps small agricultural companies to commercialize their products. Improves the development of agricultural products.	The agency assists in economic development by ensuring food security, improving product development, providing marketing services for small agro-enterprises, and operating on an ecological, sustainable, and viable basis.	The project may incorporate the Belize Development and Marketing Corporation in developing its actions to promote new agribusinesses.	Ministry of Agriculture, Food Security and Entrepreneurship

Source: Own elaboration 2022, based on national laws

Table 2. Laws and Regulations for the Tourism Sector

TOURISM SECTOR						
Cultural Heritage Preservation Law	2017 Edition	National	Responsibilities and functions of the National Institute of Culture and History. Guidelines and requirements for the preservation and heritage plan. Establishment of a registry. Protection of Cultural Heritage.	This Law establishes that all projects to be developed must comply with the guidelines and requirements for preserving and conserving the Cultural Heritage of Belize.	When implementing actions to create new jobs in the tourism sector, the project must consider the plans and measures to protect Belize's cultural heritage.	Ministry of Education, Culture, Science and Technology
Law of the National Institute of Culture and History, Cap 331	2003 Edition	National	Protection and conservation of historical monuments. Power and authority to enter landmark sites. Rules and limitations for each of the reservations	This Act seeks to protect and preserve the ancient monuments of Belize. To access the archaeological moments, permits are required, comply with the rules, and follow each reserve's limitations.	The project will seek to meet and abide by recommendations for access to Belize's old reserve sites.	Ministry of Education, Culture, Science and Technology
National Parks System Act, Cap. 215	Revised Edition 2000	National	Defines the essential characteristics to establish an area as a National Park, Nature Reserve, Wildlife Sanctuary, or Natural Monument. Restrictions to entering these areas.	The Law of the National Park System establishes the regulation of use and prohibitions of activities to be developed within the zones of the national park system. In addition, it creates the protection and conservation measures of the national parks.	Through ecotourism activities, the Project aims to expand the employment offer and promote the development of the country's tourism sector. Therefore, you must be aware of and abide by existing regulations on national parks.	Department of the Environment, Ministry of Sustainable Development, climate change and Disaster Risk Management
Ancient Monuments and Antiquities Act, Cap. 330	Revised Edition 2000	National	Archaeological Reserves are open to the public. Rules for the Archaeological Reserve. Control of ground operations.	This Law establishes the archaeological reserves that can be opened to the public. In addition, it creates the rules and control of the use of archaeological reserves.	The Project will develop activities in the tourism sector where the entrance to the archaeological reserves will be contemplated and must comply with this regulation.	Ministry of Education, Culture, Science and Technology
Law of Hotels and Tourist Accommodation in Belize, Act. 285	2003 Edition	National	Licensing and operational requirements for the operation of hotels and resorts. Guest registration standards. Minimum requirements for accommodation in apartments and villas.	This Law establishes that all hotel accommodation projects in Belize must follow the recommendations found in this regulation, such as registration standards and minimum accommodation requirements.	When implementing actions to create new jobs in the tourism sector, the project must consider the minimum accommodation conditions required by this Law.	Ministry of Tourism and Diaspora Relations
Minimum Registration, License, Operating Requirements, Guide No 286S	2003 Edition	National	Accommodation regulations. Regulation for tour operators. Rules for tourist guides.	All accommodations, operators, and tour guides in Belize must meet the quality standards of the tourism industry and comply with the requirements established in the Law.	The possibility of creating new jobs in the project's development leads to following this regulation of the tourism sector.	Ministry of Tourism and Diaspora Relations
Foreign-owned passenger buses No. 144S	2003 Edition	National	Regulation of border crossing. Code for the circulation of automobiles and passenger buses.	Agency in charge of border management about the circulation of automobiles, passenger buses, and the collection of transit fees.	The project may develop actions that include the transit of cross-border tourism passengers.	Ministry of Tourism and Diaspora Relations

Table 3. Laws and Regulations for the Environmental and Social Sector

Reference	Date	Government level	Key points	Description	Requirements applicable to the Project	Responsible Authority
SOCIAL ENVIRONMENTAL						
Industrial Water Act, Cap. 222S	Revised Edition 2000	National	Industrial Water Rates. Infrastructure charges. Water supply areas. Wastewater disposal areas. Methodology for calculation.	The agreement aims to ensure that international trade in specimens of wild animals and plants does not constitute a threat to their survival.	The new and existing crops that the Project may develop or assist in the country must comply with this Law to not contradict the norm.	Ministry of Nature
Private Forests (Conservation) Act, Cap. 217	Revised Edition 2000	National	Establishes the regulations of private forests. Conservation of remote forests. Sustainable management	This Law establishes that private forests must follow the regulations set for their conservation in management, handling, and cutting.	The Project must follow this regulation when establishing activities to develop within these private forests.	Forest Department, Ministry of Sustainable Development, climate change and Disaster Risk Management
Protected Areas Conservation Trust Act, Cap. 218	Revised Edition 2000	National	Establishes the functions of trusts Trust powers. Conservation of protected areas. Sustainable management and development of protected areas.	This Act establishes the functions of trust foundations to protect protected areas in Belize.	The project must comply with the agreements established between the foundations and the government to develop protected areas.	Forest Department, Ministry of Sustainable Development, climate change and Disaster Risk Management
Environmental Protection Act, Cap. 328	2011 Edition	National	Powers to intervene, prevent and control environmental pollution. Disposal prohibitions. Regulation and requirements for environmental assessment. Regulation and inspection of nutrients.	This Law establishes that every project to be developed in all its phases must implement and follow all regulations and guidelines for environmental protection in terms of pollution control and environmental impact assessment.	The project may develop implementation activities, which must comply with the regulations and requirements necessary to comply with the measures adopted or to mitigate the impacts according to the environmental assessment.	Forest Department, Ministry of Sustainable Development, climate change and Disaster Risk Management
Wildlife Protection Act, Cap. 220	Revised Edition 2000	National	Hunting check. Restrictions. Forbidden activities. Dealer license requirement. Permit requirements for import and export.	This Law seeks the protection of wildlife concerning hunting control and restrictions, requirements that must be taken into account by all projects in the areas to be	Environmental sustainability is one of the components to be developed in the implementation of the project. With ecotourism activities in areas where there is wildlife, it will be necessary to take into account existing regulations.	Forest Department, Ministry of Sustainable Development, climate change and Disaster Risk Management
Solid Waste Management Authority Law, Cap. 224	Revised Edition 2000	National	Authority functions. Service areas. Solid waste regulations.	This Law establishes the regulations for the management, transportation and disposal of solid waste. In addition, it establishes the necessary conditions for the service areas.	The Project will develop activities that must consider the management, transportation, and final disposal of solid waste to guarantee sustainability for future generations.	Forest Department, Ministry of Sustainable Development, climate change and Disaster Risk Management
Comprehensive National Law on Water Resources, 222:01	2011 Edition	National	Water resource management. National policy and licensing. Licensing functions, powers, and duties. Control, protection, and use of drilling wells and water. Water pollution control.	This Law promotes the efficient use of water resources by monitoring and preventing contamination. Licensing is required for the extraction of water from deep wells.	The project will develop actions that must consider the efficient and appropriate use of water resources. And if necessary, the licenses established by this Law will be obtained.	Ministry of Nature Resources
Land Use Act, Cap. 188	Revised Edition 2000	National	Restrictions on the subdivision of land. Regulation of land use.	This Law establishes the regulations for the use of land.	The project must follow the guidelines of the Law according to their use.	Ministry of Nature Resources
Workers' Compensation Act, Cap. 303	2003 Edition	National	Compensation conditions for work accidents. Employment for special people.	This Law establishes that in the event of an accident at work, it will issue the regulated compensation to the workers.	The project will seek to develop the activities in compliance with the regulations on the matter.	Labor Department, Ministry of Rural transformation

Nuisance Law, Cap 118	Revised Edition 2000	National	Faculty of courts of summary jurisdiction to order the abatement of nuisances. Power to revoke order prohibiting recurrence of problem. Recording of prohibition orders.	This Law establishes the procedure for filing complaints before the courts of jurisdiction. In addition, he has the power to revoke orders.	The project will seek to comply with and abide by this Law, paying attention to the inconvenience caused by the actions to be carried out.	Court may authorize the City, Village or Town Council in whose district the building, place or way is situated
Environmental Impact Assessment Regulations, Cap. 328 Section 21	2011 Eedition	National	Powers to intervene, prevent and control environmental pollution. Disposal prohibitions. Regulation and requirements for environmental assessment. Regulation and inspection of nutrients. Investigation and procedures for penalizing ecological damage.	This rule establishes that every project to be developed in all phases must implement and follow all regulations and guidelines for environmental protection in terms of pollution control and environmental impact assessment.	The project may develop implementation activities, which must comply with the regulations and requirements necessary to comply with the measures adopted or to mitigate the impacts according to the environmental assessment.	Department of the Environment, Ministry of Sustainable Development, climate change and Disaster Risk Management
Pollution Regulation, Capt. 328 Section 45	Revised Edition 2000	National	Emission of pollutants into the environment. General aspects of air pollution. Water contamination. Land pollution.	Emission of pollutants into the environment. General aspects of air pollution. Water contamination. Land pollution.	The project must avoid contamination of water, air, and land resources in the development of all its phases.	Department of the Environment, Ministry of Sustainable Development, climate change and Disaster Risk Management
Public Health Regulations, Cap. 40	2003 Edition	National	Regulation of water supply. Storage. Proper waste management.	This Law regulates the supply of drinking water to protect public health. In addition, it holds the storage and handling of waste.	The actions to be developed in the project must consider the adequate supply of water and the conditions established by this Law.	Ministry of Health, Public Health Department
Social Security Regulations, Cap. 44	2003 Edition	National	Regulations for the payment of social security. Regulations for benefits. Occupational diseases and accidents.	This Law establishes that all employers contribute to social security by the established norms.	All the actions to be carried out by the project must abide by these social security regulations.	Ministry of Finance
Labor Regulations, Cap. 297	2003 Edition	National	Recruitment. Hours of work and rest days. Labor regulations. Work for women and children.	This Law establishes the regulations that must be considered for all work under certain conditions and provisions.	The project will develop actions in which the existing regulations for the work must be followed.	Labor Department, Ministry of Rural transformation
Immigrant Regulations, Cap. 156 Section 35	Revised Edition 2000	National	Regularization of immigrants. Temporary permits. People who do not require a passport	This Law establishes the requirements for the regularization of the migrant population.	The project will seek the integration of the migrant population, complying with the existing regulations on the matter.	Ministry of Foreign Affairs, Foreign Trade and Immigration

Table 4. International agreements

Reference	Date	Government level	Key points	Description	Requirements applicable to the Project	Responsible Authority
INTERNATIONAL AGREEMENTS						
Paris Agreement (Of the Framework Convention on Climate Change)	April 22, 2016	National	The mitigation or reduction of CO2 emissions Transparency and global balance. The adaptation of government is is is is a point in which it is intended to strengthen the capacity of societies to face the consequences of climate change.	It aims to keep the global temperature rise well below 2ºC, increasing the ability to adapt to the adverse effects of climate change and promoting climate resilience and low-carbon development.	The project will seek to fulfill this agreement to implement climate resilience/decarbonization actions and environmental sustainability.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
International Convention to combat desertification in countries affected by severe drought or desertification, particularly in Africa.	July 26, 1998	National	Binding international agreement that relates the environment and development to the sustainable management of soils. Specifically focused on arid, semi-arid and sub-humid and dry areas, where some of the most vulnerable ecosystems are found. Emphasizes the important role played by women in regions affected by desertification	Combat desertification and mitigate the effects of drought in countries affected by severe drought or desertification, in particular in Africa, through the adoption of effective measures at all levels, supported by international cooperation and association agreements.	In implementing the project, the cooperation measures adopted in the country to avoid desertification and achieve the sustainable development of Belize will be taken into account. The Project must avoid desertification actions, such as indiscriminate felling of trees and erosion caused by intensive agricultural activity.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
United Nations Framework Convention on climate change.	October 31, 1994	National	It establishes a general framework for intergovernmental efforts to face the challenges caused by climate change.	The United Nations Framework Convention on Climate Change (UNFCCC) aims to stabilize greenhouse gas concentrations in the atmosphere to combat climate change.	To reduce the greenhouse effect caused by agriculture, the Project must increase the production of biomass; apply low-cost plant growth regulators and biofertilizers; adopt agricultural conservation practices	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Convention on International Trade in Endangered Species of Wild Fauna and Flora.	August 19, 1986	National	Regulation of trade in specimens of species. Permits and certificates. Exemptions and other special trade-related provisions.	The agreement aims to ensure that international trade in specimens of wild animals and plants does not constitute a threat to their survival.	The project will develop activities in the agriculture sector and the tourism sector following the indications of national species protection; it will avoid the trade of wild plants and animals.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.	May 5, 1997	National	Enact adequate national legislative provisions to prevent and punish illicit traffic in hazardous and other wastes. Obligation ensures that dangerous and other debris are managed and disposed of environmentally soundly.	The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in response to strong public protests in the 1980s, following the discovery of toxic waste deposits in developing countries from abroad.	Modern agriculture is responsible for the discharge of large amounts of agrochemicals, organic matter, sediments, and salts into bodies of water, so the Project must opt for innovative and sustainable agriculture actions. It will seek strict control of hazardous waste from its origin to its final disposal. To comply with this environmental agreement.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.

Stockholm Convention on Persistent Organism Pollution.	May 16, 2004	National	It determines the compounds on which action must be taken as a priority, due to their harmful effects, their presence in the environment and their persistence inside the human body, given that they are organochlorine products.	The Stockholm Convention on Persistent Organic Pollutants is a Multilateral Environmental Treaty that seeks to protect human health and the environment against persistent organic pollutants.	Agriculture can contaminate the soil due to excessive use of chemicals of various kinds, pesticides or pesticides to prevent local fauna from ruining crops; The project must propose the adequate use of pesticides and fertilizers so as not to contaminate the soil.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Rotterdam Convention for the Application of the Prior Basic Consent Procedure or Certain Hazardous Chemicals and Pesticides in International Trade	24 de febrero 2004	Nacional	Establishes a prior informed consent (CPI) procedure for importing dangerous chemical products.	The convention aims to promote shared responsibility and joint efforts of the Parties in international trade in certain hazardous chemicals to protect human health and the environment from potential harm.	The Project will seek to avoid the use of pesticides and dangerous products for crops so that the agreement is fulfilled.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Vienna Convention for the protection of the ozone layer.	June 6, 1997	National	Rights and obligations of the parties. Actions in case of non-compliance. The basic principle of good faith. Autonomy of the will of the parties. Good behavior of the parties.	The Convention aims to encourage the Parties to promote cooperation through systematic observations, research, and information exchange on the impact of human activities on the ozone layer and adopt legislative or administrative measures against actactionsat that may affect the ozone layer.	The Project will follow the agreement's recommendations to prevent the depletion of the ozone layer.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Convention on biological diversity.	December 30, 1993	National	The conservation of biological diversity. The sustainable use of the components of biological diversity. The fair and equitable sharing of benefits arises from genetic resources.	The Convention on Biological Diversity (CBD) is the first global agreement on the conservation and sustainable use of biological diversity.	The Project will seek the conservation of biological diversity, through the sustainable use of the available genetic resources of the country.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
The Montreal Protocol on Substances that Deplete the Ozone Layer.	January 9, 1989	National	Criteria and indicators for the conservation and sustainable management of temperate and boreal forests	Its objective is to apply limits to the production and consumption of the leading chemical products that destroy the ozone layer that protects the Earth.	The Project will follow the Montreal protocol to prevent the depletion of the ozone layer.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Cartagena Protocol on Biosafety of the Convention on Biological Diversity.	September 11, 2003	National	Specifically focused on the transboundary movement of LMOs (living modified organisms), promoting biosafety by establishing standards and procedures that allow the safe transfer, handling, and use of LMOs.	The primary objective is to ensure an adequate level of protection in the area of the safe transfer, handling, and use of living modified organisms resulting from modern biotechnology	The Project will follow the Caratagena protocol, avoiding the misuse, manipulation and transfer of living organisms.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.

Source: Own elaboration 2022, based on national laws

4.2. Institutional Framework

The Ministry of Agriculture, Food Security and Entrepreneurship, and the Ministry of Tourism and Relations with the Diaspora must coordinate inter-institutional actions to manage and lead these projects' implementation. Both ministries have Departments that are the areas of contact with the Project. And they must develop their daily operations with the addition of temporary and unique tasks that will require a substantial effort for the duration of the Project's development.

In the institutional analysis for the Program's execution, it must be considered which of the two Entities will generally be responsible for its development, implementation, monitoring, and closure. Being the Executing Agency of the Project, formally designated by the Government for the management of the Project.

It is necessary to determine the contact points between the Project and the Operations of the ministries and those where the functions are directly related to the Project. And with those Departments, their structure, experience, and resources should be supported for the benefit of the Project.

Therefore, to carry out the analysis of the institutional capacity of the ministries, the following must be considered:

1- The organizational structure and culture
2- Processes and information systems
3- Experience and historical performance
4- Available resources

The Ministry of Agriculture, Food Security, and Entrepreneurship has a hierarchical organizational structure with defined functions and responsibilities. It is headed by the minister and followed in order of functional hierarchy by two Departments, one of Agriculture and the other Cooperative.

The Department of Agriculture is managed by a chief and six program directors, with fourteen collaborators. A Registrar directs the Cooperative Department with the help of an assistant collaborator. The Department of Agriculture comprises three executing units, the Public/Private Sector Interface Unit, led by a director, and three officers. The Evaluation and Monitoring Unit is led by a director, two collaborators, and the Project Execution Unit and directed by a director and three collaborators.

These Departments and Units have implemented their capacities to develop permanent and systematized operations using their resources and quality criteria. The development of the Projects will require additional efforts, which will allow the Ministry to advance in developing its structure and organizational culture. Likewise, the processes and information systems of the Ministry will require maturity and standardization for the Project's planning, execution, monitoring, and control. These capabilities are permanent characteristics that you must have and develop. Meanwhile, the dynamic factors produced by the Ministry, such as the experience and historical performance with other projects in the Project Execution Unit, have left a maturity and learning path in its management.

The Ministry of Tourism and Relations with the Diaspora has a hierarchical organizational structure headed by the minister. The Ministry has a Tourism Technical Unit led by a Director

of Tourism officer, two Officers, a Business Development and Investment Officer, and two Tourism Investment Officers. It has two statutory boards: the Belize National Tourism Board, responsible for licensing, revenue collection, marketing, destination planning, and quality assurance of local tourism industries. And the Border Management Agency is responsible for managing and administrating the facilities and operations of Belize's border points, including maintenance, security, emergency services, and facility improvements.

The Technical Tourism Unit has implemented its capacities to develop permanent and systematized operations using its resources and criteria of the quality management system with ISO 9001 of 2015 regulations. The development of the Projects will require additional efforts, which will allow the Ministry to advance in developing its organizational structure and culture. In the Project's development, specific requirements and needs must be considered to help improve this implementation. It is presented below in Table 5 y 6 Institutional Analysis for the Project's performance.

Table 5. Institutional Analysis of the Ministry of Agriculture

Governance	Experience and performance	Unavoidable resources	Information processes
Ministry of Agriculture, Food Security and Entrepreneurship			
■ **Requirements:** The project will require a command unit with clearly defined responsibilities to carry out the different management tasks. It will be necessary that the flow of queries, authorizations, and reports for the activities are assigned and defined. The leading positions involved in project management will be required to be formally recognized before the entity. ■ **Assignments:** The Ministry must assign qualified personnel with a commitment to the execution of the Project.	■ **Experience:** The Ministry has developed investment projects similar to this project and has the expertise to manage them. ■ **Performance:** In its management, learning new tasks is one of the transversal objectives.	■ **Training needs:** -Planning of crop production cycles according to market demands. -Training for farmers in intelligent irrigation and drainage. -Strengthening cooperatives for networking and intelligence in conflict resolution, negotiation, and acquisition of goods. -Development of skills for new alternatives for food preservation and avoiding production losses. -Management of climatic information. - Efficient use of water, with the care of basins, rivers, and wetlands as a daily part of crops. **Implementation arrangements:** A Project Management Unit must be created with the Ministry of Tourism to carry out its implementation and control ■ and monitor the development of the different stages, including working with service providers. And with Departments, as well as with individual participants and organizations of the municipalities. **Need for resources:** The project will require a command unit with personnel with the skills and time available to perform the associated tasks. It must have all the necessary goods and services to support the execution of the Project, such as offices, computers, vehicles, or telecommunications services. ■ **Supervision of civil works:** In the implementation, small civil pieces will be built which must follow the regulations and have the required permits.	■ **Requirements:** The Project will require a standard methodology for managing subprojects in planning, execution, monitoring, and control. A record of the beneficiary growers of the project must be kept, with their data, places, and objective activities to be developed. **Definition:** The Project must internally define how its assigned professionals in the areas of ■ contact between the Ministry and the project build their tasks and responsibilities. **Information System:** An information system will be required to harmonize the Ministry's operations with the activities of the Subprojects. ■ This will require the development of protocols, guides, and procedures manuals. **Documentation development:** Design of formats and monitoring charts for beneficiary growers.

Source: Own elaboration 2022

Table 6. Institutional Analysis of the Ministry of Tourism

Governance	Experience and performance	Unavoidable resources	Information processes
Ministry of Tourism and the Diaspora			
■ **Requirements:** The project will require a command unit with clearly defined responsibilities to carry out the different management tasks. The flow of queries, authorizations, and reports for the activities will be required to be assigned and defined. The leading positions involved in project management will be required to be formally recognized before the entity. ■ **Assignments:** The Ministry must assign qualified personnel with the commitment to the execution of the Project,	■ The Ministry has developed investment projects at the national level and has the experience to manage them.	■ **Training needs:** -It should be defined if the tourism plant will be categorized according to services, personnel, design, location, infrastructure, enterprise structure, service specialization, and administrative and operational processes. -Development of tourism promotion according to market research. -Training for entrepreneurs in quality personalized attention processes. Strengthening associations (PYMINES or cooperatives) to develop the National Tourism System composed of social, cultural, and environmental policies; and internal as superstructure, supply, demand for infrastructure, receptive community and territory, linked to each other. -Development of skills for new tourism alternatives for operators and guides. -Management of fair and efficient water use, with good sustainable practices and sanitary products, and use of materials from the area. **Implementation arrangements:** A Project Management Unit must be ■ created together with the Ministry of Agriculture to carry out its implementation and control and monitor the development of the different stages, which will include working with suppliers. Of services and with Departments, as well as with individual participants and NGOs.	■ **Requirements:** The Project will require a standard methodology for managing subprojects in planning, execution, monitoring, and control. A record must be kept of the tourism entrepreneurs who are beneficiaries of the project, with their data, places, and target activities to be developed. **Definition:** The Project must internally define how its assigned professionals in the areas of ■ contact between the Ministry and the project build their tasks and responsibilities. **Information System:** An information system will be required to harmonize the Ministry's operations with the activities of the Subprojects. ■ This will require the development of protocols, guides, and procedures manuals. **Documentation development**: Design of formats and monitoring charts for tourism entrepreneurs.

Source: Own elaboration 2022

- **Environmental Requirements for subprojects**

Belize establishes that all persons, institutions, and organizations, whether public or private, must request the Department of the Environment if the undertaking, Project, or activity to be developed will require an Environmental Impact Study.
For this purpose, the Law in Chapter 328S Revised Edition of 2000 establishes the procedure and requirements to carry out Environmental Studies. It presents a list in Annex I of the companies, projects, and activities requiring environmental Assessment. And it gives another list in Annex II, which specifies the undertakings, projects, and activities that, as determined by the Department of Environmental Assessment, will require an Environmental Assessment.

If it is necessary to do the Environmental Impact Assessment, the assessment process is carried out in three phases:

- A project analysis phase (screening of the Project)
- A review phase by the National Committee for Environmental Assessment following paragraph 25 of the regulations.
- A phase of design and implementation of a monitoring program.
- The Environmental Impact Assessment must be included as minimum requirements:

a) Description of all the activities to be carried out,
b) Description of the potentially affected on the environment, including specific information on the need to identify and assess the environmental effect of the proposed activities.
c) Description of practical activities.
d) The Assessment of the Project with the identification of potential environmental impacts. This evaluation includes direct and indirect, cumulative, short-term, and long-term effects.
e) Other authorizations are necessary for the Project. In the development of the Project, the following permissions will be required: Authorization for water extraction; Area Map; Permission to extract water from the owner of the land, if the applicant does not own the owner of the land; If a wastewater discharge occurs, a letter of authorization or an effluent license from the Department of the Environment is required.

4.3. ESPS relevant to the Program

The Program will comply with the IDB's Social and Environmental Policy Framework through the actions and implementation of the Environmental and Social Performance Standards (ESPS). According to the Initial Environmental and Social Review Summary for the Program by IDB, 2022, the ESPSs with requirements are:

ESPS 1: Assessment and Management of Environmental and Social Risks and Impacts

The Borrower, in coordination with other government agencies and third parties, will conduct a process of environmental and social assessment and establish and maintain an ESMS appropriate to the nature and scale of the project and commensurate with the level of its environmental and social risks and impacts. The ESMS will incorporate the following elements: (i) project-specific environmental and social framework; (ii) identification of risks and impacts; (iii) management programs; (iv) organizational capacity and competency; (v) emergency preparedness and response; (vi) stakeholder engagement and (vii) monitoring and review.

Objectives:

- To identify and evaluate environmental and social risks and impacts of the project.
- To adopt a mitigation hierarchy and a precautionary approach to anticipate and avoid, or where avoidance is not possible, minimize, and, where residual impacts remain, compensate/offset for risks and impacts to workers, project-affected people, and the environment.
- To promote improved environmental and social performance of Borrowers through effective management systems.
- To ensure that grievances from project-affected people and external communications from other stakeholders are responded to and managed appropriately.
- To promote and provide means for adequate engagement with project-affected people and other stakeholders throughout the project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated.

ESPS 2: Work and Working Conditions

Environmental and Social Performance Standard (ESPS) 2 recognizes that the pursuit of economic growth through employment creation and income generation should be accompanied by the protection of the fundamental rights of workers.

Objectives ESPS2:

- To respect and protect the fundamental principles and rights of workers.
- To promote fair treatment, non-discrimination, and equal opportunity for workers.
- To establish, maintain, and improve the worker-employer relationship.
- To ensure compliance with national employment and labor laws.
- To protect workers in vulnerable situations such as women, people of diverse sexual orientations and gender identities, persons with disabilities, children (of working age, following this ESPS), migrant workers, workers engaged by third parties, and primary supply workers.
- To promote safe and healthy working conditions and the health of workers.
- To prevent child labor and forced labor (as defined by the ILO).

ESPS 3: Efficiency in the Use of Resources and the Prevention of Contamination

This ESPS outlines a project-level approach to resource management, pollution prevention and control, and avoidance and minimization of GHG emissions. It builds on the mitigation hierarchy and the "polluter pays" principle. It recognizes the disproportionate impact of pollution on women, children, the elderly, and the poor and vulnerable

Objectives:

- To avoid or minimize adverse impacts on human health and the environment by preventing or minimizing pollution from project activities.
- To promote more sustainable use of resources, including energy and water.
- To avoid or minimize project-related emissions of GHG.
- To avoid or minimize the generation of waste.
- To minimize and manage the risks and impacts associated with pesticide use.

ESPS 4: Community Health and Safety

Environmental and Social Performance Standard (ESPS) 4 recognizes that project activities, equipment, and infrastructure can increase community exposure to risks and impacts, including those caused by natural hazards and climate change. In addition, communities already subjected to the adverse effects of natural hazards and climate change may also experience acceleration and intensification of adverse impacts due to project activities.

Objectives:

- To anticipate and avoid adverse impacts on the health and safety of the project-affected people during the project life cycle from both routine and non-routine circumstances.
- To ensure that personnel and property are safeguarded under relevant human rights principles and in a manner that avoids or minimizes risks to the project-affected people.
- To anticipate and avoid adverse impacts on the project from natural hazards and climate change during the project life cycle.

ESPS 6: Conservation of Biodiversity and Sustainable Management of Living Natural Resources

Environmental and Social Performance Standard (ESPS) 6 recognizes that protecting and conserving biodiversity, maintaining ecosystem services, and sustainably managing living natural resources are fundamental to sustainable development

Objectives

- To protect and conserve terrestrial, freshwater, coastal, and marine biodiversity.
- To maintain the ecosystem functions to ensure the benefits from ecosystem services.
- To promote the sustainable management of living natural resources through the adoption of practices that integrate conservation needs and development priorities

ESPS 7: Indigenous Peoples

Environmental and Social Performance Standard (ESPS) 7 recognizes that Indigenous Peoples,159 as distinct social and cultural peoples, are often among the most marginalized and vulnerable population segments. In many cases, their economic, social, and legal status limits their capacity to defend their rights to and interests in lands and natural and cultural resources. It may restrict their ability to participate in and benefit from development following their worldview.

Objectives

- To ensure that the development process fosters full respect for the human rights, collective rights, dignity, aspirations, culture, and natural resource-based livelihoods of Indigenous Peoples.
- To anticipate and avoid adverse impacts of projects on communities of Indigenous Peoples, or when avoidance is not possible, to minimize and compensate for such impacts.

- To promote sustainable development benefits and opportunities for Indigenous Peoples in a culturally appropriate manner.

- To establish and maintain an ongoing relationship based on Informed Consultation and Participation (ICP) in a culturally appropriate manner with the Indigenous Peoples affected by a project throughout the project's life cycle.

- To ensure the FPIC of the Project-Affected Communities of Indigenous Peoples when the circumstances described in this ESPS are present.

- To respect and preserve the culture, knowledge, traditional knowledge, and practices of Indigenous Peoples

ESPS 8: Cultural Heritage

Environmental and Social Performance Standard (ESPS) 8 recognizes the importance of cultural heritage for current and future generations. Consistent with the Convention Concerning the Protection of the World Cultural and Natural Heritage, this ESPS aims to ensure that Borrowers protect cultural heritage in the course of their project activities

Objectives:

To protect cultural heritage from the adverse impacts of project activities and support its preservation.
To promote the equitable sharing of benefits from the use of cultural heritage

ESPS 9: Gender Equality

This ESPS aims to identify potential gender-based risks and impacts and introduce effective measures to avoid, prevent, or mitigate such risks and impacts, thereby eliminating the possibility of reinforcing pre-existing inequalities or creating new ones.

Objectives

- To anticipate and prevent adverse risks and impacts based on gender, sexual orientation, and gender identity, and when avoidance is not possible, mitigate and compensate for such impacts.
- To establish actions to prevent or mitigate risks and impacts due to gender throughout the project cycle and inclusion in project-derived benefits of people of all genders, sexual orientations, and gender identities.
- To prevent SGBV, including sexual harassment, exploitation, and abuse, and when incidents of SGBV occur, respond promptly.
- To promote safe and equitable participation in consultation and stakeholder engagement processes regardless of gender, sexual orientation, and gender identity.
- To meet the requirements of applicable national legislation and international commitments relating to gender equality, including actions to mitigate and prevent gender-related impacts.

ESPS 10: Participation of Stakeholders and Information Disclosure

This ESPS recognizes the importance of open and transparent engagement between the Borrower and stakeholders, especially project-affected people, as a key element that can improve project environmental and social sustainability, enhance project acceptance, and contribute significantly to the project's successful development and implementation.

Objectives

- Establishing a systematic approach to stakeholder engagement will help the Borrower identify stakeholders, especially project-affected people, and build and maintain a constructive relationship with them.

- To assess the level of stakeholder interest in and support for the project and to enable stakeholders' views to be considered in project design and environmental and social performance.

- To promote and provide the means for effective and inclusive engagement with project-affected people throughout the project's life cycle on issues that could potentially affect or benefit them from the project.

- To ensure that appropriate information on environmental and social risks and impacts of the project is disclosed to stakeholders in a timely, understandable, accessible, and proper manner and format.

- To provide stakeholders with accessible and inclusive means to raise questions, proposals, concerns, and grievances and allow Borrowers to respond and manage them appropriately

CHAPTER 5: SOCIO-ENVIRONMENTAL CHARACTERIZATION

CHAPTER 5: Socio-Environmental characterization

5.1. Physical environment

Elements such as geographic location, the climate in terms of temperature and precipitation, geomorphology, soil type, and the balance of natural ecosystems are relevant factors that affect the productive capacity of the different economic sectors in Belize. The most relevant elements for the study are below:

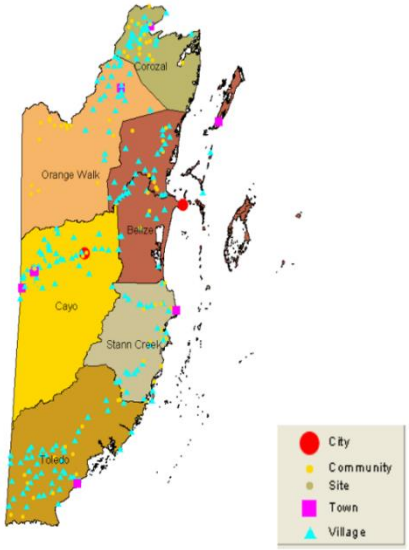
5.1.1. Geographic Framework

- **Location**

The intervention areas of the Program are located in Belize. The national territory covers 46,620 sq km (18,000 sq miles) with a land area of approximately 22,967 sq km (8,867 sq miles), including 280km of coastland. The mainland makes up 95 % of the territory, and 5% is represented by more than 1,060 small islands or Cayes[26]. Belize's borders are to the north with Mexico to the west and the south with Guatemala and the Caribbean Sea to the east. Belize's coast extends for 280 km (168 miles) and is host to the Belize Barrier Reef Complex - the second largest in the world and the largest in the northern hemisphere.[27]

Belize has six districts, nine municipalities, and some 197 villages. The capital and the seat of Government is Belmopan, located about 50 miles inland from the coast, in the Cayo District[28].

Figure 2. Map of intervention areas of the Program



Source: Prepared by the consultant 2022, based on GEF CReW 2015.

Administratively Political Belize comprises six (6) districts, nine municipalities, and 197 villages. The districts are Corozal and Orange Walk in the North sector, Belize in the East and Center, Key in the West and Center, and Stann Creek and Toledo in the southern part of the country.

Guatemala has a situation of territorial order before the International Court of Justice. The Program is expected to cover the national territory in its areas of direct and indirect influence. In 1991, the so-called "adjacency zone" was established, an imaginary line that separates the territory of each one. Figure 2 shows the map showing the intervention Area.

[26] NCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.
[27] UNCSD, 2012. Belize National Sustainable Development Report.
[28] GEF, et al., 2017. Belize Technology needs assessment mitigation

5.1.2. Climate

Belize's climate is influenced by three major global/regional climate systems: the Atlantic Ocean Climate System, the Pacific Ocean Climate System, and periodically by North American climate systems changes. The average temperature in Belize is approximately 80 degrees Fahrenheit, with average highs of 85° and lows of 73°. On average, 12 cold fronts cross the country each year, dropping temperatures into the 40s[29].

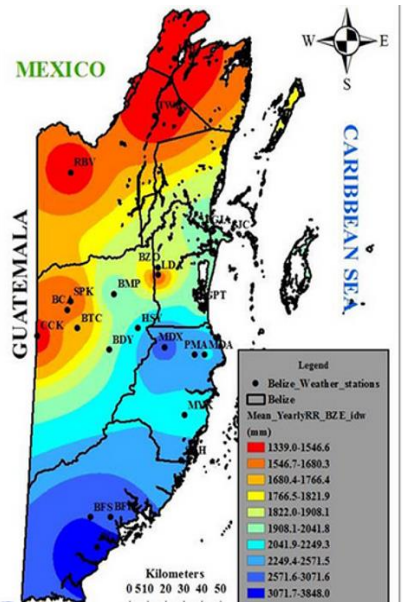
- **Precipitation**

This country has a subtropical climate with two (2) distinct wet and dry seasons. The rainy season occurs from June to November and brings approximately 60 inches (1524mm) of rain in the north to 160 inches (4064mm) in the south. Rainfall varies from year to year in many areas, except in the country's southern parts, where the annual rainfall average is consistent. The heaviest rain is usually expected in June or early July and is punctuated by a break in late July or August, while the dry season occurs from November to May. Changing from dry to wet seasons can be considered gradual, with a remarkable transition from November to February and a warm transition from March to May (Figure 3)[30].

- **Temperature**

The average temperature in Belize ranges from 27°C (max -30.1°C, min 22.6°C) along the coast to 21°C (max -25.3°C, min 30°C). - 17.7 °C) in the hills, with January as the coldest month and May with the warmest temperatures. Inland areas are more likely to have higher temperatures than coastal areas, and the temperature in the latter is influenced by the sea breeze, which lowers the temperature (NCCO,2016).

Figure 3. Mean Yearly Rainfall for Belize 1951-2013



Source: 2013, Meteorologist Frank Tench

Winds blow at an average of five (5) knots and travel in an east to southeast direction throughout the year. The country is also affected by tropical storms, tropical waves, and hurricanes that move west across the Caribbean from June to November[31]. The winds blow at an average of five (5) knots and travel in the direction of east to southeast all year long. The country is also affected by tropical storms, tropical waves, and hurricanes that move westward through the Caribbean from June to November. Belize is affected by a major hurricane or storm every three (3) years, with damages usually predominant in the northern portion of the country. Hurricanes are generally expected from September to October and vary in number from year to year.[32]

[29] Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, Belmopan, Belize, 2016. National Biodiversity Strategy and Action Plan, Belize.
[30] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.
[31] NCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.
[32] NCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.

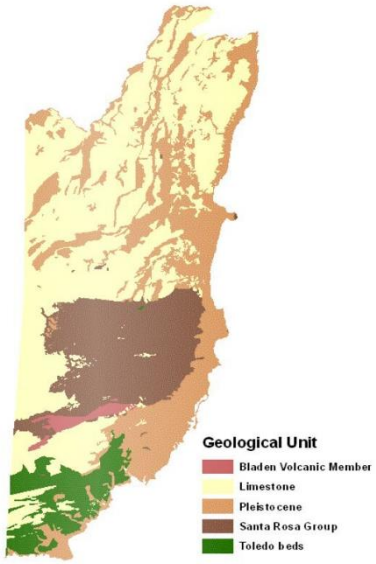
Belize has a long history of devastating encounters with cyclones (tropical depressions, tropical storms, or hurricanes), with significant events recorded in 1931, 1955, 1961, 1971, 1974, 1978, 2000, 2001, and 2007. Historically, tropical storms and hurricanes have affected the country once every three years. According to hurricane tracks available from the US National Weather Service, they are more likely to hit in the north than in the south (Lee et al., cited in UNDP 2011a). Belize City, the former capital, was destroyed twice by hurricanes in the 20th century prompting the relocation of the capital to Belmopan City[33].

5.1.3. Geology and Geomorphology

- **Geology**

Belize's geology is part of the ancient Maya, bounded by cliffs and mountains, surrounded by lower mountains and younger sedimentary rocks[34]. Northern Belize is an extension of the Yucatan Platform, while southern Belize shares the mountainous geology of eastern Guatemala (Fairbridge, cited in UNDP 2011a). The Yucatan Platform consists of hard, dense limestone over red shale (Viniegra, cited in UNDP 2011a) that results in a topography consisting of low (approximately 250 meters above sea level (masl)), rolling limestone hills, and escarpments. (Figure 4).

Figure 4. Geology



Source: https://www.yumpu.com/en/document/read/35357297/belize-savanna-factsheet-a2-geology-landscape-and-soils-of-belize

The escarpments result from north-northeast trending faults caused by the subsidence of the continental shelf toward the Yucatan Trough in the Caribbean Sea (Hartshorn et al., cited in UNDP 2011a)[35]. This area is characterized by carbonates of great importance for developing karst and caves in the broad belt of limestone and dolomite from the Cretaceous that routes almost all the most significant underground streams in the highlands[36].

The Maya Mountains are a tectonically uplifted block of ancient meta-sedimentary, granite, and volcanic rocks (Bateson and Hall, cited in UNDP 2011a) that occupy the south-central portion of the country, stretching west into Guatemala's Petén district[37]. The remainder of Belize is primarily a seasonal (0-80 m elevation) swampy plain of Tertiary and Quaternary soft carbonates low karstic limestone hills that grade into an abbreviated coastal plain that meets with the Caribbean Sea[38].

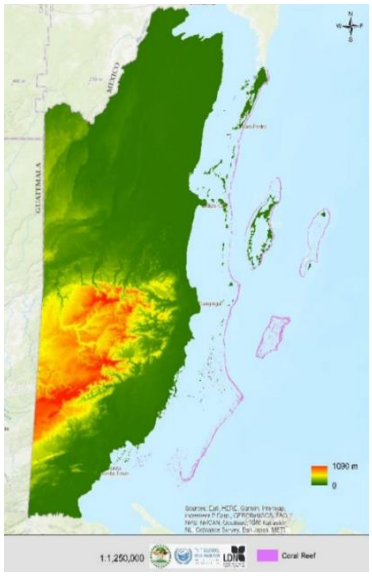
[33] GEF CReW 2015. Baseline Assessment Study on Wastewater Management Belize
[34] Miller, Thomas E.2015. Geologic and Hydrologic Controls on Karst and Cave Development in Belize.
[35] Geology The country is well known as the home of the longest barrier reef in the Western Hemisphere.
[36] Miller, Thomas E.2015. Geologic and Hydrologic Controls on Karst and Cave Development in Belize.
[37] Miller, Thomas E.2015. Geologic and Hydrologic Controls on Karst and Cave Development in Belize.
[38] Miller, Thomas E.2015. Geologic and Hydrologic Controls on Karst and Cave Development in Belize.

Geomorphology

Belize has two distinct physiographic regions (Figure 5). The first region is the Maya Mountains dominate the central portions of the country, rising to over 1,000 meters above sea level at their highest point. (LDN et al., 2020). The highest point, Victoria Peak, is at 1120 meters. This zone features shallow, highly erodible, low fertility soils with densely forested and sparsely inhabited uplands.

The second region comprises the northern lowlands and the southern coastal plain. This area is flat and marshy, with lagoons, especially in the north and central parts of the country. In the territory on the west of the northern coastal areas, the terrain changes from mangrove swamp to tropical pine savannah and hardwood forest. The topography in the north and the coastal regions is relatively flat and low-lying, rising from one (1) meter above sea level in the coastal areas to 250 meters above sea level in the country's extreme west (Agriculture, 2014).

Figure 5 Physiographic Regions of Belize



Source: LDN, 2020.

Agroecological Zones

For agricultural purposes, four agro-climatic zones or areas are distinguished in Table 7

Table 7. Agroecological Zones in Belize

Agroecological Zones	Description
AZ-1: Toledo District	Located in the country's south, it covers 8 percent of the surface. It is situated on schists with calcareous sandstones. The southern region receives 4000 mm of rain per year, and the main crops are rice, corn, citrus, banana, cocoa, cassava, and yams.
AZ-2: Stann Creek	It is on schists with calcareous sandstones. It produces bananas and citrus fruits on large farms and cassava on the farms of small farmers. It has an annual average rainfall of 3,800 mm regularly distributed throughout the year.
AZ-3: Belize District	It is located on the coast in the central part of the country. It is formed by alluvial cliffs that reach 33 meters above sea level. About half of the land is boggy and infertile. Farmers produce vegetables, roots, bananas, and fruit trees in small areas. The main crops are rice and cashew nuts.
AZ-4: Cayo District	This Agroecology zone is located in the interior and center of the country with sandstone and marl that rise in isolated hills up to 1000 meters above sea level. The main crops are citrus, papaya, cowpeas, corn, sorghum, beans, potatoes, and vegetables. The measured annual precipitation is 3500 mm.
AZ-5: Orange Walk District	This area is located north of Belize. Most of the topography is flat and low. Calcareous soils dominate these plains that have a subtropical climate. The average rainfall is 1778mm. The District is the primary producer of poultry, pigs, and cattle. The main crops include sugar cane, corn, rice, beans, sorghum, vegetables, yams, pineapples, and chili, mainly produced in mechanized systems.
	Source: FAO, 2006

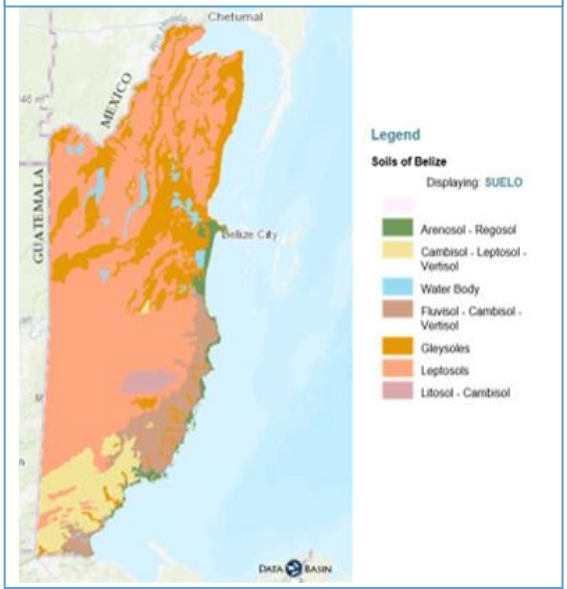
5.1.4. Soils

a. Soils Characteristics

Belize has characteristic soils (Figure 6) of the Yucatan Peninsula, comprising reefs and porous limestone rocks that give rise to dry, rocky, shallow, and extensive Leptosols. In the alluvial plains of broad and shallow valleys, Vertisols develop.

Along the Caribbean coast, ancient marine sediments and the proximity of groundwater to the surface in alluvial sediment zones, poorly drained soils give rise to Solonchaks (saline soils) and Gleysols (marshy soils). The highlands develop fertile Andosols on volcanic ejecta (e.g., lava and ash) and weakly developed Cambisols and Regosols (relatively young soils). Nutrient-rich sediments beneath permanent grasslands in river valleys give rise to Phaeozems and Kastanozems or fertile Fluvisols[39].

Figure 6. Soils of Belize



Source: Databasin. Selva Maya Consortium,

b. Land classes

The country's land has been categorized into five agricultural land classes, ranging from Class 1 to 5, as listed in Table 8.

Table 8. Land Classes of Belize

Class	Description
Class 1	With 4% is suitable for most crops and has high earning potential. Much of this land is already under cultivation, mainly with citrus and bananas.
Class 2	It corresponds to land with good economic potential to develop agricultural activities. Areas in this Class include a large proportion of the northern coastal plain and areas cultivated with sugar cane in the Corozal and Orange Walk districts.
Class 3	This land could be successfully used for agriculture but is subject to specialized management and financial investment.
Class 4	It corresponds to land with marginal capability under forest or protected areas.
Class 5	This land is considered very marginal.

Source: UNDP-GEF, 2010. A Manual of Soil Conservation and Slope

[39] FAO 2014, Atlas de suelos de America Latina y el Caribe.

In general, the soils of these Classes present moderate to severe limitations for agriculture (Table 9), including drainage, shallowness, low fertility, and lack of moisture in the dry season. It is estimated that 16% of Belize's land has the capacity for mechanized agriculture without significant financial and technological investment[40].

Table 9. Recommended land use in Belize

Land category	Land class	Area (mk2)	% of total	Recommended land use
High income potential	1	990	4	Agriculture
Good financial sucess	2	2,790	12	Agriculture
Success subject to skilled management	3	4,480	20	Forestry/Agriculture
Marginal	4	4,470	20	Forestry/Protection
Mostly steep land	5	10,000	44	Protection

Source: UNDP-GEF, 2010. A Manual of Soil Conservation and Slope

c. Land use/cover

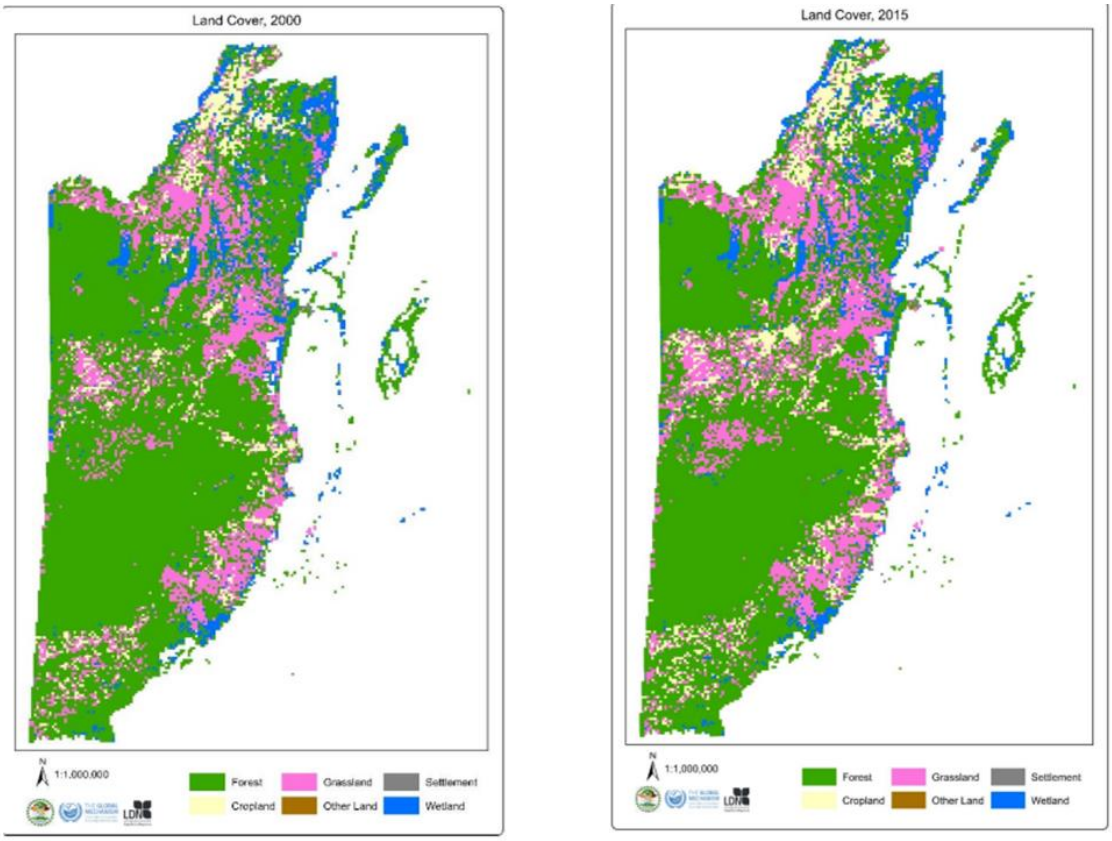
According to LDN 2020, there have been negative changes in land cover between 2000 and 2015. The most significant change is the loss of forest cover to cropland and pasture. Agriculture (cropland) has grown considerably since 2000, having shown an expansion of 44.96% in 2015 (Figure 7).

From 2000 to 2015, the north and center of the country have lost significant forest cover due to increased mechanized agriculture in sectors such as the Mennonite community, the Valle de la Paz farms, and a second sugar mill Cayo district. In converting forests to grasslands, 42.63% of this change is attributed to grasses, which have increased due to livestock activity in border areas with Guatemala and Mexico, which has generated pressure to convert forests into cattle ranches or cattle pastures[41].

The continued reduction of areas under forest cover will decrease Belize's ability to offset GHG emissions. Increases in land degradation and increased land use with lower productive potential and population growth may contribute to further unsustainable forest conversion. The continuous monitoring of deforestation activities by incorporating updated data and improving data gathering mechanisms and relative statistics institutions is essential for developing strategies and reducing the impacts[42].

[40] LDN, 2020. Land Degradation Neutrality Target Setting Programme. Final Report.
[41] LDN, et al., 2020. Land Degradation Neutrality Target Setting Programme. Final Report.
[42] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.

Figure 7. Land Cover 2000-2015



Source: LDN et al., 2020

d. Main problems related to soils

- **Erosion**

In the absence of structured management, steep slopes and high rainfall conditions predispose soils to erosion, particularly in southern Belize. In addition, farmers use the traditional method slash-and-burn system of their ancestors. This process involves cutting down trees from the forest to plant crops, which leaves little vegetation to prevent and absorb surface water from rains. Therefore, the topsoil is removed, and the stream's sediment load increases. The topsoil is quickly depleted, forcing farmers to move to another area, where the same practices are repeated with similar results. Although farmers will return to the original plot after a fallow period, the fallow period is not long enough to fully rehabilitate the soil, so the cultivation period gets shorter and shorter[43]

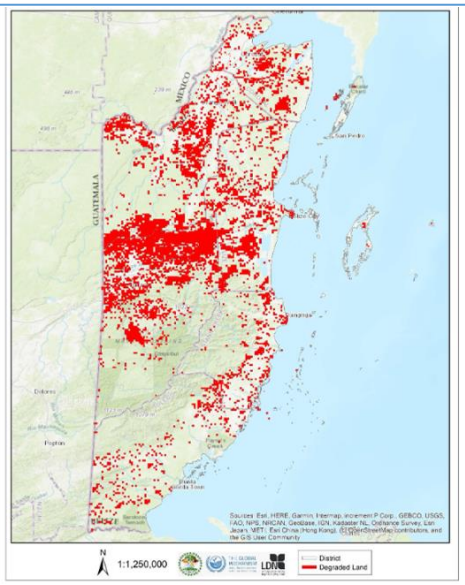
[43] UNDP-GEF, 2010. A Manual of Soil Conservation and Slope Cultivation.

- **Land degradation in Belize**

As suggested by the United Nations, the leading indicators of land degradation are harmful land degradation, cover change, decrease in soil organic carbon, and reduction in land productivity. Based on spatial analysis data provided by the UNCCD Secretariat, the land degradation baseline for Belize was the period from 2000 to 2015. (Figure 8).

As a result of 4,788 km2 of land in Belize, the degradation occurs in 21.66% of the territorial land. The mainland degradation hotspots are the Belize River Watershed and the Corozal and Orange Walk Districts, including the New River Watershed[44].

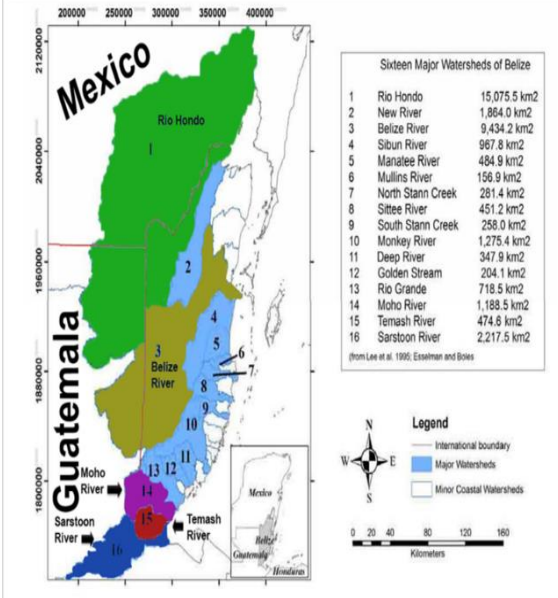
Figure 8. Degraded Lands, Belize, 2000-2015



Source: LDN et al., 2020

5.1.5. Water resources

Figure 9. Watersheds of Belize



Source: Land Information Center.Ministry of Natural Resources, Belize.

Belize has 39 identified river basins, of which 16 are classified as primary and 23 as sub-basins[45] (Figure 9). Within the 16 primary basins, five transboundary basins are shared with Guatemala, and one (Rio Hondo) has significant portions draining both Guatemala and Mexico[46].
The transboundary basins that Belize has are:

- Belize River
- Hondo River
- Moho River
- Temash River
- Sarstoon River

The importance of the transboundary basins (Table 10) lies in the fact that they are part of the 276 transboundary basins globally (Wolf et al., 1999), which represent a crucial water supply and, at the same time, maintain vital ecosystems in 145

[44] LDN, et al., 2020. Land Degradation Neutrality Target Setting Programme. Final Report.
[45] GWP, (Global Water Partnership) et al., 2011. Situación de los recursos hídricos en centroamerica.
[46] GEF CReW 2015. Baseline Assessment Study on Wastewater Management Belize

countries. Global transboundary basins are home to 40% of the world's population and generate nearly 60% of available freshwater[47].

Table 10. Belize transboundary basins

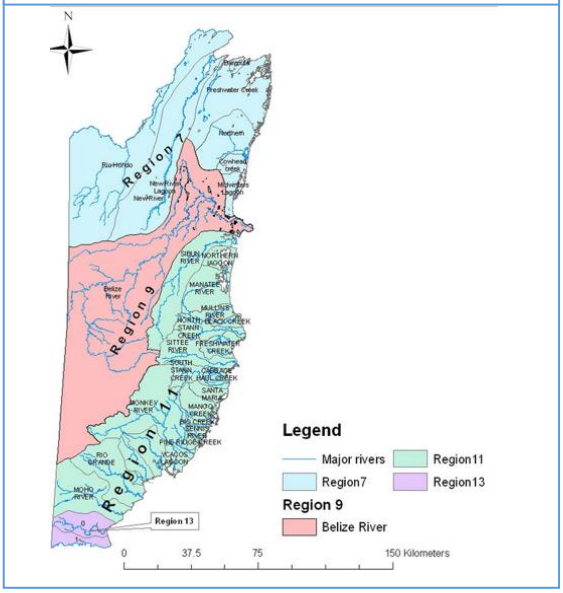
Characteristics	Transboundary basins				
	Belice River	Hondo River	Moho River	Temash River	Sarstoon River
Lifting range (masl)	0-1000	0 – 250	0-1	0	0-100
Total Area Km2	9,434.00	15,075.00	1,888.00	474	2,218
% Area in Belize	76%	14%	55%	74%	9%
Length (Km)	290	250	302	w.i.	111
w.i.=whit out Information			Source: Own data compiled using USAID, 1995 & GWP,2020		

- **Water Regions of Belize and Groundwater**

Belize has the highest water availability per capita in all of Central America, with an average annual rainfall that varies from 1,524 mm in the north to 4,064 mm in the south. (GWP, 2011: 129 cited by Kauffer E.; Mejía L. 2003). However, since the beginning of the 21st century, it has warned the demand for the resource for agricultural, industrial, and tourist fines, along with the use of population growth, affects the demand for domestic water and pollution that reduces the quality of the available resource (boles et al., 2008 cited by Kauffer E.; Mejía L. 2003).

The Hydrology Unit of the National Weather Service (NMHS) divides the country into four watershed regions (Figure 10) which are: Region 7 in the North; Region 9 in the West and the central corridor; Region 11, comprising the coastal plain and coastal slope, and Region 13, in the far south[48].

Figure 10. Belize Hydrological Regions



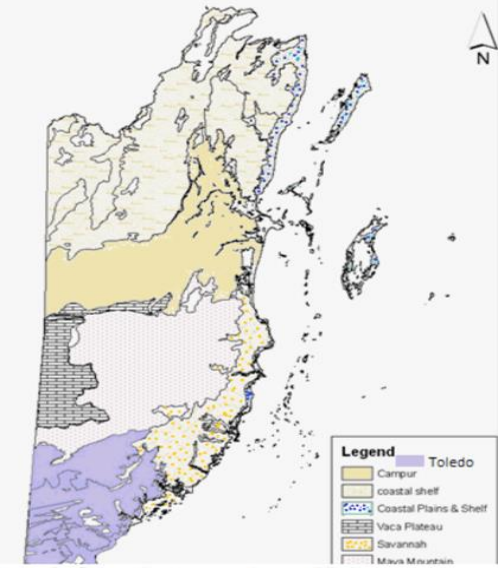
Source: National Meteorological Service,2009

Groundwater is one of the primary sources of water resources in rural Belize, where 95% of freshwater comes from underground deposits, which are generally extracted through manual pumps and rudimentary systems[49]. Belize's geology is predominantly limestone, except in the Maya Mountains, composed of igneous, metamorphic, and sedimentary rocks from 125-320 million years old (Buckalew et al. 1998).

[47] BM (Banco Mundial). 2016.Gestión integrada en cuencas transfronterizas y rol de las Entidades de Cuenca Transfronterizas ante el estrés hídrico.
[48] GWP, (Global Water Partnership) et al., 2011. Situación de los recursos hídricos en centroamerica.
[49] GWP, (Global Water Partnership) et al., 2011. Situación de los recursos hídricos en centroamerica.

The primary groundwater provinces in Belize are (Buckalew et al. 1998): the Campur, the Coastal Shelf, Coastal Plain and Shelf, the Vaca Plateau, Savannah, and the Maya Mountain (Figure 11)

Figure 11. Groundwater Provinces



Source: Buckalew, et al., US Army Corps of Engineers, 1998)

The Campur Province coincides with the outcrop of the Campur limestone north of the Maya Mountains extending eastward toward Belmopan and the coast and northward to the Coastal Plains & Shelf Province boundary.

The Vaca Plateau Province straddles the western border in the northern Cayo district and includes the western slopes of the Maya Mountains.

The Maya Mountains Province: is composed of late Carboniferous Permian volcanic material.

The Coastal Plain and Shelf Province: This includes Corozal and Orange Walk districts and the northeastern Belize district.

In 2005, the primary uses of water were destined in 43.7 percent for agriculture, 36.5 percent for industry, 3, and 19.7 percent to supply humans (Best, 2009).

According to RRB, 2021, 78% of family plots used for agricultural production were not irrigated during the 2020 index year. Orange Walk (86.7%), Toledo (85.7%), Cayo (82.9%), and Belize districts (75.5%) reported the highest percentages of non-irrigated agricultural plots. Interestingly, the Stann Creek District was the most outlier, with surveyed households reporting that 51.6% of their agricultural parcels were irrigated during 2020, while 24.5% of households in the Belize District reported irrigating their plots during the same period. Of the 21% of agricultural production plots that were irrigated in 2020, 26.4% were irrigated with water sourced from rivers, streams, or canals; 18.7% through borehole tube wells; 17.6% via improved dug wells; 16.5% from water contained in rainwater storage receptacles and 14.3% from community water systems.

- **Drinking water and sanitation**

Water Services Ltd. (BWS) is the sole water and sewage services supplier in all major urban areas and adjacent villages in Belize. BWS provides service in all major urban areas such as Belize City, Hattieville, Corozal, Orange Walk, Belmopan, San Ignacio, Benque Viejo, Dangriga, Punta Gorda, San Pedro, Caye Caulker, Forest Home/Elridge. At the rural level, the population of Belize is served mainly by the Village Water Boards, highlighting a total of 117 Boards that cover all 194 villages. These Boards with rudimentary systems serve approximately 101,093 people in rural areas of Belize (87% of the rural water population) [50].

[50] IDB, 2013. Water and Sanitation in Belize

Although 96% of the population has access to drinking water, disparities exist, especially in rural areas. There is a significant shortage of adequate sanitation and hygiene facilities in schools, especially for girls. More than 20% of schools report dealing with an unreliable water supply, while 25% use untreated Water. Only 30% of schools meet the internationally accepted standard of having one bathroom for every 25 girls, and only 33% meet one bathroom for every 50 boys. Only 13% of schools have toilets accessible to children with physical disabilities (UNICEF,20219).

- **Drainage and Irrigation**

According to the Ministry of Agriculture 2015, a significant percentage of rice production and banana for export is grown under irrigation in agriculture. Similarly, cash crops such as papayas, onions, and winter vegetables are also produced under drip irrigation. Only 8 to 10 % of cultivated land is presently irrigated. As a result, partners support the Ministry in developing potential investment plans to expand irrigated agriculture. Several factors are responsible for this low acreage coverage, including the following[51:]

- Limited institutional and technical capacity in the public sector to promote and support the implementation of the Irrigation Policy.
- Limited field data collection on the performance of present irrigation systems
- Lack of topographical maps with adequate contour intervals and watershed information needed to develop efficient and reliable water management systems for agricultural production.
- Limited public incentives and access to capital investment at affordable interest rates for drainage and irrigation schemes; and
- Limited investments in water storage systems for agricultural production.

- **Main problems related to the physical context**

☞ **Water resource issues**

One of the main water resource problems is the contamination of surface sources at the level of rivers, lakes, mangroves, and coasts. The Belize National Program Report (DOE 2008) reported that the nutrient load from sewage is believed to be increasing with the steady growth in the population living in the low-lying coastal areas like Placencia, Ambergris Caye, and other small cayes. The country can be divided into five major regions (Fernandez 2002 mentioned by GEF, 2013) based on its agricultural activity and system of rivers, as follows:

[51] Ministry of Agriculture, 2015. National Agriculture and Food Policy of Belize 2015-2030.

Region 1: The Rio Hondo and New River generally empty into the Chetumal Bay/Corozal Bay Region. These rivers carry waste from the sugarcane industry, including agricultural runoff from the sugarcane fields and the Tower Hill factory debris.

Region 2: The Belize River empties into the Belize City area. This river forms from a confluence of the Macal and Mopan River and later the Roaring Creek. Pollution from this source is mainly agricultural and residential from the towns (Benque Viejo, San Ignacio, and Belmopan) and villages along its path.

Region 3: The North Stann Creek empties into the Dangriga Area. Agricultural runoff from the Stann Creek Valley and effluent from the two citrus processing plants empty into this river. Additionally, both the Sittee and South Stann Creek River have banana plantations along their banks.

Region 4: The Monkey River, Sennis River, and August Creek empty into the Placencia Lagoon region. The predominant agricultural activity is banana production and shrimp farming. Most of the country's shrimp farms are in this area.

Region 5: The Sarstoon and Temash Rivers empty into the Gulf of Honduras. This region consists of mainly small vegetable farmers involved primarily in planting rice, beans, and corn. There are also some citrus orchards.

The northern part of the country is generally flat, and the rivers move slowly. In the south, the terrain is more mountainous, and, as a result, the rivers flow faster. The northern alluvial plains help disperse some sediment and debris from these rivers. The mangroves of these plains help retain much of the waste carried by the rivers during floods. This effect is not as pronounced in the south. (Fernandez 2002, mentioned by GEF, 2013).

The rural population of Belize does not have adequate water or sanitation service. High levels of water coverage characterize the provision of Water in Belize's rural areas and poor service quality. The poor performance of the Village Water Boards, as demonstrated by their inefficient operating performance, is due to the lack of a clear sector strategy and regulations, the weak institutional structure of the sector, and the poor governance framework of Village Water Boards (IDB, 2013). Belize's rural drinking water contains low levels of nitrates, except for a few villages where the levels exceeded the acceptable limit of 10 mg/L. Higher levels of nitrates detected in a few villages in Corozal and Orange Walk need regular evaluation and monitoring to avoid public health issues and prevent harm to livestock[52].

- **Air Pollutants**

A measure of PM2.5 in outdoor ambient air quality is used to determine levels of air pollution. PM2.5 refers to a particulate matter measuring less than 2.5 micrometers in aerodynamic diameter. These particulates can travel deep within the respiratory system, causing several adverse health issues, such as stroke, heart disease, lung cancer, and chronic and acute respiratory diseases, including asthma. The World Health Organization's (WHO) Air Quality Guideline warns that exposure to more than 10 μg/m of PM2.5 annually over a long term can cause cardiopulmonary disease and lung cancer. In

[52] Husaini D, Enriquez A, Arzu T, Miranda K, Mossiah D, Cardinez C, 2020. Nitrate Levels in Rural Drinking Water in Belize.

2017, the mean annual exposure to PM2.5 in Belize was 23.012 μg/m3, well above the recommended concentration. Other forms of disease-causing air pollutants include carbon monoxide, nitrogen oxides, sulfur oxides, volatile organic compounds (VOCs), nitrates, free radicals, heavy metals, pesticides, and industrial chemicals (Cited by Ministry of Human Development, 2019). According to PAO, 2016, the types of Air Pollutants are: Sulfur dioxide, Nitrogen dioxide, Carbon monoxide, Volatile Organic Compounds (VOC), Carbon particles, and non-carburetors primary particles.

- **Noise**[53]

The Noise Abatement Regulations, Part XI, of the Environmental Protection Act, CAP. 328 of the Laws of Belize (Rev. Ed. 2011) provides for noise pollution regulation in Belize. High noise levels can be hazardous to a person's health, causing hearing loss and other stress-related symptoms. In residential areas, the daytime permittable level of noise is 60 decibels (dB), while the nighttime (6PM to 6AM) allowed level is 45 dB. Maximum day time levels in industrial/commercial areas should not exceed 90 dB. According to the WHO, noise levels at 80 dB can temporarily cause hearing loss, while 100 dB can cause complete hearing loss. To put this in perspective, a standard older model passenger vehicle may emit noise up to 82 dB, while cars built from 2016 onward may emit noise up to 74 dB. Noise from firecrackers may exceed 145 db.

5.1.6. Disasters

Belize is highly susceptible to natural disasters, such as hurricanes, tropical storms, floods, and droughts, which affect the country regularly. Belize has paid a high price for atmospheric disasters in recent years since it is within the Tropical Atlantic route Cyclones[54]. A review of historical data from the last 107 years reveals that Belize is located along the curved path of the Cape Verde Islands hurricanes and along the way of the western Caribbean storms (GEF, 2017). Nearly 45% of the population living at low elevations are particularly vulnerable to storm surges and coastal flooding. Table 11 shows the principal disasters in Belize.

Table 11. Principal natural disasters events in Belize

Name of the Event	Category	Date & Year	Impacts
Hattie	4	31 Oct. 1961	Land fall was just south of Belize City, generating a 15 feet storm surge. Destroyed forests and generated extreme flood conditions.
Greta	3	19 Sep. 1978	Made landfall near Dangriga Town; produced torrential rainfall in the Maya Mountains and northern Belize. Losses US $25 million.
Hurricane Mitch	5	1998	Dangerous Hurricane Mitch threaten Belize, powerful wave actions degraded beach. Serious coral bleaching and die-off on reefs. Approximately 30,000 persons evacuated.
Hurricane Keith	4	29 Sep. – 2 Oct., 2000	Powerful Hurricane Keith impacted San Pedro, Ambergris with a storm surge of 4 – 5 feet, and caused extensive beach erosion. Damage: US$ 204.8 million.
Tropical Storm Arthur		26 May – 2 June 2010	Produce flooding over central and northern Belize. Damage: US$ 42.8 million.
Tropical Depression 16		Oct-10	Torrential rainfall and extensive floods in the Belize River Valley and the project zone that inundated several sections of the Philip Goldson Highway (PGHW). Damage: US$ 1.4 million.
Richard	1	Oct. 24,2010	Broken and fallen tress cluttered the stream channels, and the dry matter became fuel for widespread bush fire in the very active 2011 Fire Season. Damage: US$ 24.6 million.
Earl	1	3-Aug-16	Hurricane Earl made landfall over Southern Belize district, producing a storm surge of 2 – 3 feet and widespread beach erosion and localized coastal flooding. Damage: US$ 56.8 million.
(Source: CRRE, 2013; NMS, 2016; NOAA, 2016)			

[53] Ministry of Human Development, 2019. Community Action for Public Safety II
[54] GEF, 2017. Belize Technology needs assessment mitigation

Belize is a low-lying country and is highly prone to flooding. For example, approximately 60 % of sugar cane is planted on low lying poorly drained land prone to flooding. Over 12,000 acres or 20 % of sugar cane lands need to be emptied into significant waterways like the Rio Hondo for improved productivity. Improved drainage is expected to increase yields by 20 to 40 %27. In addition, improper natural resource management coupled with the emerging impacts of climate change has threatened the country's biodiversity and genetic resources. This situation, therefore, increases the need for Belize to place environmental issues at the center of agricultural and rural development (Ministry of Agriculture, 2015).

5.1.7. Climate Change

The country's history has been marked by numerous devastating tropical depressions, storms, and hurricanes. Climate change has significantly increased the threat level, and observed climatic trends in Belize are considered alarming. Data from the Philip Goldson International Airport shows that the temperature along the coast of Belize has risen by 1.6°F, while in the interior of the country, the temperature has risen by 1.8°F, suggesting that the temperature in Belize is rising faster than the global average of 1.4°F[55].

Belize's vulnerability to natural disasters is exacerbated by the effects of climate change, as natural hazards are expected to intensify both in terms of frequency and severity (GOB-CC, 2014, IPCC, 2007 mentioned by GEF, 2017).

The vulnerability of the agricultural sectors in Belize is not only due to their geophysical location and hydrometeorological hazards, but it is also due to the shortcomings of the current disaster risk reduction and response mechanisms to mitigate impacts effectively (FAO,2011). Table 12 shows the impact by sector of disasters and climate change:

Table 12 Sectoral impact of disaster and climate change

Sector	Disaster	Climate Change
Agriculture	Sugarcane crop is exposed to flood damage in Orange Walk and Corozal.	Expected increases of 1–2 degrees Celsius and rainfall changes of ±10 percent are predicted to lower productivity of beans, corn and rice by 10 percent.
	Citrus and banana crops are especially vulnerable to wind and flood damage in Stann Creek	Banana, citrus and emerging vegetable crops face same threats as above.
Water resources	Saline intrusions during storms affect Belize City, as well as offshore islands and coastal plains	Sea level rise has intensified the saltwater intrusion problem, particularly on offshore islands and coastal plains.
	There is inadequate drainage and sanitation around Belize City during heavy rain	Changes in evaporation rates and rainfall are affecting water resources in the country's interior
Fisheries	Exports of shrimp and other marine products are at risk to be affected by tropical storms and storm surges	Traditional catches are expected to migrate as Belizean water warms up.
	Habitats such as sea grass beds, mangroves, and coral reefs are vulnerable to storms and siltation.	Sea level rise and coral bleaching also threaten habitats for fish nurseries, such as mangroves and coral reefs

Source: Martin & Manzano, 2010. Mentioned by FAO, 2011

Sea level rise is one of the threats that is expected to be generated on the extensive coastal plain of Belize since it is mainly below 20 m above sea level, with substantial areas below 10 m and many indicated as "subject to flooding" on hazard maps.

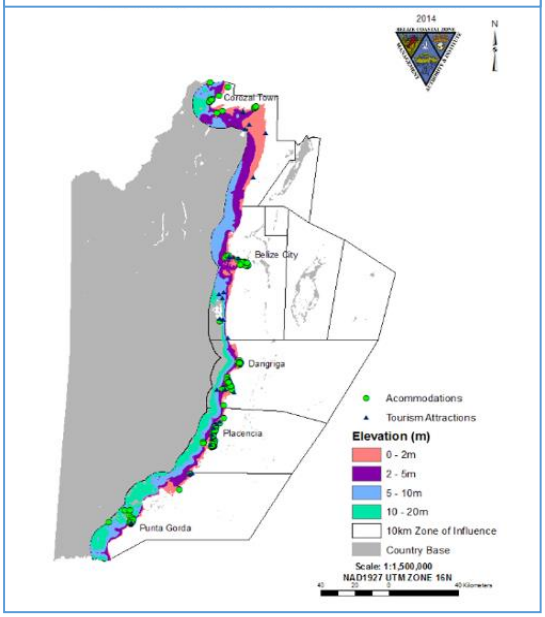
[55] 2019, Green Climate Fund. Consideration of funding proposals - Addendum III.

Along the river valleys, particularly the Belize, Mopan, and Macal rivers, vast areas below 10 m are also subject to flooding. Major roadways are likely to be affected by flooding from rising sea levels, including the New Phillip Goldson Expressway. and the Old North Highway. In addition, much of the northern part of Belize City, the center of the economic activities, is found on land below 10 m and will potentially be affected by sea-level rise. (Adaptation Fund, 2021) (Figure 12)

- **Agriculture and climate change**

According to the International Center for Tropical Agriculture: "The most detrimental effects on agriculture are likely to come from increased variability in the seasonal distribution of rainfall, which is expected to lead to more frequent droughts and floods. Additionally, projected rises in temperature of 1.3 °C by the 2030s will increase stress on crops and livestock, impacting agricultural systems, forcing changes in management practices, and threatening food production." (CIAT, World Bank. 2018). The most likely effects of climate change in Belize include[56]:

Figure 12. Coastal tourist facilities vulnerable to relative sea-level rise



Source: BTFS, CATHALAC, INEGI, IGN-Guatemala, LIC, UK Ordinance Survey, USGS, 2014

- Sea level rise
- More frequent and more intense tropical storms
- Decreased precipitation throughout the country (ranging from 6.9 percent in the northern zone to 10 percent in the southern zone)
- Increased variability in the seasonal distribution of rainfall, resulting in a greater frequency of droughts, floods, and landslides triggered by extreme precipitation.
- Increased temperature (annual mean temperature rising by 1.3 °C by the 2030s and by 1.7–1.8 °C by the 2050s in all districts, with the highest increases occurring from March to May).

These likely effects of climate change pose significant threats to Belizean agriculture. In addition to threatening to adversely affect the productivity of many crops and livestock species, they raise the possibility of higher infestation with pests, diseases, and insect attacks, against which adequate protection may not be immediately possible.

Smallholder farmers are among the most vulnerable as they suffer devastating losses, most dramatically in an extreme event but similarly through persistent and unpredictable seasonal variations. Due to the high cost of such events, smallholders' limited investment capacity is entirely focused on recovery and purchase of inputs, thus preventing them from investing in assets and measures that would limit their exposure. As a result, the impacts of climatic

[56] World Bank. 2018. Financing Strategies for Climate-smart Agriculture Investments in Belize

events are more profound, and the recovery time is prolonged. This vulnerability is exacerbated by the poor market conditions for smallholder farming in Belize[57].

The IPCC's 2050 projections for Central America predict increasing temperatures causing increasing evaporation losses, decreasing precipitation, shorter rainy seasons and longer dry seasons, increased frequency and intensity of heavy rain events causing rapid run-off or flash floods with consequently increasing erosion, more intense hurricanes and a general rise in extreme events like droughts and floods. The expected decrease in Precipitation, increase in temperature, and less predictable seasonal weather patterns will unequivocally hurt the agricultural production cycle and food security. Prolonged dry seasons have already resulted in damaging droughts, and extreme rainfall events have resulted in flash flooding that has wiped out subsistence crops and increased run-off and erosion. The expected increase in the intensity of hurricanes will lead to them traveling further inland, with impacts on agriculture, which is a decisive factor in the Belizean economy (Kongsager, R. 2017.)

Other aspects mentioned by the Minister of Agriculture related to Climate Changed in Agriculture are:

- Limited incentives to producers to continue adapting good agricultural and soil conservation practices that increase resilience.
- Lack of established relief funds or some form of insurance scheme that assist small farmers in spreading out production risks and assist in recovering from natural disasters.
- Inadequate legislative frameworks for enforcement and stiffer penalties to address praedial larceny.
- Lack of effective traceability systems for stolen produce.
- Limited application of modern technologies such as DNA and the use of drones to support efforts at addressing praedial larceny.

▪ Climate Change Impacts on Tourism

Climate Change and climate-driven sea-level rise will most likely have essential and severe impacts on the tourism industry of Belize. Increases in air temperature of 2- 4°C towards the end of the century may make conditions unbearable, especially for the elder retired tourist population that makes up the majority of tourists visiting the country. Variability in precipitation that is also projected will likely lead to extreme conditions such as increasing drought in the dry season, torrential rains and flooding in the rainy season, and water and food shortages or higher prices of imported foods. Tropical storms and hurricanes compounded by sea-level rise are also likely to increase in numbers and intensity. Apart from flooding and erosion of recreational beaches, they will also possibly cause flooding and damage to transport and other infrastructure[58]

[57] 2019, Green Climate Fund. Consideration of funding proposals - Addendum III.
[58] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.

Sea level rise and storm surges, by-products of Climate Change, would negatively impact Belize's tourism industry[59]. A changing climate and sea-level rise would result in the loss of beaches, properties, and public infrastructure and will make Belize less attractive as a tourist destination. The loss of beaches and coastline due to erosion, inundation, coastal flooding, and loss of tourism infrastructure and natural and cultural heritage would reduce the amenity value for coastal users (IPCC AR4, 2007 cited by WWF, et al., 2014).

▪ Climate Change Impacts on Fisheries

Climate Change and sea-level rise in Belize's fishing sector will be indirect. Fisheries require healthy fish habitats to survive and reproduce. Habitats in Belize include aquatic habitats, namely mangroves, coral reefs, and seagrasses, where fish spawn, breed, feed, or grow to maturity. Sea level rise could cause these habitats' partial or total disappearance due to flooding. On the other hand, increased water temperatures near the surface and increased acidification can cause massive discoloration and dieback of coral reefs [60].

The ecosystems on which the inland fisheries depend would be influenced by climate change through altered temperatures, flow regimes, and water levels. Belize, however, lies in the subtropical geographical belt where its climate is governed more by variations in rainfall than temperature, evaporation, wind, or humidity (Esselman and Boles, 2001). Changes in precipitation and water availability may result in changes in ponds/lake levels and altered distribution and abundance of fish stocks(FAO, 2011).

Consequences of Climate Change on Marine Environment are[61]:

- Reduced health and possible loss of coral reef as a result of increasing water temperature, ocean acidification, and increased storm impacts
- Declines in lobster, conch, and finfish as reef health declines and ocean acidification increases
- Reduced income for the fishing industry and individual fishermen
- Reduced tourism revenues from diving and snorkeling as the aesthetic appeal of the reef decreases
- Loss of sandy beaches, as sea level rises, storm activity increases, and ocean acidification reduces sand production
- Increasing potential dredging activity for the landfill as rising sea inundates Cayes and coastline
- Reduced income from tourism and reduced viable employment opportunities, increasing fishing pressures as tour guides switch back to Fishing.
- Increase in illegal fishing practices as personal incomes decline.
- Long-term loss of coastal protection from barrier reefs and atolls if reef growth can't keep up with sea-level rise.
- The movement of coastal communities inland increases pressure on inland ecosystems.

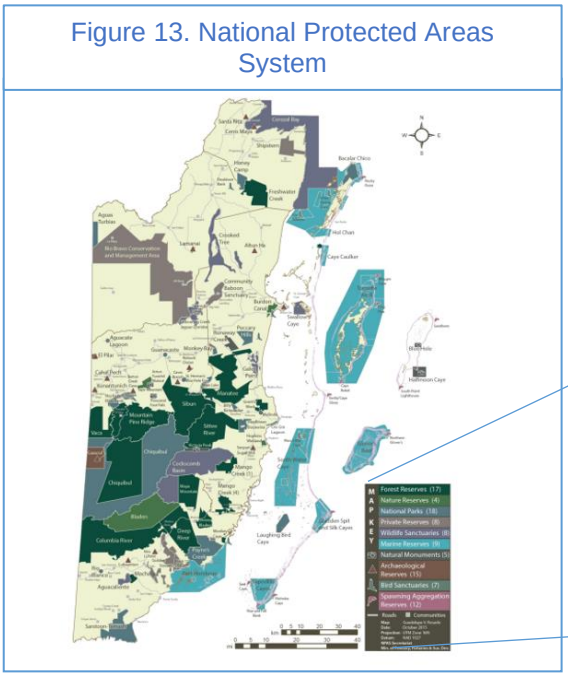
[59] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.
[60] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change
[61] GEF, et a., 2016. National Biodiversity Strategy and Action Plan

5.2. Biotic Environment

Belize is located in the Mesoamerican biodiversity hotspot, and it is characterized as having a variety of terrestrial, marine, and freshwater ecosystems[62]. The country has been more classified explicitly as having eighty-five (85) terrestrial ecosystems, fifteen (15) marine ecosystems, and forty-three (43) different river ecosystems[63]. The country is recognized as global Biodiversity where there is a continuous dependency based on natural resources[64].

5.2.1. Protected Area System

Figure 13. National Protected Areas System



Source: NPAS, Secretariat, 2015

The National Protected Areas Systems (Figure 13) are vital for Belize because of their high levels of biodiversity and the tourism and fisheries economies that they support[65]. There are currently 103 protected areas within the SNAP (National System of Protected Areas) (Table 13).

Table 13.Protected Areas of Belize

Protected areas within the NPAS (National Protected Areas System)	
Forest Reserves	17
Nature Reserves	4
Nature Parks	18
Private Reserves	8
Wildlife Sanctuaries	8
Marine Reserves	9
Natural Monuments	5
Archaeological Reserves	15
Bird Sanctuaries	7
Spawning Aggregation Reserves	12

Source: NPAS, Secretariat, 2015

The region's largest contiguous block of intact forest and the most crucial barrier reef in the Western Hemisphere stand out, with 19.8% of protected territorial waters (Table 14) [66].

[62] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.
[63] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.
[64] Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, Belize, et al., 2016. National Biodiversity Strategy and Action Plan 2016-2020.
[65] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.
[66] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.

Table 14. Sites of international recognition in the System of Protected Areas

The protected areas system includes[67]:	
Two large forest nodes, regionally crucial for biodiversity conservation	Maya Mountains Massif, and
	Part of the Selva Maya
Two RAMSAR sites declared their global importance in the protection of wetlands:	Crooked Tree Wildlife Sanctuary
	Sarstoon-Temash National Park
The Belize Barrier Reef is a biodiversity hotspot that includes:	A globally significant network of marine protected areas
	Seven marine protected areas form Belize's World Heritage Site
	Twelve protected spawning aggregation sites, critical for regional fisheries viability

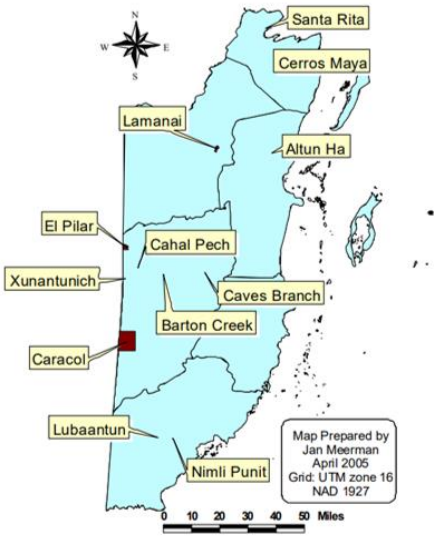
Source: NPAS, secretariat, 2015

5.2.3 Archaeological Reserves

The Archaeological Reserves include several Mayan Sites managed by the National Institute of Culture and History (NICH). The total area of these sites is approximately 28,620 acres or 11,580 ha (0.2% of the national territory). The 12 archaeological reserve sites listed here are the only ones included in the estimated area (Figure 14). It is important to note that all archaeological sites are protected by the Antiquities and Ancient Monuments Act of 1972 (as revised in 1980)[68].

As part of the Mesoamerican region covered by the Mayan civilization means, Belize has numerous ancient temples and other archaeological sites from this period. These sites are protected by law and are supervised by the Institute of Archeology (ICA), an entity dependent on the National Institute of Culture and History (NICH)[69]

Figure 14. Archaeological Reserves



Source: NPAS, 2015. National Protected Areas

5.2.4. Ecosystem

Belize protects 118 globally threatened species (9 critically endangered, 32 endangered, and 77 vulnerable) and 62 near threatened/most minor concerns (IUCN, 2016). Ecosystem services include water security, protection against tropical storms and floods, non-timber forest products, hydropower, and other benefits. In Belize, most of these services are intact

[67] NPAS, Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, Belize, et al., 2015. National Protected Areas System Plan
[68] NPAS, 2015. National Protected Areas System Plan.
[69] BM, 2021. Belize Climate Resilient and Sustainable Agriculture Project. Environmental and Social Management Framework

and functioning, and the primary dependent natural resources (fisheries, agriculture, and forestry) support the population's livelihoods[70].

The wide array of Biodiversity in Belize includes forty-three (43) species of freshwater fish, three hundred species of marine fish (300), one hundred and fifty-eight (158) species of mollusks, one hundred and twenty-two (122) species of reptiles, five hundred and seventy-six (576) species of birds, one hundred and sixty-three (163) species of mammals, forty-two (42) species of amphibians and forty (40) species of corals. The country is also estimated to have four thousand (4,000) flowering plants, many of which are medicinal value. Most of these species, considered under pressure in Central America, are being protected (Gillett and Myvette, 2008, mentioned by BBCO, 2016).

Natural ecosystems, at the level of forests, savannahs, freshwater, or marine, are being subjected to increasing pressure related to expanding the human footprint, transboundary incursions, land pollution, and unsustainable Fishing[71].

5.2.5. Ecosystem services

According to the Environmental and Social Policy Framework IDB 2021, ecosystem services are the benefits that people, including businesses, obtain from ecosystems. There are four types of ecosystem services: (i) provisioning services, which are the products that people obtain from ecosystems; (ii) regulation services, which are the benefits that people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the immaterial benefits that people obtain from ecosystems; and (iv) support services, which are the natural processes that maintain the other services.

Belize has different ecosystems according to whether they provide national, regional or international services. Within the main ecosystems are the marine areas with coastal ecosystems such as mangroves and ecosystems of beaches and forests[72].

An effective network of marine protected areas with zones and regulations in force exists. As a fisheries management tool, most Marine Protected Areas are managed according to ecosystem-based management principles under the Belize Department of Fisheries. Bottom trawling has been prohibited, as it has the use of nets on the reef and the fishing of herbivores critical to the reef's health. Managed access is being introduced as a management tool to reduce fishing pressure within marine protected areas and increase sustainability. Belize also has several other vulnerable ecosystems, including: the Elfin Forest, a near-cloud forest of the Maya Mountains Massif, and the nearly unique Sphagnum Swamp of Sarstoon Temash National Park of only two known lowland peat bogs in the region. Other vulnerable ecosystems include littoral forests, mangroves, and beach grass communities, all under severe development pressure as Belize's coastal beaches and cayes increase in popularity as tourism, investment, and retirement destinations. Sandy beaches are critical for nesting sea turtles and American crocodiles, and the littoral forest for the island's leaf-toed gecko, a species with highly disparate distributions, as well as numerous species of migratory birds[73].

[70] Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, Belize, et al., 2016. National Biodiversity Strategy and Action Plan 2016-2020.
[71] Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, Belize, et al., 2016. National Biodiversity Strategy and Action Plan 2016-2020.
[72] GEF, et al, 2017. Capacity Development in Belize.
[73] GEF, 2014. Analysis of Biodiversity Targets

5.2.6. Invasive Species[74]

In the terrestrial environment, the most significant concern is for vectors of human diseases, such as the African yellow fever mosquito (Aedes aegypti) (also vector for dengue), yellow fever, and chikungunya and zika viruses become more prevalent in Belize. Major agricultural pests include citrus greening disease (transmitted by the Asian citrus psyllid (Diaphorina citri); the invasive pink hibiscus mealybug (Maconellicoccus hirsutus); and the medfly.

Two non-native herpes are found in Belize – the Asian house gecko (Hemidactylus frenatus) has arrived, which has replaced the smaller dwarf gecko in urban and rural areas. For the marine and freshwater environment, the high connectivity means controlling invasive species has not been possible invasive lionfish (Pterois volitans), native to the Indian and Pacific Oceans, are the ones that have had the most significant impact.

5.2.7. Main problems related to Biodiversity

According to the NBSAP 2018, the principal pressures and threats to Biodiversity and Ecosystems are[75]:

- Land-use change (deforestation, forest fragmentation, mangrove clearance, wetlands filling).
- Climate Change.
- Unsustainable exploitation of natural resources.
- Pollution (agrochemicals, industrial/urban effluent, solid waste, sewage, sedimentation).
- Anthropogenic fires.
- Invasive species.
- Unsustainable Tourism Practices (exceeding guide/visitor ratios, exceeding limits of acceptable change, poor boating practices, illegal wildlife interactions, negative impacts from large-scale cruise ship tourism).
- Natural disasters

Other relevant issues are

- Environmental deterioration such as toxic algae blooms and the destruction of coral reefs: Algal blooms and "fish kills" have occasionally been reported in rivers like the New River in the Orange Walk district and attributed to nutrient-rich effluents entering watersheds from point and diffuse sources (DOE 2008).

- Ecological impacts are caused to water resources by discharges from shrimp farms in effluents in southern Belize (Ledwin 2010).

[74] NBSAP, et al., 2018. National Biodiversity Strategy and Action Plan 2016-2020.
[75] NBSAP, Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, Belize, et al., 2018. National Biodiversity Strategy and Action Plan 2016-2020.

5.3. Social-Economic context

5.3.1. Social context

- **Identification of population and communities in the Program area**

According to demographic data from the 2010 Census, the Program's Area of Influence has 324,528 people, including rural and urban areas of the country, distributed in a non-institutional population of 322,453 people, 1,957 people residing in institutions and 118 people found living in the streets. The population of Belize is predominantly rural, with 55% of the total number of people located in this area. Table 15 below shows the distribution of the District's population in the area of influence.

Table 15. The population of the Area of Influence of the Program by Districts

Districts	Urban	Rural	Total
Corozal	13,314	37,176	50,490
Orange Walk	13,665	39,708	53,373
Belize	86,806	40,875	127,681
Cayo	56,254	45,861	102,115
Stann Creek	10,680	35,335	46,015
Toledo	6,530	32,995	39,525
Total	**187,249**	**231,950**	**419,199**

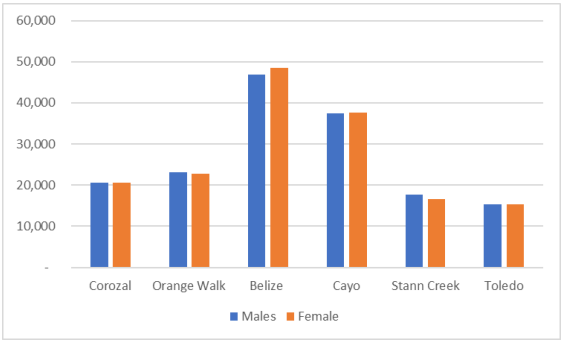
Source: Own data compiled using the Statistical Institute of Belize estimated 2018-2020

Between Census 2000 and Census 2010, the Belize District continues to have the highest share of the population at 30 percent, an increase of two percentage points since 2000. Cayo follows this with 23 percent and Orange Walk with 14 percent of the population. Toledo has a minor proportion of the population at 9 percent (The Statistical Institute of Belize, 2010).

- **Composition by age and sex**

According to location and sex, the composition data show that the most significant number of people are located in Belize. The distribution between men and women is similar where 50 % males and 50% females. (Figure 15).

Figure 15. Distribution of population by sex according to District



Source: Own data compiled using The Statistical Institute of Belize 2010

According to the Ministry of Health, 2014 Belize had a young population in 2012, since 35.59% of the population was under 15 years old, while 53.67% was 20 years old or older. The elderly (60 years or older) represented 6.1% of the total population. Life expectancy at birth was estimated at 72 years for men and 74 years for women. Women of childbearing age (15 to 49 years old) represented 52.67% of the total female population. The average real fertility rate for 2002-2006 was 3.3 children per woman of childbearing age.

- **Ethnicity and multicultural diversity**

The population of Belize is ethnically diverse and multicultural, made up of four main ethnic groups: Creole, Garifuna, Maya, and Mestizo[76]. The information from the 2010 Census in which the ethnic groups in Belize are identified is shown in Table 16.

Table 16. Percentage of Population in each Ethnic Group by District, Belize 2010

Ethnic Groups	Percentage of Population	Corozal	Orange Walk	Belize	Cayo	Stann Creek	Toledo
Asian (Japanese, Chinese; Taiwanese)	1.0%	0.8	0.8	1.5	1	0.9	0.3
Caucasian/White	1.2%	1	0.3	1.7	1.3	1.7	1
Creole	25.9%	8	7.2	56.5	18.5	22	5
East Indian	3.9%	4.3	0.7	5.4	2.1	5	6.3
Garifuna	6.1%	0.9	0.8	6.4	2	27.5	6.1
Maya	11.3%	2.8	1.7	2.4	8	16.9	66.5
Mennonite	3.6%	6.7	11.1	0.2	4.2	0.2	0.8
Mestizo/Spanish/Latino	52.9%	79.3	79.7	34.5	67.5	33.9	19.9
Other	1.2%	0.9	0.5	2.4	0.9	1	0.5
No Sttated	0.3%	0.7	0.3	0.2	0.2	0.2	0.1
Total Population		**41,061**	**45,946**	**95,292**	**75,046**	**34,323**	**30,785**

Source: The Statistical Institute of Belize 2010

Belize is a large heterogeneous country where mestizos are considered the leading ethnic group. Approximately 52.9% of the population, or 170,446 Belizeans, identify as belonging to the mestizo group, at least in part (The Statistical Institute of Belize 2010). The second-largest ethnic group, the Creole, comprises 26% of the population, or 83,460 Belizeans (Muñoz & Gibson, 2015).

The Cayo, Corozal, and Orange Walk Districts' populations are predominantly Mestizo. The Belize District is heavily Creole; the Garinagu are most numerous in the Stann Creek District, and the Maya and East Indians are concentrated in the Toledo District. The Toledo District has the highest level of the population living in poverty (79%), followed by Orange Walk (34.9%), Stann Creek (34.8%), Cayo (27.4%), Corozal (26.1%), and Belize District (24.8%) (Ministry of Health, 2014).

According to the 2010 Census of the Belize Institute of Statistics, the indigenous population comprises 11.3% of the total population. Indigenous peoples, all of Mayan origin, are present in all six districts. They live mainly in rural areas in essentially peasant communities but are not distributed uniformly throughout the country (Table 17). The Q'eqchi´ and Mopan Maya live primarily in the District of Toledo and to a lesser degree in Cayo and Stann Creek districts, whereas the Yucatecan Maya are located mainly in the District of Cayo and to a lesser degree in the District of Corozal (IFAD, 2017).

[76] Ministry of Health, 2014. Belize Health Sector Strategic Plan

Table 17. Population by Maya Ethnic Group Affiliation and District

Ethnic Groups	Country Total	Corozal	Orange Walk	Belize	Cayo	Stann Creek	Toledo
Maya Ketchi	20,616	399	254	1,118	1,904	1,852	15,089
Maya Mopan	13,022	169	297	926	2,371	3,910	5,349
Maya Yucatec	2,869	590	226	278	1,699	47	29
Total	36,507	1,158	777	2,322	5,974	5,809	20,467

Source: IFAD, 2017

- **Language and culture**[77]

In Belize, the Maya and Garifuna communities have maintained their cultural and linguistic heritage. The following indigenous languages are spoken in the country: i) Yucatecan Mayan: now being displaced by Spanish; ii) Mopan Mayan: 86 percent of Mopan Maya people consider this their first language; iii) 3. Q'eqchi' Mayan: 96 percent of Q'eqchi' Maya people consider this their first language; and iv) Garifuna: now being displaced by Creole.

- **Gender**

Belize, in 2010 was in the last position (131) on the Global Gender Gap Index in the area of political empowerment of women. In addition, the United Nations has classified Belize as out of place regarding the promotion of gender equality and the empowerment of women, the goal #3 of the Millennium Development Goals (UNDP 2013). This classification was based on the proportion of women employed in the non-agricultural sector and the proportion of women's seats in the National Parliament. Beyond the MDGs, the female unemployment rate is significantly higher than the male unemployment rate across the country, although overall, the unemployment rate is high. (Muñoz & Gibson, 2015).

Agriculture and Fishing continue to be one of Belize's vital economic sectors. While primary industries account for the second-largest share of the workforce production in Belize, totaling 20,2060 workers in 2015, 93.3% of workers in the sector are men, or 18,907, compared to 6.7 % or 1,353 women. The sexual division of labor in agriculture and Fishing, in part, underlines the differential impact of policy decisions in the sector on women and men. Secondary industries account for the second-highest industry share of GDP in Belize. However, with the inclusion of mining and quarrying, only 15,508 males and 3,930 females are employed in the sector, comprising 19,438 or 14.4% of the total labor force. Male labor thus accounts for 79.7% of employment in the industry. D (Huggis T. 2016).

Tourism is considered one of the critical sectors in the country, with the tertiary sector as a whole accounting for approximately half of Belize's entire economy (Belize Institute of Statistics, 2015). Industries related to the tourism sector provide the closest appearance of equality between male and female labor participation. Employment figures for 2005 put the male share at 55% of total employment in tertiary industries, with women at 45% more women than men are employed in hotels and restaurants, with a female workforce accounting for 65%. (Huggis T. 2016).

Gender-based violence includes child abuse, domestic violence, commercial sexual exploitation of children and adolescents, commercial sex work, human trafficking, rape, and sexual assault. It also includes male violence in the streets. Domestic violence continues to be reported, especially by women. Between May and November 2003, the staff of the Women's Department tracked the issue of domestic violence. At least ten women had been

[77] IFAD, 2017. Country Technical Note on Indigenous Peoples' Issues

killed allegedly by boyfriends, partners, or ex-partners. Many more are victims of beatings, mutilations, and other forms of abuse[78].

- **Education**

Belize's school attendance is the lowest in Latin American and Caribbean regions[79]. Among children of primary school age (5 to 12 years), 95.9 percent attended formal school in 2010. One-third of the entire Belizean population aged two and over is enrolled in the traditional education system, with no significant difference between male and female enrollment. (The Statistical Institute of Belize 2010).

In Belize, 8% of children do not complete primary school, while 31% do not complete secondary school. In 2015, about 9.5% of children of lower secondary school age were not attending school. Children with lower levels of education are at greater risk of living in poverty throughout their lives, seeing reduced life expectancy, and experiencing more health problems. The COVID-19 pandemic has been particularly detrimental to teaching. The closure of schools has affected more than 108,000 children and youths. (UNICEF,2021)

The additional members of the population attend vocational schools scattered throughout the country and are equipped to provide the necessary skills and practical experience needed for productivity in the main sectors of the Belizean economy. Tertiary educational institutions available include the University of Belize (UB), Central America Health Sciences University (CAHSU), Belize Medical College, and Galen University, which offer associate, bachelor's, master's, and Doctoral degrees (NCCO,2016).

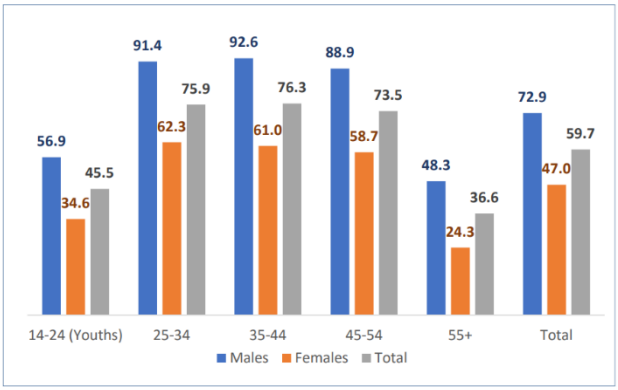
- **Labour Force**

Since 2012, the Labor Force Participation Rate (LFPR) has remained in the 60 percent range, fluctuating from 63 to its highest point in April 2019 at 66.4 percent. In April 2021, a notable decrease to 59.7 percent in the LFPR was observed mainly due to revisions to the definitions. The unemployed who use the previous report are now reclassified as inactive. However, increases in inactivity or people out of the labor force also influenced participation levels. In particular, some formerly employed people left the labor force due to job losses related to the COVID-19 pandemic. (LFS,2021).

Figure 16 represents the labor force participation rates by sex and age group for 2021. The highest levels of labor force participation were observed in males between 35 and 44 years old with 92.6 percent, while the lowest levels were found in the groups of men older than 55 years with 48.3%. The highest rate of participation of women occurs in the levels between 25 and 34 years old with 62.3%, while the lowest participation is registered among women over 55 years old with 24.3%. (LFS,2021).

[78] Ministry of Health Belize, 2014. Sector Strategic Plan 2014-2024
[79] BCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.

Figure 16. Labour Force Participation Rates by Sex and Age Groups 2021



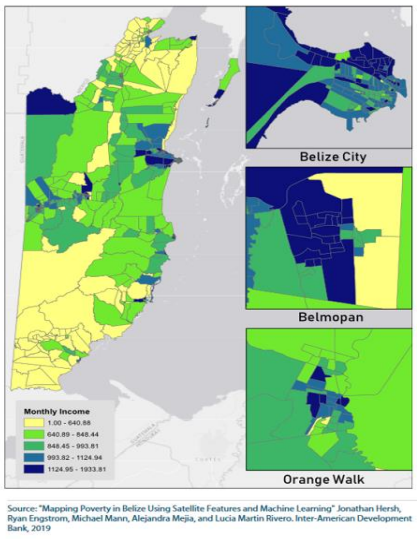
Source: Statistical Institute of Belize. Labour Force Survey, April 2021.

- **Poverty**

The World Bank's 2009 Belize Country Poverty Assessment shows that the population living below the poverty line increased from 34% in 2002 to 41% in 2009. The proportion of households living below the poverty line increased from 25% in 2002 to 31% in 2009[80].

The poverty rate in rural areas of the country increased slightly in 2018 to 59%, compared to 55% in 2009. However, the poverty level in urban areas showed a further increase from 28% in 2009 to 43% in 2018. All districts except the Corozal district saw increases in the poverty level in 2018 compared to 2009. Corozal had the lowest poverty rate in 2018 at 45 percent. It also showed the most significant drop in the indigence rate, from 16 percent in 2009 to 5 percent in 2018. As in 2009, the Toledo district experienced the highest poverty rate in 2018 at 82 percent, a sharp increase. 60 percent in 2009. This District also had the highest homelessness rate in 2018 at 30 percent. (The Belize Institute of Statistics, 2021)

Figure 17. Poverty Map – Monthly Income Estimates



Source: "Mapping Poverty in Belize Using Satellite Features and Machine Learning". Jonathan Hersh, Ryan Engstrom, Michael Mann, Alejandra Mejia, and Lucia Martin Rivero. Inter-American Development Bank, 2019

Source: IDB Group, 2020

The highest poverty rate was observed among children (0-14 years) by nearly 60 percent. This group also experienced the highest level of homelessness at 12 percent. In contrast, the elderly population (65 years and older), showed the lowest poverty level at 43 percent. (The Belize Institute of Statistics, 2021).

Given the lack of poverty statistics, the IDB conducted income poverty mapping using satellite data images that identified improvements in reducing income poverty (Figure 17). The IDB study indicates that the poorest districts continue to be Corozal in the north and Toledo in the south (IDB Group_2020).

[80] CIAT; World Bank. 2018. Climate-Smart Agriculture in Belize. CSA Country Profiles for Latin America and the Caribbean Series. International Center for Tropical Agriculture (CIAT); World Bank, Washington, D.C. 24 p

- **Migration**

According to CEPAL, the Caribbean countries are the origin, transit, or final destination of migrations. During the period 1996-to 2000, the governments of Antigua and Barbuda, the Bahamas, Belize, the Dominican Republic, and Suriname reported 2000 that they perceived immigration as too high. (CEPAL, 2005).

In the early 1980s, Belize became a haven for Central American countries such as Guatemala, El Salvador, and Honduras seeking safety for those fleeing civil war or seeking economic opportunity. With very little formal education in many cases, these migrants moved mainly to rural communities to work in the agricultural sector. According to the 1991 population census, approximately 30,000 to 40,000 immigrants lived in Belize, while other sources have cited more than 60,000 immigrants, who make up about a fifth of the total population. (CEPAL, 2005).

According to some researchers, immigration fostered cultural pluralism, impacting national identity and even enhancing the possibility of ethnic conflict (Palacio, 1990). It caused a renewed perception of what was meant to be Belizean among the native ethnic groups and consequently fostered an "anti-Central American" ideology. He suggests that the national xenophobic feeling is that Belize had been an English colony. (Mentioned by CEPAL, 2005).

Migratory movements have been relatively fast and drastic for Belize, and their impact on the demographic profile of the population has been posing a series of serious challenges related to [81]:

- The influx of migrants to rural areas has caused an increase in solid and liquid waste flows that have harmed the environment.
- Competition for access to basic infrastructures, such as water, education, health, and sanitation.
- An increase in unsustainable agricultural practices by immigrants.
- An increase in the level of poverty as a result of environmental degradation;
- Particularly in rural areas, migrants working in agriculture add pressure to the
- natives accepting work in less favorable conditions and, consequently, are seen as unequal
- The anti-immigrant sentiment is expressed by parts of the native population.

The International Organization for Migration (IOM) defines irregular migration as“the movement of people that occurs outside or in breach of the laws, international regulations or agreements that govern the entry or exit of the country of origin, transit or destination” (IOM, 2019a, p.128). Being outside of the law's entry and regular residence registers, people irregular migrants face gaps in accessing judicial authorities or administrative procedures, which makes it challenging to protect their rights. Belize criminally punishes irregular migration as a crime.

[81] CEPAL, 2005. Migration in the Caribbean- What do we know?

In Belize, immigrants represented 15.6% of the total population in 2020[82], the highest percentage observed in the region. Additionally, Belize has recorded a positive net migration in the last two decades, with a rate of 3.2 for 2020 (BIS, 2020 cited by OIM, 2021). From 2016 to 2019, 1,433 people subject to criminal sanctions for income were registered irregularly in the prisons of Belize. Of these people, 588 (41%) were of Honduran nationality, 424 (29%) of Salvadoran race, and 292 (20%) of Guatemalan nationality (IOM, s.f.k)

The primary institution in charge of managing the migration issue in the country is the Ministry of Foreign Affairs, Foreign Trade, and Immigration. Regarding irregular migration, the Belize Immigration Act in chapter 156 stipulates that people who do not enter the country through an official border crossing, that their entry has not been previously approved by the immigration authorities in Belize, or fail to inform an immigration officer promptly immediately upon entry, they may be subject to criminal prosecution (Government of Belize, 2000, art.24.).

- **Health**

  - **Mortality and Morbidity in General Population**

One of the significant epidemiological trends in Belize is the increasing prevalence of infectious diseases such as type 2 diabetes mellitus, heart disease, cardiovascular disease, and cancers. According to Belize Health Statistics Volume 7, as of 2007, the leading causes of mortality are heart disease and diabetes and their complications. Women have a higher mortality rate than men from diabetes; about 50% of women die of diabetes-related causes compared to men, while the leading causes of death in men are homicide, HIV, and traffic accidents. The increase in homicides, mainly in Belize City, significantly impacts male mortality trends in Belize, and statistics indicate a gradual increase every year. (Ministry of Health, 2014).

About morbidity, the first three causes are responsible for almost half of all hospitalizations at the national level: Complications of Pregnancy, Childbirth, and Puerperium (1st place); Injuries, Poisoning, and Certain Other Consequences of External Causes (2nd place); and acute Respiratory Infections (3rd place). (Ministry of Health, 2014).

Despite the progress made in reducing morbidity and mortality in children, health indicators are receding. The overloaded systems health workers have problems maintaining good health and nutrition for children. The country's high poverty rate and growing inequality make it difficult for low-income vulnerable populations can obtain food. Many Families have resorted to unhealthy nutritional practices based solely on their affordability, with the consequent deterioration of food security. Unhealthy diets and insufficient physical activity have led to increased non-communicable diseases such as diabetes and cardiovascular conditions, even among children (UNICEF, 2021).

[82] The estimate of immigrants in Belize was 62,043 for 2020. The total population of the country for that same year was 397,600, according to BIS data, 2020

- **Health and Pesticides and Fertilizers**

Many of the most widely used pesticides are highly toxic (Ia, Ib in the World Health Organization classification) or have toxicological characteristics of concern for other reasons. In Central America, considerable amounts of highly acute and chronically toxic pesticides have been used for several decades (Hilje et al. 1987, Wesseling and Castillo 1992, Murray 1994). In Costa Rica, Guatemala, and Belize, pesticide use nearly doubled.

Specific production characteristics (manual operations, open systems, time pressure and payment per area sprayed) and the technologies used for pesticide application (hand pump and aerial spray) may still cause high levels of exposure and accidents. Even when used properly, equi- pos for personal protection do not seem to offer the necessary protection. In hot and humid climates, clothes get wet from sweat or contact with wet plants, which allows pesticides to penetrate the clothes. Occlusion of pesticides under protective clothing can increase by up to ten times the dermal exposure (Brouwer et al. 2000). In addition, workers who feel protected pesticides could be applied less cautiously.

For the period 2000-2004, Belize, Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, and Panama imported almost 33 million kg of pesticides per year, with 403 active ingredients. 22% of this amount corresponded to pesticides classified as highly to extremely dangerous according to their acute toxicity, 33% were pesticides with two or more moderate or severe topical effects and 30% had four or more effects due to chronic toxicity. Between 2005 and 2009, Belize showed an increase from 408 to 514 tons ay/year in the total quantity of pesticides imported.[83].

Table 18 shows the essential pesticides used in Central American countries. Between 2005 and 2009, Honduras (3069 – 4564 ton ay/year), Costa Rica (11496 - 12291 ton ay/year), and Belize (408 - 514 ton ay/year) showed increases in the total quantity of pesticides imported; while Panama (3,157 - 2,433 ton ay/year) and El Salvador (1,737 - 1,286 ton ay/year) reduced it. Despite being the country that imported the least pesticides, Belize ranked second in the region, with imports of pesticides two times higher per inhabitant, three times higher per agricultural worker, and three times higher per hectare of livestock (Bravo, 2015). It is worrying to note that more than 70% of the amount imported corresponded to pesticides with chronic effects such as genotoxic, neurotoxic, and endocrine disruptors and that 50% have carcinogenic effects. In addition, the proportion of endocrine disruptors increased by 3%, and that of teratogenic and carcinogenic substances increased by 2%, compared to the period 2000-2004 (Bravo et al., 2011).

[83] Bravo V, et al., 2015. Importación de plaguicidas peligrosos en salud en América Central durante el periodo 2005-2009.

Table 18. Pesticides in Central American countries.

Plaguicida	Países	Características toxicológicas preocupantes
Paraquat	Belice, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá	Intoxicación ocupacional y accidental fatal, suicidios (Wesseling y Castillo 1992, Bismuth y Hall 1995, Wesseling *et al.* 1993 y 1997a), lesiones dérmicas y oculares (Wesseling *et al*. 2001a y 2001b).
Mancozeb	Belice, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panamá	Cáncer *, tóxico para la glándula tiroides (Steenland *et al*. 1997), dermatitis (Koch 1996), neurotoxicidad (Ecobichon *et al.* 1990).
Terbufos	Belice, El Salvador, Guatemala, Nicaragua, Panamá	Intoxicación ocupacional fatal (WHO Ia) (Wesseling y Castillo 1992).
Metamidofos	Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua	Intoxicación aguda (WHO Ib) (Wesseling y Castillo 1992, Corriols 1999), neurotoxicidad periférica (McConnell *et al*. 1994 y 1999, Miranda 2002).
Bromuro de metilo	Costa Rica, Honduras, Guatemala	Intoxicación aguda (WHO Ib) (Langard *et al.* 1996), neurotoxicidad (De Haro *et al.* 1997).
Carbofurán	Costa Rica, El Salvador	Intoxicación aguda (WHO Ib) (Corriols 1999, McConnell y Hruska 1999).
Metil paratión	El Salvador, Guatemala	Intoxicación aguda (WHO Ia) (Wesseling y Castillo 1992, Wesseling *et al*. 1993, Corriols 1999).
Arseniato de cobre	Belice, Honduras	Cáncer (IARC 1987).
Aldicarb	Belice	Intoxicación aguda (WHO Ia) (Wesseling y Castillo 1992), immunotoxicidad (Thomas *et al*. 1990).

*http://ntp.server.niehs.nih.gov/htdas/8_doc/RAC/ethylenethiourea.htlm: July 2001

The agriculture sector is the second largest importer and user of chemicals (pesticides and fertilizers) in Belize, the first being the transport sector. The related production and processing 32 activities are the largest generators of industrial effluent and solid waste (Belize National Environmental Summary, 2011). Some critical challenges concerning human and environmental health and the safer use and handling of pesticides and other agrochemicals are highlighted below[84]:

- There are variations in the properties of pesticides with respect to their composition, place and time of application, efficacy, cost, environmental effects, toxicity, availability of alternatives, and compatibility with other alternative activities such as integrated pest management and sustainability and welfare issues.

- According to the Ministry of Agriculture, 2015, BAHA is the primary legal body responsible for food safety, sanitary, and phytosanitary issues. The Ministry has a Biosafety Council that works in close collaboration with BAHA. The Pesticide Control Board promotes the safe use and proper application of pesticides. Notwithstanding the operational responsibilities of these relevant agencies, there are deficiencies in the agricultural health and food safety system in Belize resulting from:

• Limited capacity of BAHA to carry out all necessary services to ensure the health of the agriculture sector.

• Insufficient resource allocations to BAHA from the public sector to allow the authority to adequately carry out its responsibilities, resulting in higher charges to the producers and agro-processors.

[84] IIICA, et al.2017. A Strategic Plan for the pesticides control board 2017-2021

- The processes of BAHA, which are time-consuming and excessively bureaucratic.
- Insufficient monitoring of imported and local products for pests and residues.
- Lack of a clear, unambiguous policy on GMOs that allows the import of GMO goods while restricting their local production.
- Lack of a revised and updated Bio-safety Policy; and • Insufficient grading, standards, SPS mechanisms and bio-security measures in place.

➢ **The COVID-19 Pandemic**

The COVID-19 pandemic has put significant pressure on the health system with limited resources, as is the case in Central American countries, including Belize. As of August 2020, Belize has a fatality rate of 0.84% for people infected with the virus. The rapid increase in cases was related to the initial illegal cross-border movement near border communities and the arrival of visitors, leading to the community spread of the COVID-19 virus. The Government of Belize (GOB) has significantly increased and prioritized spending and investment in health are starting in March 2020 to bolster the health system's capacity.[85]

Concerning Indigenous Peoples, the UN Expert Mechanism recently stated, "The spread of COVID-19 has exacerbated and will continue to exacerbate an already critical situation for many Indigenous Peoples: a situation in which inequalities and discrimination already abound. Increasing recessions at the national level and the real possibility of a global depression will further aggravate the situation, causing a fear that many indigenous people will die, not only from the virus itself but also from conflicts and violence linked to the scarcity of resources, and in particular drinking water and food."[86]

The socioeconomic impact of the coronavirus disease pandemic of 2019 (COVID-19) has exacerbated the fragility of the Belizean economy. It is calculated that in 2020 the gross domestic product (GDP) contracted by 15.5% and was below the average of 7.9% for the entire Caribbean (UNICEF, 2021).

From a multidimensional perspective, the COVID-19 pandemic has altered the essential services guaranteeing children and adolescents' education, health, and protection, significantly affecting the most vulnerable. I know it is expected to increase the poverty that affects children, adolescents, and their families substantially due to the destruction of jobs, loss of means of subsistence, subsistence, and reduction of income. Given that in 2021 42% of the country's inhabitants are under the age of 18, and approximately 22% of them are in their teens, thousands of children and adolescents, including children with disabilities or those living in climate-sensitive areas, are facing the risk of being severely affected negative (UNICEF, 2021).

- **Road Infrastructure**

Most parts of the country have access to communication and transportation. According to the Ministry of Agriculture, 2015, the significant highways from North to South are in good condition. Significant weaknesses identified in the infrastructural area include:

[85] PNUD, 2020. COVID-19 Socioeconomic Impact Assessment Belize
[86] ONU, Consejo de Derechos Humanos, Mecanismo de Expertos de las Naciones Unidas sobre los Derechos de los Pueblos Indígenas (MEDPI), Declaración: COVID-19 un desafío más para los Pueblos Indígenas, 6 de abril de 2020

The quality of the road network in the rural areas, especially in the sugar belt, is considerably inferior to other parts of Belize, constraining rural development and limiting poverty reduction and competitiveness. The economic consequences are increased vehicle operating costs and travel time, high post-harvest losses, limited market access, and low road safety.

- Inadequate rural infrastructure results in product losses and high transport costs (especially farm-to-market roads).
- Inadequate storage facilities and packing facilities.
- Limited distribution systems and buying centers.
- Inadequate deep water port facilities and limited shipping to the Caribbean

5.3.2. Economic context

- **Land Tenure**

With regard to land tenure, the country is divided into national land (owned by the government, including lease-land), forest reserves, private land, and Indian reservations. The forest reserves are held and administered by the government. However, large tracts of current forests are logging concessions, while others are protected. Some of the latter are co-managed by conservation NGOs (non-governmental organizations). The reservation land system was drawn up in 1924, but since the 1940s the government has taken steps to privatize land in reservations. Thus, in some cases, for example, in the Toledo district, the system around the towns is a mix of reserve land, leases, private land, and informal arrangements, all of which operate pragmatically through ongoing negotiations and the exercise of political power. Still, disputes over land ownership and frequent court cases are prevalent (Kongsager, R. 2017.)

The concentration of land holdings among just a few frequently absentee landowners Exacerbates a pattern whereby squatters occupy lands and perform slash-and-burn, or milpa, agricultural practices. After years, these settlers may claim that they have adversely possessed the portion of their used land, leading to confusion and uncertainties about the clear title to lands in Belize. This problem has only increased as large numbers of immigrants from Central America have come to Belize, often occupying rural farmlands. The relatively low revenue received from land taxes is another pervasive feature of land tenure in Belize. To address the problems of taxes and land distribution, the government has periodically introduced legislation to facilitate the proper use of land and increase land-based tax revenue[87]. The Ministry of Natural Resources and the Environment, Commerce, and Industry is a principal agency in the public administration structure of Belize. It is responsible for the management of the country's natural resources.

- **Industries**

Belize has a small open economy that depends on its natural resource endowments. Historically, the country has always relied on the agricultural and forestry industries for economic development. Production of exports of sugar, citrus, bananas, and forestry contributed significantly to the country's economic growth (NCCO_2016). The Belize

[87] Marsan, J. 2004. Private Lands Conservation in Belize. The University of Colorado Boulder. Natural Resources Law Center

Institute of Statistics estimates the value of the country's GDP at BZE 2,635.6 million dollars based on 2014 data.

The primary industries, which include agriculture and forestry (10.15%), Fishing (3.08%), and mining and quarrying (0.46%), gave a minor contribution of 13.70% and a total of BZE 381 million dollars. Secondary industries such as manufacturing (9.90%), construction (2.81%), and electricity and water supply (3.33%) are the second-highest income earners, contributing to 16.03% of the GDP with a total of BZE $407.2 million. Tertiary industries, including the tourism and services sector, have contributed 60.29% of GDP with a total of BZE $1,589.1 million in 2013. This includes wholesale and retail trade and repairs (15.36%), hotels and restaurants (4.72%), transport and communications (11.01%), financial intermediation (6.65%), and real estate (10.15%) and community services (4.72%), among others. (NCCO_2016).

- **Agriculture**

The Agriculture and Food Sector remains one of the main pillars of the Belizean economy and is considered by the Government to be one of the main engines of economic growth. (Ministry of Agriculture, 2015). The economy contributes approximately $590 million annually to economic output, representing 80% of domestic exports, and directly employs 17.9% of the Belizean population (Ministry of Agriculture, 2018).

Economic performance in the agriculture sector is primarily dependent on traditional export crops such as sugar, citrus, and banana which currently account for about 60% of the earnings, with citrus exports being the principal source of income, followed by sugar and banana. Rice, corn, and beans are the leading domestic food crops. (CCSI, 2014). Large-scale agriculture tends to be technically and commercially sophisticated and geared toward domestic and export markets to take advantage of economies of scale. While smaller-scale farms include farms that supply subsistence and local markets, they also have many sugarcane and citrus growers (as well as, increasingly, growers of peppers and other non-traditional crops) who sell to processors and exporters. (IDB, 2017)

The agricultural production systems in Belize can be considered bimodal with small and commercial producers and can be categorized into four main types (Ministry of Agriculture, 2015):

- Traditional (including slash and burn (Milpa)) farms
- Small commercial farms for local markets
- Small commercial farms for export markets
- Large commercial farms

During the 2011 Belize Agricultural Census, nearly 20,000 people identified themselves as farmers, amounting to just over a fifth of all households. Of these, 24 percent reported owning less than 5 acres, and 33 percent reported owning between 5 and 20 acres. The remaining 43 percent reported owning more than 20 acres (World Bank, 2018).

Based on the 2002 Farmers Registry, regarding land tenure, 32 percent of agricultural land is owned by titled farmers, 7 percent is rented, and about 31 percent is under long-term government lease; the rest of the land is in informal and communal arrangements (IDB, 2017).

Employment in activities related to agriculture for 2021 registered a total of 25,524 jobs, highlighting a decrease of approximately 3% compared to 2019 data. The primary industry in Corozal, Orange Walk, Stann Creek, and Toledo, with one-fourth of all employed workers in the District, engaged in this industry (LFS,2021).

In the south and central Belize, employment in the larger agricultural sectors results in the migration of workers from poorer rural communities to live and work on citrus, banana, and shrimp farms. Cattle ranching is also increasing its footprint in southern Belize and the western part of the country, one of the current drivers behind deforestation, resulting in large areas of cleared land and degraded soil. (GEF et al., 2016).

The northern plain of Belize is characterized by extensive agriculture, predominantly sugarcane, with low mechanization and high demand for labor. Various Mennonite communities in the north and west provide Belize with rice, beans, corn, and beef. While very important to the economy, these communities, with some exceptions, are also associated with the highest rates of land clearing, degradation, and unregulated pesticide use (GEF et al., 2016).

People engaged in subsistence farming primarily for consumption are a subgroup in producing goods and services. In Belize, the livelihood of many people, especially in the Toledo District, is based on the production of self-consumption goods by harvesting crops such as corn and beans. According to FLS 2021, an estimated 9,595 people worked in subsistence agriculture; most farmers are family heads, and the other family members are helpers. (FLS, 2021).

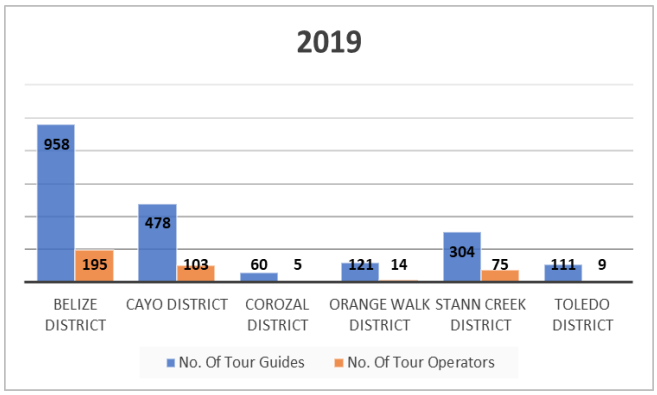
- **Tourism**

The aesthetic beauty of the cays, the spectacular reefs, and the tropical forests rich in Biodiversity attract tourists worldwide to Belize. With its associated coral, mangrove, and seagrass ecosystems, the Barrier Reef provides critical economic and environmental services (fisheries, tourism, and coastal protection) and habitats for many unique species while maintaining an extensive reservoir of genetic resources. (GEF et al., 2016).

The tourism sector in Belize is one of the most important for the country's economy. This industry was the largest source of income in 2005 and 2006, accounting for about BZ$350 and 400 million in profits, respectively (Belize Tourism Board (BTZ): Summary of Travel and Tourism Statistics, 2012). In 2015 Belize had approximately 1,299,100 visitors who traveled. However, around 73% of visitors arrived via cruise ships. More than 326,000 were overnight visitors (BTB, 2016), which is critical to ensuring that tourism benefits are distributed and reach communities throughout Belize (NBSAP, et al., 2018.).

Tourist visits to national protected areas are a significant financial contribution to the cash management of these sites. The collateral benefits of tourism-related protected areas for communities are evident in rural areas, such as the Mayan Center, adjacent to the Cockscomb Basin Wildlife Sanctuary, where the women have a thriving craft market. Many hunters have now moved on to provide guided visits to the protected area (NBSAP, et al., 2018).

Figure 18. Number of tour and guides operators by District

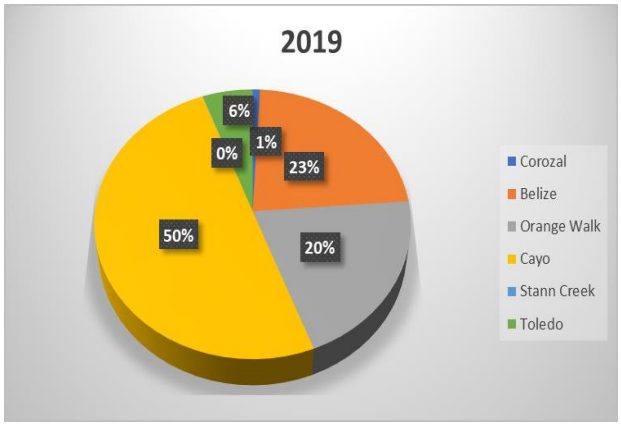


Source: BTB, 2019

According to the BTB 2019 data, all the Districts of Belize have guides and tour operators to develop tourist activity. However, most guides and tour operators are located in the District of Belize in contrast to the District of Corozal, which has the lowest numbers. (Figure 18).

Figure 19 Distribution of visitors to the Archaeological Sites 2019.

According to BTB 2019, in that year, the total number of people who visited the most important archaeological sites in Belize was 359,179 people. Figure 19 shows the distribution of visitors to the Archaeological Sites by District, highlighting the Cayo district with 50% of the total visitation, 179,701 people, followed by Orange Walk with 73,444 people.



Source: Own data compiled using the information of BTB, 2019

The expansion of the tourism industry has occurred without proper strategic and technical planning, including land-use planning and zoning, infrastructure, human capital development, and a comprehensive strategy to preserve tourist attractions. Tourism growth has been driven mainly by cruise ship visitors, who spend less than overnight. (IDB,2020).

The 'Tourism' industry was one of the main contributors to the economy before COVID-19; now, this activity ranks sixth in the economy in terms of employment, registering 14,398 jobs, of which 11,244 jobs were lost compared to 2019. (LFS, 2021). COVID-19 has hit the tourism sector, the country's main source of employment, hard. The Belizean Ministry of Tourism and Civil Aviation (MTCA) estimates that 95% of businesses in the tourism industry have been affected by the pandemic. (IDB Group_2020). Given the COVID-19 situation, there may be a significant drop in tourism inflows and a sharp drop in investment (mainly linked to

the tourism sector), deepening external imbalances and compromising the country's external sustainability. (IDB Group_2020).

The vulnerability of the tourism sector includes the combined effects of climate change on i) tourism infrastructure (hotels, resorts, ports); ii) the natural assets on which the tourism industry depends (beaches and reefs), and iii) the reduction in attractiveness as a direct consequence of natural phenomena such as the influx of sargassum algae on some coasts.(IDB Group_2020).

Belize is ranked among the top ecotourism destinations globally and offers some of the best and most unique natural attractions. Therefore, the future of tourism in Belize is particularly vulnerable to climate change as it is highly resource dependent. The consensus is that climate change will dictate the type and quality of tourist attractions (Clarke et al.Alabama., 2013, cited by CCSI, 2014).

- **Fishing industry**

The fishing industry contributes significantly to the economy of Belize, mainly from exports of lobster, conch, and shrimp. The Fishing Subsector contributed 2.2% to Belize's Gross Domestic Product (GDP) in 2008 (Belize Institute of Statistics, 2008). For 2008, Fishery export statistics reflected earnings valued at Bze$43.6 million, with lobster contributing Bze$14.0 million, conch Bze$6.5 million, and farmed shrimp and fish Bze$22.8 million (Belize Department of Fisheries, 2008). (CCSI, 2014).

Belize's fishing industry has contributed significantly to the country's development by providing direct employment to fishers and processing plant personnel. The fishing industry is divided into two main sectors: the wild capture fishery and the aquaculture sector. The wild capture fishery sector is predominantly a small-scale fishery, conducted primarily within the protected shallow waters of the main barrier reef (flat reef and reef slope), including the three atolls (Isla Turneffe, Glovers Reef, and Lighthouse Reef). (CCSI, 2014).

The sector is characterized as a commercially artisanal industry except for the industrial trawl fishery of shrimp which employed approximately 2,759 active anglers in 2009. The artisanal fishing fleet consists of 628 boats composed of open boats, sail sloops, and canoes. The industry is considered lucrative and successful mainly because of the reasonable prices obtained on the foreign market and because most fishers belong to one of the four primary cooperatives. They play a dominant role in the industry and are entirely owned by local investors and fishers, that are the principal shareholders (Wade, 2010). The economic dependence on the traditional fishing industry is high, particularly in the north coastal communities, where options are limited for diversification into other livelihoods. Fishing depends heavily on the reef's health, which faces multiple pressures from unsustainable Fishing and land-based pollution, climate change, and ocean acidification. (CCSI, 2014).

- **Aquaculture**

Aquaculture in Belize formally began in 1982 with the development of pilot programs led by the private sector. Aquaculture production still represents a small share of total fish production. Its percentage in total production has varied between the 19 percent recorded in 2003 and 1 percent recorded in 2016. As to the external sector, aquaculture products

represented more than four fish exports in 2014. In 2017, they still represented 25 despite the notable decrease in production. The reason is twofold. First prices of aquaculture products such as shrimps are relatively high compared to other more substitutable products. Second, species groups such as Tuna Sardines or Mackerels directly landed in foreign countries are not counted as exports from Belize (UNCTAD, n.i.).

Belize is subdivided into two (2) climate systems with subtropical conditions in the northern lowlands and central interior areas with tropical conditions in the southern and coastal areas, allowing for increased product diversification prospects. However, Belize's aquaculture industry is highly vulnerable to adverse weather and disease outbreaks in a room with increasingly less seasonal weather patterns and a high risk of increased hurricane and tropical storm activity.

Belize's National Biodiversity Strategy and Action Plan highlighted that droughts and floods increasingly affect aquaculture farm production. (NBSAP, 2016 – 2020). Shrimp farming forms the basis of the aquaculture industry and is reliant on a clean and adequate water supply. Historically, shrimp production has been about 10 tons a year. The 13 shrimp farms employ over 1,000 people, predominantly from the southern communities (BSGA, pers. com., 2014 cited by GEF et al., 2020). According to information from Daly J; Fernandez K. 2018 some characteristics of the sector are:

- **Producers are earning widespread ASC certification.** Eight Belizean shrimp producers completed ASC certification in 2015 through a program initiated by the Belize Shrimp Growers Association (BSGA) and funded by the Compete Caribbean initiative. (WWF, 2015 mentioned by Daly J; Fernandez K, 2018).

- **EMS devastated shrimp production and exports.** Shrimp farmers started seeing signs of EMS in 2014 before widespread dispersal the following year. While Pre-EMS survival rates across the country frequently approached 80-85%, many farms reported 0-10% survival rates in 2015 when the country's production and exports plummeted. In 2014, the country's total production volume was 7,163 metric tons, and the value of its exports was US$44 million; by 2016, aggregate production had fallen to 1,089 metric tons and the importance of shrimp exports was US$6.1 million.

- **The continued recovery of Belize EMS will be based on process updates**. In the wake of the EMS outbreak, the Belize Shrimp Farmers Association (BSGA) has organized widespread outreach to educate farmers on enhanced biosecurity measures and other mitigation strategies, including using environmental amendments, Aquatic, and feeding.

CHAPTER 6: STRATEGIC OPTIONS

CHAPTER 6. Strategic Options

This chapter presents a summary of the strategic options of the Sustainable and Inclusive Belize Program as the basis of the SESA, which will allow the evaluation of the possible environmental and social impacts and risks and the related problems. Given that the Program has not yet been developed, the options presented below are mainly derived from the analysis of the Policies, Plans and Programs related to the object of evaluation.

6.1. Strategic Framework

6.1.1. Definition of the Strategic Objective of the intervention

- **Background of the Intervention of the IDB in Belize**

The IDB began activities in Belize in 1993, where the first Technical Cooperation (TC) was carried out to help the Government prepare small projects. Currently, the Portfolio under implementation is composed of 39 operations, for total financing of 122.9 MUS$, of which 9 are loans (105 MUS$ total financings), 5 are investment grants (9.5 MUS$ total financings), and 25 are TCs (8.4 MUS$ total financings). The operations' average implementation period (from effectiveness to the last disbursement dates) is 3.7 years (IDB, 2021).

Interventions carried out by the IDB in Belize at the level of projects in the tourism and agricultural sectors have been oriented primarily to support improving competitiveness, markets, modernization, capacity development, and sustainability under the support of seventeen operations in the tourism six operations in the agricultural sector [88].

6.2. Strategic objectives of the IDB intervention in operation BL-L1041

The strategic objectives of Operation BL-L1041 are identified in the project profile (IDB, 2022) as well:

The operation is consistent with the 2020-2023 Institutional Strategy and is expected to contribute to the 2020-2023 Corporate Results Framework through the development challenges of:

- **Social inclusion and equity**, since the beneficiaries will be vulnerable populations.
- **Productivity and innovation**, since the operation, will support the development of MSMEs, promoting productive and market innovation.
- **Economic integration**, as the Project, will promote linkages with markets, including export markets.

The operation is aligned with the transversal axes of:

[88] https://www.iadb.org/es/projects-search?country=BL&sector=&status=&query=

- Gender equality and diversity, since the Project will include specific objectives, indicators, methods, and activities to guarantee the empowerment and full participation of women, indigenous and Afro-descendant populations.

- Climate change and environmental sustainability, as it will support climate-smart and environmentally sustainable businesses, practices, and policies;

- Institutional capacity and the rule of law, through the interventions foreseen in Component 2.

- The Bank's "Vision 2025", opportunities for regional integration, support for SMEs, gender and diversity, and CC action.

- Pillar 2 "Private sector productivity and sustainable growth, focusing on MSMEs" of the Country Strategy with Belize 2022-2025 (GN-3086).

The operation is consistent with the Sector Frameworks for:

☞ **Agriculture,** in its lines of action, "Promote investments that contribute to increasing the productivity of Agriculture, following the sustainable management of natural resources."

☞ **Environment and Biodiversity**, in its dimension of success, "Advancement is made towards the sustainable management of natural capital and its contribution to economic growth is increased";

☞ **Sustainable Tourism,** in its dimensions of success "The proportion of the economic benefits of tourism that is captured by the local population and vulnerable groups increases over time" and "Natural heritage assets and cultural heritage of the region are exploited sustainably by the tourism sector, and the impacts of climate change on the sector are managed.

☞ **Climate Change** in its dimension of success "Countries make progress in incorporating climate considerations in all sectors."

6.3. Strategic Reference Framework (SRF)

Considering the strategic objectives of Operation BL-L1041, the sectoral policies and plans for Agriculture, Tourism, and Biodiversity were included as a reference framework, as follows:

- **Agriculture Sector: "National Agriculture and Food Policy of Belize 2015-2030".**

This policy aims to provide an enabling environment to increase production and productivity, promote investment, and encourage private sector participation in agroindustry companies to ensure competitiveness, quality production, trade, and sustainability.

The five pillars proposed to achieve the goals and objectives of the NAFP are:

Pillar 1: Sustainable Production, Productivity, and Competitiveness - This pillar targets the areas of production, productivity, and competitiveness in the sector and how these can be achieved through proper mechanisms to ensure quality, adopt innovative technology, and improve infrastructure, among others.

Pillar 2: Market Development, Access, and Penetration - This pillar focuses on the market opportunities available but, more importantly, on the policy and institutional platforms that must be established to capitalize on these opportunities. It focuses on strengthening the markets for commodities produced, bought, and sold by producers through reducing transaction costs, managing risk, building social capital, enabling collective actions, and identifying new needs.

Pillar 3: National Food and Nutrition Security and Rural Livelihoods - This is the social pillar that looks at ensuring food security for the country (e.g., increasing productivity and decreasing food imports by substituting with local products) and providing opportunities for rural people, including women and youth to generate income from productive activities;

Pillar 4: Sustainable Agriculture and Risk Management - This pillar focuses on climate change adaptation, environmentally sound production practices, conservation of natural resources, and risk management mechanisms such as crop insurance. It expands on variability, climate change, agro-biodiversity, clean production, sustainable land management, and other natural resources.

Pillar 5: Governance Accountability, Transparency, and Coordination – This is a cross-cutting pillar that is a significant challenge for the Agriculture and Food Sector in Belize. At the district, zonal, and national levels, existing governance systems are deficient in participation, transparency, accountability, evidence-based processes, and institutional and legislative frameworks. Table 19 presents the relationship of each of the policy pillars related to the strategies, policy measures, and actions and their relationship with the harmonic focuses of the Program.

Table 19. National Agriculture and Food Policy of Belize 2015 to 2030

Pillar of Politics	Strategic Objective	Medida Política	Actions related to the Project	Harmonic Foci with the Project
NATIONAL FOOD AND AGRICULTURE POLICY OF BELIZE 2015 TO 2030				
PILLAR 1: SUSTAINABLE PRODUCTION, PRODUCTIVITY AND COMPETITIVENESS	SO1.2: Establish mechanisms that guarantee quality and production in accordance with standards and value chains to satisfy domestic and export requirements.	PM 1.2.1: Identify and prioritize the strategic value of the Value Chains.	Support strategic value chains for development within the crop, livestock, and aquaculture subsectors.	Empleo y mejores condiciones, Rentabilidada de MIPYNES Fortalecimiento institucional
		PM 1.2.3: Promote the establishment of productive groups to enhance competitiveness.	Promote productive groups between producers and processors, especially in communities in rural areas.	Employment and better conditions, Profitability of MIPYNES
			Strengthen the capacity of small farmers/micro, small and medium enterprises to better organize themselves, network and access national and regional markets.	Employment and better conditions, Profitabilitya of MIPYNES Institutional strengthening
			Coordinate with development institutions and relevant partners to facilitate access to technical information and good advice on the development of innovative products and value-adding processes, quality certification and geographical indicators, etc.	Employment and better conditions, Profitabilitya of MIPYNES Institutional strengthening
		PM 1.2.4: Support comprehensive political work for agriculture.	Support the harmonization of labor policies for the agricultural sector.	Employment and better conditions Institutional strengthening
			Support a comprehensive review and consideration of the need for migrant labor.	Employment and better conditions
	SO1.3: Agricultural education reform and training to increase productivity.	PM 1.3.1: Improve knowledge management.	Improve opportunities for youth and women to become more involved in the agriculture and food sector.	Employment and better conditions
	SO1.4: Adopt innovative technologies through R&D to improve competitiveness.	PM 1.4.3: Promote research on value addition and post-harvest management.	Promote strategic alliances between actors for the development of biotechnological knowledge, products and services.	Climate Resilience
	SO1.5: Strengthen support mechanisms Technology transfer.	PM 1.5.1: Improve knowledge and links between stakeholders.	Improve and strengthen links and coordination between stakeholders to achieve service delivery.	Tourism
			Promote Commodity Improvement Groups at the national and regional levels.	Agriculture
			Improve the knowledge and use of statistical information for the provision of services.	Tourism
			Strengthen the exchange of knowledge information with key actors.	Agriculture Tourism
	SO1.6: Improve infrastructure for increased support production and productivity.	PM 1.6.2: Improve the financial and institutional conditions and technical capacity of the public sector to support the development and implementation of agriculture, water management, with an emphasis on drainage and irrigation systems.	Strengthen the technical and institutional capacity of the corresponding authority to promote and support the implementation of the drainage and irrigation policy and strategy.	Environmental sustainability
			Improve the data and information collection system to improve the efficiency and reliability of water management schemes for agricultural production.	Environmental sustainability
			Improve the management of irrigation and drainage systems.	Environmental sustainability
			Improve the ability to monitor and evaluate the effectiveness and impact of drainage and irrigation plans.	Environmental sustainability

PILLAR 2: MARKET DEVELOPMENT, ACCESS AND PENETRATION	PM 2.1.1: Improve national market information and intelligence system.	PM 2.1.1: Improve national market information and intelligence system.	Improve the technical platform of the Agricultural Market Information System (AMIS) for better management of priority market information needs.	Profitability of MSMEs Institutional Strengthening
			Establish a publicly accessible (electronic) National Market Intelligence System (NAMIS).	Profitability of MSMEs Institutional Strengthening
			Mobilize the necessary resources to strengthen data collection and information dissemination in a timely manner.	Profitability of MSMEs Institutional Strengthening
	PM 2.2.2: Improve compliance with quality, sanitary and phytosanitary food safety requirements to allow trade of domestic and export markets.	PM 2.2.2: Improve compliance with quality, food, sanitary and phytosanitary safety requirements to allow trade for domestic and export markets.	Improve monitoring, inspection and certification to improve efficiency and effectiveness.	MSME profitability
			Establish and apply appropriate sanitary and phytosanitary measures and ensure compliance with national regulations and international standards.	MSME profitability
			Increase the knowledge and awareness of producers and the general public about food, safety requirements, quality control and post-harvest and related environmental issues.	Climate Resilience Environmental Sustainability
			Improve the institutional capacities of national marketing agencies and conglomerate groups to comply with the required standards and regulations.	Rentabilidad de MIPYMES
		PM 2.2.3: Improve and strengthen capacity for domestic and export trade facilitation markets.	Develop and/or strengthen public-private dialogue systems on trade negotiation issues.	MSME profitability
			Improve the capacity of producer groups and Producer Marketing Associations to access markets, financing and information.	Profitability of MSMEs Institutional Strengthening
			Strengthen cooperatives to ensure that productive activities are treated as businesses/enterprises and agricultural cooperatives are considered under the MSME Policy as SMEs.	MSME profitability
			Strengthen Producer Organizations and develop the sustainable capacity of rural producers to facilitate collaborative production, planning, supply to intermediaries and food marketing.	MSME profitability
			Improve communication and information exchange between the Ministry of Agriculture, Ministry of Commerce and Ministry of Foreign Affairs to improve access to agricultural trade opportunities.	Profitability of MSMEs Institutional Strengthening
			Support the ability of the Trade Negotiation Team to engage in effective and results-based negotiations for Agriculture.	Profitability of MSMEs Institutional Strengthening

	SO2.3: Establish/strengthen links between agriculture, tourism and manufacturing to expand markets	PM 2.3.1: Improve linkages between agriculture and tourism.	Establish a constant supply of products and products to meet the quality demand of the market. and quantity.	Agriculture Tourism
			Increase the promotion of gastronomic tours and gastronomic festivals.	Tourism
		PM 2.3.2: Improve linkages between agriculture and manufacturing sector.	Increase support for micro, small and medium agro-processing companies.	MSME profitability
			Increase opportunities and access to affordable financing.	MSME profitability
			Improve the skills of MSME owners and managers (including business management skills) training, including market research).	MSME profitability
			Increase the use of local raw materials in agricultural production processes.	Environmental sustainability
PILLAR 4: SUSTAINABLE AGRICULTURE AND RISK MANAGEMENT	SO 4.1: Promote best practices in Disaster Risk Management (DRM) and Climate Adaptation to change (ACC)	PM 4.1.4: Improve the resilience of agriculture and food sector in the face of climate change and variability.	Identify and disseminate models/best practices for farm-based climate change adaptation.	Resilencia Climática
			Disseminate educational materials to increase knowledge about climate change adaptation and mitigation.	Climate Resilience
			Incorporate climate change related issues related to food and agriculture into the decision-making process at the institutional and	Climate Resilience
	OS 4.3: Support adaptation and Mitigation Strategies	PM 4.3:3: Support mechanisms to reduce poverty levels and provide increased opportunities for women and youth to become more involved in the food and agriculture sectors.	Increase access to finance for selected women and youth.	Environmental sustainability
			Incrementar el acceso a los recursos de tierra requeridos por mujeres y jóvenes.	Environmental sustainability
			Institute programs to empower women and youth with the skills required throughout the value chains in the agri-food sector.	Environmental sustainability
			Establish and strengthen a comprehensive database system of vulnerable groups and households.	Environmental sustainability
PILLAR 5: GOVERNANCE - ACCOUNTABILITY, TRANSPARENCY AND COORDINATION	SO 5.3: Develop and implement an efficient and effective information and communication system.	PM 5.3.2: Develop and implement an information and communication strategy.	Establish a rigorous and implementable monitoring and evaluation system that ensures continuous review of benchmarks/indicators, accountability, transparency and performance reporting.	Institutional strengthening
			Develop communication products for specific audiences and facilitate stakeholder participation in relevant regional forums.	Institutional strengthening
			Strengthen and establish national platforms and mechanisms for dialogue, information exchange and consensus building on national and regional policies and programs.	Institutional strengthening

- **Tourism sector: "National Sustainable Tourism Master Plan for Belize 2030".**

a. Vision

The 2030 Vision Statement is:

"Belize is an exclusive multicultural sustainable destination in the Central American Caribbean. It is a destination where the authenticity and friendliness of its people, coupled with the uniqueness of an exotic natural environment, can be actively experienced within a conserved world" (BTB, 2021).

b. Strategies

The strategic objectives that Belize intends to achieve through the implementation of the NSTMP are based on Belize's strengths and weaknesses and are selected to mitigate Belize's limitations and take advantage of Belize's opportunities. The strategies of the Plan for the period 2012 to 2030 are[89]:

Strategy 1: Product Development (Optimization Objective)

It consists of structuring the tourism offer in a diversified portfolio of products that maximizes the potential of tourism assets that meet the expectations of the international tourism market while minimizing the environmental footprint and supporting cultural heritage and the local community.
Growth.

Strategy 2: Integrated development of destinations (Competitiveness and Sustainability Objective)

The second approach focuses on the integrated development of prioritized destinations and sites. The reasoning for this is to focus entirely on creating the entire value chain of a product (which is based on the primary motivation of visitors to come to Belize), create experiences in a particular destination/site, and therefore maximize return on investment and multiplier effect. This approach will allow better management of the risk of running out of resources and being left with an unfinished multi-product offering. The east course considers it safer to complete and maximize the results of high-priority projects and then move to second priority projects.

Strategy 3: improvement of experiential quality (competitiveness objective)

As a fundamental and transversal approach, the Master Plan focuses on quality-of-service delivery and creating spaces that will enhance the value of tourist experiences in Belize. The goal is to increase visitor satisfaction and confidence in Belize as a tourist destination, which will ultimately result in increased customer loyalty and competitive positioning

[89] BTB, 2021. “National Sustainable Tourism Master Plan for Belize 2030”.

Strategy 4: Stakeholder Empowerment (Leadership and Optimization Goal)

At a strategic level, the participation of interest groups and the channeling of benefits is key to achieving long-term sustainability and maximum economic profitability for the tourism sector. Agreement with industry stakeholders aligned and cooperating will increase the chances of project implementation success and ensure targeted prioritization and total lead generation economic growth.

Strategy 5: Proactive solution to funding sources (Leadership & Sustainability Goal).

The final approach is a proactive mechanism for finding funding solutions for all levels of industrial development. In the Belizean context, where resources are limited, along with the initial prioritization approach and concentration of efforts, a proactive search for funding sources needs to be in parallel.

b. Macro-programs

The strategic approaches are distributed in macro-programs, which formulate the actions to be implemented in the destination structured in programs, sub-programs, and projects. Each macro-Program focuses on the core components of the Belize Tourism Sector. The focus areas of the master plan are:

1. Tourism governance
2. Tourism Sustainability and Quality Assurance
3. Tourist Infrastructures
4. Tourism Marketing
5. Tourism product development

Table 20 presents the relationship between the different Macro-programs of the "National Sustainable Tourism Master Plan for Belize 2030" programs, subprograms, and harmonious focuses with the Program under study.

Table 20. National Sustainable Tourism Master Plan for Belize 2030

Macro Program	View	Programs	Subprograms related to the Project	Harmonic Foci with the Project
NATIONAL SUSTAINABLE TOURISM MASTER PLAN FOR BELIZE 2030				
■ Tourism Sustainability and Quality Assurance	■ Increase the competitiveness of Belize's tourism product offering. Improve local income generation through tourism revenue. ■ Guarantee sustainable planning and management of tourism resources. Alleviate poverty by effectively linking economic activities to the tourism value chain.	■ Quality management program and tourism standards	■ The Tourism Operating Standards and Licensing Subprogram will design new tour guide license categories and their requirements, create tourism operating guidelines, minimum standards, and review current license requirements.	Employment and better conditions Tourism
		■ Tourism Training and Management Program	■ The Hotel Tourism Training Careers and Certifications Subprogram will develop the human resources, operational and management skills required by the local tourism industry, in terms of international standards, with an emphasis on developing hands-on training opportunities relevant to the Belizean context.	Employment and better conditions Tourism
			■ The Tour Guide Training and Accreditation Subprogram will enhance skills among Belize's network of National Tour Guides through review and updating of general accreditation training modules, addition of safety and security certification modules, and develop a mechanism for train and certify in specialized activities.	Employment and better conditions Tourism
		■ Sustainable Tourism Development Program.	■ The Tourism Resources Management and Conservation Subprogram aims to identify and qualify the economic value of the resource in order to raise awareness and justify conservation efforts.	Environmental sustainability
			■ The Tourism Land Use Planning and Development Support Subprogram aims to create a framework for the use of tourism land use allocation that will involve planning with social and environmental safeguard criteria.	Climate Resilience
			■ The Subprogram of Tourism in Favor of the Poor and Tourist Linkage of Ethnic Groups, supports efforts to identify and support vulnerable groups so that they benefit from the economic value chain of tourism, strengthening participation through the development of inclusion mechanisms.	Employment and better conditions

National Tourism Marketing Macroprogram	Maintain and administer the Management Information System (MIS) as a key tool for marketing success. Renew the operational marketing every year and the strategic marketing plan every 5 years Maintain product development focus. Offer multiple and innovative information distribution channels and a representation network. Use of dynamic market segmentation to target niche markets.	Strategic Marketing Program	Market Intelligence Management: creation of a market intelligence Tourism Observatory as a key tool to optimize decisions and guide investments for the country's tourism development.	Profitability of MIPYNES Institutional strengthening
			Belize Tourism Positioning Management: Once the market-oriented strategic plan is established, a critical component for marketing is the definition and positioning of a tourism concept for Belize, its tourism products and destinations.	Profitability of MIPYNES Institutional strengthening
			Tourism Product Club Development Framework: As a strategic tool to develop commercial and quality products through a business membership program that creates a business network based on a product club concept and standard quality criteria.	Profitability of MIPYNES Institutional strengthening
		Tourism Marketing Network Progr	The subprogram for the promotion of the network in Belize – visitor tourist centers, defines, conceptualizes and develops information and reception centers in tourist destinations and strategic points.	Profitability of MIPYNES Institutional strengthening
			The international tourism marketing offices sub-program will develop an international tourism marketing program and representation network that will market and promote Belizean tourism in the home market.	Profitability of MIPYNES Institutional strengthening
		Operational Marketing Program	The communication and promotion subprogram develops tourism marketing actions to increase awareness of the destination worldwide and potential direct sales.	Profitability of MIPYNES Institutional strengthening
			The sales and marketing subprogram will focus on taking advantage of opportunities from appropriate commercial channels, in order to increase business sales using new formats and tools.	Employment and better conditions Tourism

■ Tourism product development	■ By 2030, Belize's cultural tourism and nature-based tourism will reach consolidation and maintain sustainable growth as they become the main motivations for visiting Belize. Sun and Beach tourism is expected to consolidate in 2030. Nautical tourism is expected to become a tourism product in a growth stage.	■ Cultural Tourism Development	■ The development of the concept of Comprehensive Mayan Site Development that structures, designs, plans and develops temple sites with similar infrastructure, services and facilities.	Employment and better conditions Tourism
			■ The development of Rural Tourism Sites and Routes that develops the rural tourism portfolio, structuring agricultural products as tourism products.	Employment and better conditions Tourism Agriculture
			■ The development of the concept of Belize Traditional Markets, Festivals and Theme Programs to develop living culture, portfolio focusing on mechanisms that encourage the participation of local communities and strengthen the inclusion of groups and minorities.	Employment and better conditions Tourism
		■ Nature-based tourism developme	■ The development of the concept for the Belize Adventure and Ecotourism Activity Centers that provide visitor information and an introduction to the destination, its assets and its tourism products.	Employment and better conditions Tourism
			■ The design, master plan and development of Ecotourism and Adventure Routes that unite the different natures of Belize, tourist sites structuring them as attractive tourist destinations.	Employment and better conditions Tourism
			■ The concept of Comprehensive Development of Ecotourism and Adventure Sites that structures, designs, master plans and develops sites in an integrated system of infrastructure, services and facilities, developing the entire value chain.	Employment and better conditions Tourism
		■ Sun and Beach Tourism Development	■ Belize waterfront development, utilizing the shorelines and structuring them into an attractive asset for visitors, will provide various entertainment facilities and services.	Employment and better conditions Tourism
			■ Pristine Beaches of Belize, the program places a strong emphasis on establishing, conserving, and preserving pristine beach quality standards and safety standards, for which they will be promoted and recognized internationally.	Employment and better conditions Tourism
			■ Development of the sun and beach destination, will structure the destination with required projects based on the destination concept, the sustainable use of resources and the existing demand.	Employment and better conditions Tourism
			■ South Belize, South East Belize Coast and South Belize will require the design and master planning of their destinations to be developed from scratch.	Employment and better conditions Tourism
		■ Development of Nautical Tourism	■ Comprehensive Development of Marine Destinations identifying the most appropriate concept/business model and creating a network of marinas and yacht clubs.	Employment and better conditions Tourism Institutional strengthening
			■ Development of Nautical Tourism Destinations feasibility analysis for the destination and marine terminals, hence the master planning, development of use facilities	Employment and better conditions Tourism Institutional strengthening

▪ Biodiversity Sector: "Biodiversity Strategy and Action Plan 2016-2020"

The National Biodiversity Strategy and Action Plan are based on Belize's commitment to the conservation and sustainable development of the national biological diversity. The National Biodiversity Strategy and Action Plan are based on Belize's commitment to the conservation and sustainable development of the national biological diversity. The Action Plan focuses on achieving the national NBSAP vision, based on fifteen guiding principles grouped into four areas: respect, responsibility, environmental context, and commitment.[90]

Goals:

The objectives of the strategy are divided into:

A. Integration: Improvement of environmental management, as well as the understanding and appreciation of marine, freshwater, and terrestrial biological diversity, its benefits, and values.

B. Reduced pressures: Direct and indirect pressures on marine, freshwater, and terrestrial ecosystems are reduced to maintain and enhance national Biodiversity and ecosystem services.

C. Protection: Functioning ecosystems and viable populations of Belize's Biodiversity are maintained and strengthened.

D. Benefits: Strengthening the provision of ecosystem services, ecosystem-based management, and equitable sharing of benefits from biological diversity.

E. Implementation: The National Biodiversity Strategy and Action Plan is effectively implemented through capacity building, informed strategic decision-making, and integrated public participation. Identifies the causes and consequences of biodiversity loss: the direct threats to biodiversity and ecosystems, and the underlying drivers, linking this to actual and potential socioeconomic impacts on human well-being, livelihoods, and poverty reduction.

Table 21 presents the relationship between the different strategic plans and objectives of "The National Biological Diversity Strategy and Action Plan (2016-2020) for Belize" and approaches in harmony with the Study Program.

90 FAO.org :

Table 21. The National Biological Diversity Strategy and Action Plan (2016-2020) for Belize

Plan Objectives	Goal/Strategic Objective	Action	AccActivities related to the ion Project	Harmonic Foci w ith the Project
NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN (2016 – 2020), BELIZE				
GOAL A: INTEGRATION: Better environmental stew ardship is demonstrated throughout Belizean society, as w ell as the understanding and appreciation of marine, freshw ater and terrestrial biodiversity, its benefits and values.	GOAL A1. By 2020, a framew ork has been designed and adopted to guide the harmonization of policies that positively impact biodiversity, across all Government departments.	A1.1 Develop the framew ork to guide the harmonization of policies that positively impact biodiversity, in all departments of the Government.	Review of policies to identify areas of synergy for harmonization of government departments.	Institutional strengthening
			Identify principles to ensure harmonization of new policies.	Institutional strengthening
			Develop and implement proposals for coordination and integration of mechanisms w ith the agriculture and tourism sector.	Institutional strengthening
	GOAL A2: By 2020, Belize has legislated and implemented a harmonized national system of environmental standards and incentives that promote environmental responsibility and sustainability.	A2.1 Strengthen national standards environmentally / adopt international standards w here necessary and develop new standards w here gaps exist.	Identify gaps in existing environmental standards in the agriculture and tourism sectors.	Institutional strengthening
			Develop and identify additional standards, harmonize w ith existing norms and socialize to increase the value chain.	Profitability of MSMEs Institutional strengthening Agriculture Tourism
		A2.2 Identify incentives that promote environmental responsibility and sustainability.	Integrate commitment to environmental sustainability in financial incentives proposed under the Agricultural Policy for private sector investment in agriculture.	Profitability of MIPYMES Agriculture
	TARGET A3: By 2020, all relevant national development decisions in Belize take into consideration ecosystem services and biodiversity relevance to the national economy.	A3.1 Improve information on the value of ecosystem services and evaluate better use of resources for decision-making at the national level.	The conduct of ecosystem services is key for their evaluation in the Tourism and Agriculture sectors.	Agriculture Tourism
			Evaluate the best long-term use for the Tourism and Agriculture sectors, based on sustainability and cost-benefit analysis of ecosystem services and development.	Agriculture Tourism
		A3.2 Integration of ecosystem services in land use and coastline zoning decisions	Implementation of the financial initiative of biodiversity for the improvement of the Agriculture and Tourism sectors, BIOFIN (Biodiversity Financial Initiative).	Profitability of MSMEs
		A3.3 Integration of natural capital (including the ecosystem services) in national accounting	Implementation of the financial initiative of biodiversity for the improvement of the Agriculture and Tourism sectors, BIOFIN (Biodiversity Financial Initiative).	Profitability of MSMEs
	TARGET A4: By 2020, 100% of relevant government, 75% of civil society, and 50% of the general public in Belize have increased aw areness and appreciation of biodiversity and w ill demonstrate active good stew ardship.	A4.1 Develop and implement a national Public Aw areness and Engagement Strategy to improve understanding of the role and importance of biodiversity and increase active stew ardship.	Develop and implement aw areness, engagement and strategies targeting key stakeholders from groups identified as potential defenders/champions for biodiversity.	Agriculture Tourism
			Start education w ith aw areness programs focusing on the impacts of Climate Change, targeting relevant sectors and adaptation and mitigation measures for these anticipated impacts.	Agriculture Tourism Environmental sustainability
		A4.3 Develop and implement a national communication strategy for the key components of the NBSAP.	Approval and implementation of the National Fauna Aw areness Strategy.	Agriculture Tourism
			Implementation of the Communication Strategy of the National Plan for Protected Areas.	Tourism
			Develop and implement other key communication plans. (eg climate change, ICZM).	Environmental sustainability

OBJECTIVE B: REDUCE PRESSURES: Direct and indirect pressures on marine, freshwater, and terrestrial ecosystems are reduced to sustain and enhance national biodiversity and ecosystem services.	GOAL B1: By 2020, the use of primary extractive natural resources in terrestrial, freshwater and marine environments will be guided by sustainable management plans, with greater sustainability of biodiversity.	B1.1. Effective management and monitoring of natural resources for the extraction of terrestrial	Ensure effective monitoring and application of natural resource management plans in the Agriculture and Tourism sectors.	Agriculture Tourism Environmental Sustainability Climate Resilience
		B1.2 Strengthen the application of legislation and regulation for the extraction of natural resources.	Decrease population trends in species utilization and risk of extinction, including trade species (NBMP).	Agriculture Tourism
	GOAL B2. By 2020, 80% of companies monitored in Belize comply with environmental standards	B2.2 Incorporate Climate Change in the considerations of the EIA process.	Revise the EIA Framework to include climate change vulnerability assessment and recommendations.	Environmental Sustainability Climate Resilience
		B2.3 Strengthening and monitoring of environmental impacts (particularly key areas (key ecosystems, biological corridors)).	Strengthen the Department of the Environment with resources for effective monitoring of the Environmental Compliance Plans.	Environmental Sustainability Climate Resilience
			Strengthen the Department of the Environment and alliances with other Departments, managers and civil society in monitoring Environmental Assessment Plans and other environmental issues.	Environmental Sustainability Climate Resilience
		B2.4 Strengthen the application of Environmental Compliance Plans and other environmental regulations with appropriate penalties for non-compliance.	Modify EPA for higher fines for non-compliance with ECP.	Environmental Sustainability
			Strengthen the Department of the Environment for the most effective prosecution of environmental crimes.	Institutional strengthening
			Strengthen compliance with existing legislation and proposed policies on the protection of ecosystems and ecosystem services.	Fortalecmiento insiticucional
		B2.5 Strengthen the management of solid and liquid waste.	Improve solid and liquid waste practices in the private sector.	Environmental Sustainability
			Expand the National Solid Waste Management Program.	Environmental sustainability
	GOAL B3. Between 2016 and 2020, Belize has limited its net rate of land use change for natural areas/ecosystems to no more than 0.6% per year.	B3.5 Promote shift A to more environmentally sustainable agriculture, reducing the rate of deforestation.	Promote the reduction of deforestation through intensification and increased productivity in areas under cultivation.	Environmental Sustainability Climate Resilience
			Promote the integration of environmental management in agriculture in production systems.	Environmental Sustainability Climate Resilience
			Develop national crops, livestock and fishing plans taking into account the agroecological considerations and conditions of Climate Change.	Environmental Sustainability Climate Resilience Agriculture
			Develop and implement soil and water conservation measures for agriculture.	Agriculture
		B3.6 Implement effective fire management throughout Belize.	Develop, socialize and implement the best practices for fire management related to the cleaning of agricultural land.	Agriculture
	GOAL B4. By 2020, Belize will be restoring 30% of degraded ecosystems to maintain and improve the condition of ecosystems and essential ecosystem services to increase Belize's resilience to the impacts of Climate Change.	B4.1 Develop and implement an identified priority restoration plan of ecosystems and essential ecosystem services to increase Belize's resilience to climate change.	Identify and map degraded ecosystems/ecosystem services and prioritize for restoration.	Environmental Sustainability Climate Resilience
			Develop capacities for the implementation of restoration plans prioritizing ecosystems / ecosystem services and preventing future degradation.	Institutional Strengthening Environmental Sustainability Climate Resilience

■ GOAL C: PROTECTION: Functioning ecosystems and viable populations of Belize's biodiversity will be maintained and enhanced.	■ GOAL C1. By 2030, Belize's natural landscapes and seascapes will be functional and build the resilience of biodiversity to climate change.	■ C1.2 Identify and implement to enhance, adapt and manage regimes for critical landscape/seascape ecosystems based on	■ Socialize and implement the National Climate Change Policy, Strategy and Action Plan.	Environmental Sustainability Climate Resilience
			■ Promote institutional development and mechanisms that improve Belize's planning and response capacity to climate change.	Institutional Strengthening Environmental Sustainability Climate Resilience
		■ C1.3 Provide positive incentives for best practices that ensure the maintenance and restoration of ecosystems in their	■ Identify, implement and socialize incentives for the maintenance and restoration of critical ecosystems on private lands.	Profitability of MSMEs Agriculture Tourism
	■ GOAL C3. Between 2016 and 2030, no species will become functionally extinct in Belize	■ C3.4 Improve general public awareness of wildlife and the environment.	■ Finalize and implement the National Fauna Awareness Strategy in the Agriculture and Tourism sectors.	Agriculture Tourism

- **Climate Change Sector:**

Vision

Demonstrateating leadership and commitment in ensuring the challenges of Climate Change and sea-level rise are fully addressed, harnessing necessary resources in support of the development of special programs that is effective, resilient, and sustainable[91].

Goal

The goal of the National Climate Change Policy is to guide the short, medium, and long-term processes of adaptation and mitigation of Climate Change following national prospects for sustainable development in addition to regional and international commitments. This policy shall ensure an integrated and well-coordinated approach to Climate Change adaptation and mitigation by fostering the development of appropriate administrative and legislative mechanisms in alignment with national sectoral policies and adaptation plans. The policy will further guide mainstreaming along a low emission development pathway by focusing on reducing anthropogenic emissions of greenhouse gases.

Agriculture

The document acknowledges that agriculture is critical to Belize's development, given its importance in food self-sufficiency, employment, and one of its major exports. However, like other developing countries, particularly SIDS, Belize is vulnerable to climate change's adverse effects or impacts.

Table 22 presents the relationship between the different strategic plans and objectives of "A National Climate Change Policy, Strategy and Action Plan to address Climate Change in Belize" and approaches in harmony with the Study Program.

91 https://www.climate-laws.org/geographies/belize/policies/national-climate-change-policy-strategy-and-action-plan

Table 22. National Climate Change Policy, Strategy, and Action Plan

Climate Change Action Plan	Goal/Strategic Objective	overall strategy	Actions related to the Project	Harmonic Foci with the Project
NATIONAL CLIMATE CHANGE POLICY, STRATEGY AND ACTION PLAN TO ADDRESS CLIMATE CHANGE IN BELIZE				
■ 7.1: Agriculture (crops and livestock): strategy and action plan on climate change.	■ Development of climate-resilient crop/livestock farming systems.	■ Increase access to drought resistant crops; adopt best soil management practices; and provide weather/early warning forecasts and related information to be competitive in the region.	■ 1. Review national agricultural policies and regulations to ensure the incorporation of climate change adaptation and mitigation measures in all aspects of planning, decision-making and operational processes and related programs, including water resource management, control of erosion and flooding, conservation, drought, agricultural research, seeds, crops, markets, disaster risk management and technology transfer.	Institutional strengthening Agriculture
			■ 2. Implement soil fertility management mechanisms and soil-water management systems to address soil quality issues.	Agriculture
			■ 3. Promote and ensure the use of drought-resistant crop development techniques or climate-smart agriculture technology and associated water management techniques that will increase yield per unit area.	Agriculture Environmental Sustainability
			■ 4. Develop and support the use of climate-resilient seeds that are better adapted to rising temperatures.	Climate Resilience
			■ 5. Initiate Integrated Pest Management (IPM) practices to keep pests below economic thresholds to minimize risks to human health, organisms, and the environment.	Agriculture Environmental Sustainability
			■ 6. Promote the reduction of agricultural GHG emissions through: the modification of crops cultivation methods.	Agriculture Environmental Sustainability Climate Resilience
			■ 7. Strengthen agricultural research and development and improve the data collection and analysis capacity of the sector.	Institutional strengthening Agriculture
			■ 8. Facilitate greater public-private initiatives to implement cost-effective measures to address crop development and soil quality improvement in the interest of building resilience to Climate Change.	Profitability of MIPYMES Agriculture
			■ 9. Initiate and improve community agricultural extension services to support adaptation to Climate Change.	Climate Resilience
			■ 10. Start educational awareness programs to draw attention to the impacts of Climate Change in the sectors and measures to adapt and mitigate the anticipated impacts.	Institutional strengthening Agriculture
			■ 11. Incorporate an Early Warning system.	Institutional strengthening Agriculture
			■ 12. Provide support for the institutional strengthening of the Ministry.	Institutional strengthening Agriculture
			■ 13. Facilitate market access for agricultural products and incentives to add value along the production line.	Agriculture
			■ 14. Carry out research on the usefulness and applicable models of crop insurance to facilitate and provide recovery from various disasters that affect the agricultural sector.	Agriculture

■ 7.7: Strategy and Action Plan for Adaptation to Climate Change in the Tourism Sector.	■ Assess the vulnerability of Belize's tourism system to Climate Change and ensure the integration of Climate Change throughout the sector to improve ecosystem resilience, equitable distribution of tourism activities and fostering sustainability. tourism development, locally and nationally.	■ Identify and assess coastal tourism areas in Belize that are vulnerable to Climate Change and provide support to coastal planners and policymakers in Selecting appropriate policies and adaptation strategies.	■ 1. Carry out a sea level rise vulnerability mapping exercise as part of a review of the Tourism Master Plan and Land Use Plans. Of particular concern should be the evaluation of the impacts of Climate Change in specific areas designated for tourism development and sites of historical and cultural importance.	Tourism Institutional Strengthening Environmental Sustainability
			■ 7. Implement maximum carrying capacity limits for areas adversely affected by excessive human activity such as construction or reconstruction operations.	Tourism Institutional strengthening Profitability of MSMEs
			■ 8. Improve infrastructure to facilitate greater access to sites and resources. This includes paving roads, renovating docking facilities for w ater taxis, and installing professional signage at critical intersections.	Employment and better conditions Tourism
			■ 9. Involve communities in the development of responsible tourism practices.	Employment and better conditions Profitability of MSMEs Climate Resilience

6.4. Strategy Formulation (SF)

To define the strategic formulation, the SWOT analysis (strengths, weaknesses, opportunities, and threats) was used to evaluate the position of the agriculture, Biodiversity, tourism, and climate change sectors as a framework to develop the strategic planning of the Program because the analysis SWOT considers internal and external factors, as well as current and future potential.

This analysis is presented as a square segmented into four quadrants, each dedicated to a SWOT item. Although all the points under a particular heading may not have the same importance, they all represent critical ideas about the balance of opportunities and threats, advantages and disadvantages, etc. At a general level, the SWOT analysis includes:

Strengths	Strengths describe what the country and institutions in the agriculture tourism, sustainability, and climate change sectors excel at.
Weaknesses	Weaknesses prevent institutions from performing at their optimal leve by highlighting areas needing improvement.
Opportunities	Opportunities refer to favorable external factors that could giv institutions a competitive advantage.
Threats	They refer to factors that can affect an institution or territory accordin to its degree of vulnerability.

Based on the objective of the Program, the interpretation of the SWOT was carried out under the analysis of the four possible strategies to continue analyzing as a basis the external environment (threats and opportunities) and the internal environment (strengths and weaknesses). Table 23 presents the SWOT analysis carried out for the sectors described above. The strategies carried out were:

- Offensive Strategy: Strengths and Opportunities.
- Defensive Strategy: Threats and Strengths.
- Reaction Strategy: Weaknesses and Opportunities.
- Survival Strategy: Weaknesses and Threats.

Table 23. SWOT matrix for the agriculture, tourism, Biodiversity, and climate change sectors

STRENGTHS	Means	WEAKNESSES	Factors
F1 The geographical position of Belcie, its coasts and its ecosystems provide 38% of the total area of the country suitable for agriculture, due to numerous and varied microclimates, with the agriculture and food sector being the basis of the economy.		D1 Belize's economy is closely linked to its natural resources, with poor infrastructure, including drainage, irrigation, access roads, and low access to capital for irrigation and drainage systems.	
F2 Being the food sector the basis of the economy, there are possibilities to diversify agricultural activities.	INTERNAL	D2 Inadequate, inconsistent, limited public policies and a weak governance system, with application of regulations that encourage land speculation, resulting in the limited zoning of land according to its suitability for agriculture.	INTERNAL
F3 There are natural sites of international interest both for scientific studies and to encourage sustainable tourism.		D3 Inadequate land management systems, water management, limited investments in water storage systems for agricultural production.	
F4 The Maya Mountains Massif Protected Areas provide water security to people on 55% of Belize's total land mass.		D4 Lack of a database showing the level of available labor to inform employers, and lack of georeferencing data for the agricultural and tourism sectors.	
F5 There is an organized population in the agricultural sector.		D5 Lack of support for organizations in storage facilities, inadequate packing facilities and business development.	
F6 There are international partners that support the process of strengthening extension, research and education in the agricultural sector.	EXTERNAL	D6 Limited technologies and lack of promotion of modern and appropriate technologies that increase the competitiveness of producers.	EXTERNAL
F7 There is a large labor force that is complemented by migrant workers from neighboring countries such as El Salvador and Guatemala.		D7 Insufficient efforts to build resilience among producers, especially in the face of climate change. climate change and variability.	
		D8 Limited resilience capacity to combat natural disasters, economic shocks.	
OPPORTUNITIES	Abilities	**THREATS**	Factors
O1 Belize is strategically located very close to the markets of the Americas and its tourism potential serves to increase the sustainable and economic development of the MSMS.		A1 Land use change in some rural areas including deforestation, forest fragmentation, mangrove felling, wetland filling) and erosion problems.	
O2 There is a demand for arable agricultural products in Belize by the tourism sector	INTERNAL	A2 Unsustainable exploitation of natural resources (fishing, hunting, logging/non-timber forest products, illegal wildlife trade), there are no quantification studies of groundwater resources.	INTERNAL
O3 Some rural areas have capacity for the development of smart agriculture		A3 Pollution (agrochemicals, industrial/urban effluents, solid waste, sewage, sedimentation), pests and diseases with increasing threats from invasive species.	
O4 The possibility of generating value chains between tourism, agriculture and the private sector of MSMs.		A4 Anthropogenic fires and natural disasters and frequency of severity due to climate change.	
O5 Improvement of production chains and new markets.		A5 Unsustainable Agricultural and Tourist Cultural Practices.	
O6 Support in the design and implementation of projects with International Organizations, WB, IDB, FIDA	EXTERNAL	A6 Possible social conflict related to inadequate land management coupled with the lack of clear policies on migration and cross-border incursions (both land and sea; Guatemala, Honduras and Mexico).	EXTERNAL
O7 Belize launched the plan to combat desertification.		A7 Natural disasters and frequency of severity due to Climate Change.	
O8 The country is part of international conventions on different topics including Climate Change		A8 Unclear policy on temporary migrant workers for agricultural activities.	
O9 Tourism can be reactivated after COVID-19 and generate income for the country.		A9 The Hague Resolution regarding the Territorial conflict between Belize and Guatemala	

Source: Own data compiled using the information of "Belize National Food and Agriculture Policy 2015-2030"; "National Sustainable Tourism Master Plan for Belize 2030"; "Action Plan and Biodiversity Strategy 2016-2020."

As a result of the strategies analyzed and according to the Program Components, it was identified that the most favorable strategy for the development of the Program according to the proposed objective is the "Reaction Strategy" that links weaknesses with opportunities (W-O).

This strategy aims to overcome internal weaknesses by minimizing them and taking advantage of external opportunities by maximizing them. Table 24 shows the most relevant Reaction Strategies for the Program.

Table 24. Reaction Strategies

REACTION STRATEGIES				
Weaknesses	**Opportunities**		**No.**	**Strategies**
D1. Belize's economy is closely linked to its natural resources, with poor infrastructure, including drainage, irrigation, access roads, and low access to capital for irrigation and drainage systems.	O3. Some rural areas have a capacity for smart agriculture development		**S1**	Implement smart agriculture
D2.Inadequate, inconsistent, limited public policies and a weak governance system, with regulations that encourage land speculation, result in poor land zoning according to its suitability for agriculture.	O6. Support in the design and implementation of projects with International Organizations, WB, IDB, FIDA		**S2**	Support in land use management
D3. Inadequate land management systems, water management, limited investments in water storage systems for agricultural production.	O6. Support in the design and implementation of projects with International Organizations, WB, IDB, FIDA		**S3**	Support in water resource management
D4. Lack of support for organizations in storage facilities, inadequate parking facilities, and business development.	O5. Improvement of production chains and new markets.	O2 There is a demand for arable agricultural products in Belize by the tourism sector	**S4**	Improvement of storage facilities
D5. Deficient Information Systems, both at the level of databases of available labor and the level of Geographic Information Systems of the agricultural and tourism sectors.	O4. The possibility of generating value chains between tourism, agriculture, and the private sector of MSMs.	O9 Tourism can be reactivated after COVID-19 and generate income for the country.	**S5**	Generation of value chains
D6. Limited technologies and lack of modern and appropriate technologies increase producers' competitiveness.	O8. The country is part of international conventions on different topics, including Climate Change		**S6**	Increased competitiveness
D7. Insufficient efforts to build resilience among producers, especially in the face of climate change. Climate change and variability.	O7. Belize launched the plan to combat desertification.		**S7**	Adoption of technologies for CC
D8. Limited resilience capacity to combat natural disasters and economic shocks.	O8. The country is part of international conventions on different topics, including Climate Change		**S8**	Increase resilience to CC

Source: Own data compiled using the information of "Belize National Food and Agriculture Policy 2015-2030"; "National Sustainable Tourism Master Plan for Belize 2030"; "Action Plan and Biodiversity Strategy 2016-2020."

6.5. Recommended Strategic Options (S) for the SESA base

As a result of the integration of the SWOT Matrix and the strategic objectives of the Program, the following are the strategies recommended for the SESA:

S1. **Implement Smart agriculture**: Develop smart agricultural re, improving infrastructure and access to capital to improve production systems.

S2. **Support land use management** use by designing and implementing adequate regulations and controls to improve land service under its suitability for agriculture.

S3. **Support in water resource management** under the design and implementation of actions to improve land use management and infrastructure investments to support agricultural production and marketing.

S4. **Improvement of storage facilities** for the tourism sector by improving storage packaging, and business development facilities.

S5 **Generate value chains** in the tourism and agriculture sector by designing a implementing adequate information systems for data processing

S6 **Increase competitiveness** by adopting technologies and promoting sustainable management to adopt climate change.

S7. **Adoption of technologies to increase resilience to CC**, preventi desertification, erosion and contamination of soils and waters under environmen management actions with cultural practices resilient to climate change a variability.

S8. **Increase resilience to CC** to combat minimizing vulnerability to natural disasters and economic shocks.

6.6. Critical Factors for Decision (CFD)

The Critical Decision Factors (CDF) are the integrating themes that reflect the issues involved in the guidelines of the strategic reference framework, the strategic questions of the object of evaluation, and the socio-environmental aspects on which some affectation can be presented.

Table 25 shows the key factors and indicators identified in the analyses on the different PPPs and the relevant Baseline issues.

Table 25. Critical Decision Factors and indicators

Critical Decision Factors	Environmental factor		N°	Description
Strategic Natural Resources	Soil		1	It corresponds to the processes of drought and critical degradation in some areas through which there is a loss and dragging of the soil, which includes creeping, generalized erosion processes as well as the affectation by solid or liquid waste contamination processes.
	Water availability		2	It includes the reduction of water in the planting areas both at the surface level and at the underground level due to the absence of rains with prolonged periods of drought. The low rainfall significantly affects the flows of the main rivers in the region and in the same way harms the grazing areas used for livestock, as well as the availability of water for agricultural, industrial and domestic uses, also producing competition problems in the use of the resource.
	Water quality		3	Water is an element that is circulating or resting on the surface of the area to be evaluated, such as rivers, lakes, lagoons, swamps, ponds, wetlands, and the like, whether natural or artificial. Surface water originates from precipitation, which does not infiltrate or return to the atmosphere by evaporation. The factor considers the physical chemical quality components.
	Air quality		4	Air quality is defined as the levels of Greenhouse Gases over a period of time, either by increasing them or by removing them (GHG). They correspond to the gases defined by the IPCC and their equivalents. Included in this factor are those substances (solid, liquid or gaseous) that affect air quality and are not considered GHG.
	Terrestrial ecosystems terrestres	Terrestrial fauna	5	Corresponds to the different groups of wild animals and their interactions (food webs), such as insects, amphibians, reptiles, birds and terrestrial and flying mammals
		Vegetable cover	6	Includes: Submarine Pine Forests; Underwater Broadleaf Forests; Mangrove and coastal forest; Sea beds and marshes and riparian scrub.
		Protection Areas	7	Corresponds to terrestrial protected areas with international recognition and Key Biodiversity Areas (KBAS).
	Aquatic ecosystems		8	Aquatic flora and fauna, both their populations and their interactions, located in rivers, streams, lakes and lagoons found in the study area.
Economic	Economic activity		10	In the context of agricultural and tourist activity, it corresponds to the dynamics and condition of socio-productive activities, which include technologies, infrastructure, inputs, financing and investment, areas, volumes and types of production, networks, marketing chains and markets.
	Productive systems		11	Corresponds to the conditions of land ownership and the set of labor techniques and traditions linked to the production and organization of the population to produce one or more agricultural products.
Social	Associativity dynamics		13	It includes the development of organizations (MSMEs) and the degree of social and associative participation for the implementation of plans, projects, networks and relationships in the agricultural and tourism sector.
	Land use		14	It includes the harmonization of the activities and interventions that are carried out on an area of land, between the capacity of use of the land and the current use.
	Health		15	It includes the different aspects that can affect the occupational health and safety of agricultural activity, such as the global problem of Covid -19 and diseases caused by the effects of environmental pollution.
	Employment		14	Generation of value from the activity produced by a person or a group. The employee contributes with his work and knowledge in favor of the employer, in exchange for an economic compensation known as salary.
	Population Inclusion		15	It includes the inclusion of women, the indigenous population, Afro-descendants and young people, within the context of equality and participation in the community without any type of discrimination.
	Migration		16	Change of residence that implies the transfer of some geographical and/or administrative limit

Source: Own data compiled using the information of "Belize National Food and Agriculture Policy 2015-2030"; "National Sustainable Tourism Master Plan for Belize 2030"; "Action Plan and Biodiversity Strategy 2016-2020

6.7. Alternative Analysis

According to the Critical Factors and the evaluation criteria in Table 26, the two analyzed alternatives are presented. Alternative 1 comprises the current scenario. Alternative 2 corresponds to the procedure applying for the Sustainable and Inclusive Belize Program.

Table 26. Alternative Analysis

Evaluation criteria	Alternative 1: Without Program	Alternative 2: With Belize Sustainable and Inclusive Program
Soil	The farmers use the traditional method of their ancestors' slash and burn system. This process involves cutting down forest trees to plant crops, leaving little vegetation to prevent and absorb surface water from rainfall. Therefore, the upper soil layer is removed, and the stream's sediment load increases, generating erosive processes that affect the soil.	Reduction of erosive soils due to the incorporation of good agricultural practices in production and the incorporation of species with shrubby shade habits. This impact is more significant in dry and degraded lands, where the suitability of the soil is degrading, as well as in areas vulnerable to climate change.
Water availability	According to the Ministry of Agriculture 2015, a significant percentage of rice production and banana for export is grown under irrigation in agriculture. Similarly, cash crops such as papayas, onions, and winter vegetables are also produced under drip irrigation. Only 8 to 10 % of cultivated land is presently irrigated. As a result, partners support the Ministry in developing potential investment plans to expand irrigated agriculture.	The water available for social use will receive more significant pressure to ensure that the production systems improve productivity and area. Likewise, implementing irrigation systems for certain agricultural products will generate increased pressure for the use of water resources in competition with other consumptive uses of water.
Water quality	One of the main water resource problems is the contamination of surface sources at the level of rivers, lakes, mangroves, and coasts. The Belize National Program Report (DOE 2008) reported that the nutrient load from sewage is believed to be increasing with the steady growth in the population living in the low-lying coastal areas like Placencia, Ambergris Caye, and other small cayes. Pollution with agrochemicals, industrial/urban effluent, solid waste, sewage, sedimentation.	Reduction of water contamination due to the adoption of good agricultural practices and a drop in the handling of pesticides, together with environmental awareness programs and training in sound ecological practices, will encourage the planting of vegetation on riverbanks and works to protect springs.
Air quality	A measure of PM2.5 in outdoor ambient air quality determines air pollution levels. PM2.5 refers to particulate matter that measures less than 2.5 micrometers in aerodynamic diameter. The primary sources of air pollution in rural areas come from burning and solid waste.	Improvement of air quality by managing best practices related to Climate-Smart Agriculture. Implementation of air management plans for civil works that include dust resulting from construction activities
Terrestrial fauna	Loss of areas of continuous ecosystems that allow the passage of terrestrial fauna.	Recovery of fauna and its connectivity through the planting of vegetation on riverbanks and the implementation of agroforestry systems in areas with little to shallow vegetation cover.

Evaluation criteria	Alternative 1: Without Program	Alternative 2: With Belize Sustainable and Inclusive Program
Vegetable cover	Anthropogenic burning generates processes of defragmentation of forest areas and loss of areas of continuous ecosystems that allow the passage of terrestrial fauna.	Improvement of the structural characteristics and diversity of the vegetation. It also allows the recovery of forest cover in areas with high forest fragmentation.
Protection Areas	The presence of invasive species that deteriorate the protective areas, together with the inefficient use of the resources of the regions, generates detriment of the resources. Likewise, there are problems related to deforestation, forest fragmentation, mangrove clearance, and wetlands filling.	The promotion of the use of native species in combination with other crops of interest such as fruit trees or with forest exploitation objectives improves the variability of species in the property unit, which allows better environmental quality and adaptability to climatic phenomena such as pests and diseases. . The use of native species enable the conservation of flora species.
Aquatic ecosystems	Belize ranked second in the region, with pesticide imports twice as high per capita, three times as high per agricultural worker, and three times as high per hectare of livestock (Bravo, 2015). The use of pesticides directly affects natural resources, especially aquatic ecosystems.	Los cuerpos de agua superficiales que sirven de hábitat acuático para diferentes especies recibirán menor cantidad de agroquímicos y sedimentos al implementar mejores prácticas de conservación del suelo.
Economic activity	Economic performance in the agriculture sector is primarily dependent on traditional export crops such as sugar, citrus, and banana which currently account for about 60% of the earnings, with citrus exports being the principal source of income, followed by sugar and banana. Rice, corn, and beans are the leading domestic food crops.	Improving economic activity by supporting new technologies will allow diversification toward other products that can increase income and improve access to physical, social ,and economic means.
Productive systems	People engaged in subsistence farming primarily for consumption are a subgroup in producing goods and services. In Belize, the livelihood of many people, especially in the Toledo District, is based on the production of self-consumption goods by harvesting crops such as corn and beans.	Improving production systems using new technologies, learning new skills, access to better information, and improvement of markets will diversify production systems.
Associativity dynamics	Currently, associative groups and cooperatives are looking for alternatives for the production and improvement of their processes.	The formal registration with the Ministry of Agriculture and the development of business plans for cooperatives and associated groups will strengthen the existing organizations and encourage more organizations.
Land use	There have been negative changes in land cover between 2000 and 2015. The most significant change is the loss of forest cover to cropland and pasture. Agriculture (cropland) has grown considerably since 2000, having shown an expansion of 44.96% in 2015	Improves the harmonization of land use concerning its properties, maintaining an integrated agricultural landscape. This is facilitated by implementing good farming practices in each production system.
Health	The agriculture sector is the second-largest importer and user of chemicals (pesticides and fertilizers) in Belize, the first being the transport sector.	Improvement of conditions that may affect the occupational health and safety of people. It also includes aspects related to solid waste management and the attenuation of the global problem of Covid -19.

Evaluation criteria	Alternative 1: Without Program	Alternative 2: With Belize Sustainable and Inclusive Program
Employment	The socioeconomic impact of the coronavirus disease pandemic of 2019 (COVID-19) has exacerbated the fragility of the Belizean economy in special vulnerable groups. It is expected that the poverty affecting children, adolescents and their families will increase substantially due to the destruction of jobs, loss of means of subsistence, subsistence and reduction of income.	Generation of new jobs related to the agricultural industry and tourism under the implementation of actions resilient to Climate Change
Population Inclusion	Vulnerable groups such as indigenous peoples, Afro-descendants, migrants, women, and youth are excluded from economic alternatives for their development, especially after the COVID-19 pandemic.	The opening and inclusion requirements of vulnerable groups such as indigenous peoples, Afro-descendants, migrants, women, and youth will reduce the social and economic gap.
Migration	Migrants are currently part of the country's labor force. Some are legal, and others are irregular.	The inclusion of legal migrants as beneficiaries of the Program will give these people the opportunity to be part of the labor force with the possibility of having support for the development of their projects.

Source: Own elaboration, 2022

CHAPTER 7: SOCIO-ENVIRONMENTAL ASSESSMENT OF IMPACTS AND RISKS

CHAPTER 7: Socio-environmental Assessment of Impact and Risks

7.1. Evaluation of strategic options

The analysis of the strategic options described in Chapter 6 under Alternative 2 makes it possible to identify that various environmental and social impacts of these options are likely to be implemented under the Program's actions. Some of these impacts will be positive in line with the purposes of the Program objectives; others are likely to be negative, and some of the latter will be perverse and unforeseen negative impacts on well-intentioned targets. Table 27 shows the Evaluation of the Strategic Options selected for each Critical Decision Factor

Table 27. Matrix of interactions for evaluation of strategic options

STAGES				CONSTRUCTION			OPERATION			CLOSURE AND POST-CLOSURE		
Critical Factors / Program Actions				Green Innvation Vouchers (GIV)	Green Agri-Business Plan (GABP)	Sustainable Tourism Business Plan (STBP)	Green Innvation Vouchers (GIV)	Green Agri-Business Plan (GABP)	Sustainable Tourism Business Plan (STBP)	Green Innvation Vouchers (GIV)	Green Agri-Business Plan (GABP)	Sustainable Tourism Business Plan (STBP)
ID				A	B	C	D	E	F	G	H	I
Strategic Natural Resources	1	Soil		A1	B1	C1	D1	E1	F1	G1	H1	I1
	2	Water availability					D2					
	3	Water quality		A3	B3	C3		E3				
	4	Air quality			B4	C4		E4			H4	
	5	Terrestrial ecosystems	Terrestrial fauna	A5								
	6		Vegetable cover	A6	B6	C6			F6			
	7		Protection Areas	A7					F7			
	8	Aquatic ecosystems					D8					
Economic	9	Economic activity		A9	B9	C9						
	10	Productive systems		A10	B10	C12						
Social	11	Associativity dynamics		A11	B11	C11						
	12	Land use		A12								
	13	Health		A13	B13	C13		E13	F13			
	14	Employment		A14	B14	C14						
	15	Population Inclusion		A15	B15	C15						
	16	Migration		A16	B16	C16						

Source: Own elaboration 2022

7.2. Identification of Potential Impacts

The operation has been classified as **Category B** by the IDB due to the possible indirect environmental and social impacts on natural habitats and indigenous territories by MSMEs financed for the agriculture and tourism sector operation. Environmental and social impacts are likely to be moderate, temporary, and localized, for which mitigation measures are readily available[92].

The impacts identified correspond to direct impacts because, according to the analysis carried out, the Program will not have indirect impacts, nor will it contribute to their generation. Likewise, due to the nature of the Program towards the inclusion of vulnerable groups such as indigenous peoples, Afro-descendants, migrants, women, and youth within the framework of climate resilience and environmental sustainability, most of the impacts

[92] IDB, 2022. Initial Environmental and Social Review Summary

have been identified as positive but due to related activities. With the execution of agricultural activities, construction of infrastructure, and equipment assembly in the Program components, negative impacts require socio-environmental control measures.

- **Potential Positive Impacts**

In the construction stage, the Program will generate positive impacts such as:

Potential Positive Environmental Impacts are: Decreased loss or deterioration of aquatic systems, Farm Management, Increase and consolidation of vegetal covers, Promote the use of equipment with green technologies, Recovery of fauna and its connectivity, Proper use of forest resources, Reduction of contaminants due to good agricultural practices, and Support the improvement of degraded lands.

Potential Positive Socioeconomic Impacts are: Cost minimization implemented environmental technologies, Efficiency in production systems, Employment increase, Farm Management, Improvement in post-harvest activities, Improvement in the social environment by the inclusion of vulnerable groups, Improvement of infrastructures to support economic activities, Improvement of productive systems, Increase in the labor force, Increase of the dynamic association, Land use planning, New economic activities, , Support the improvement of degraded lands and Strengthening the dynamics of associativity. Table 28 shows the potential positive impacts in each stage.

Table 28. Potential positive Impacts

ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
CONSTRUCTION STAGE					
A1	Positive	Green Innovation Vouchers (GIV)	Support the improvement of degraded lands	The good agricultural practices of CSA will generate long-term recovery of some areas in the process of degradation and will discourage slash and burn actions.	
A3	Positive	Green Innovation Vouchers (GIV)	Reduction of contaminants due to good agricultural practices	Using bio-inputs in agricultural activities will reduce the generation of contaminants to water resources with repercussions on aquatic ecosystems, generating resilience to Climate Change.	There is inadequate management of agrochemicals that highlights a poor application.
A5	Positive	Green Innovation Vouchers (GIV)	Recovery of fauna and its connectivity	The increase in coverage through agroforestry systems in areas with little plant cover will allow the recovery of fauna and its connectivity.	
A6	Positive	Green Innovation Vouchers (GIV)	Increase and consolidation of vegetal covers	The implementation of agroforestry and silvopastoral systems in areas with high forest fragmentation will help the recovery of this coverage.	

ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
A7	Positive	Green Innovation Vouchers (GIV)	Farm Management	The design of farm plans will allow farmers to have a territorial ordering of their properties. This ordering includes the protected areas that will be delimited for proper management.	
A9	Positive	Green Innovation Vouchers (GIV)	Increase in sustainable economic activities	Projects related to soil, water, biofertilizers, small infrastructures, firewood banks, solid waste management, production of organic fertilizers, and use of minimum tillage, among others, will increase economic activities under good environmental practices.	
A10	Positive	Green Innovation Vouchers (GIV)	Improvement of productive systems	The organization and planning of activities through farm plans will allow small farmers to incorporate efficient production systems which use new technologies aimed at sustainability and resilience to climate change.	
A11	Positive	Green Innovation Vouchers (GIV)	Increase of the dynamic association	Implementing CSA practices and executing projects aimed at environmental sustainability will generate social participation actions where associativity is the basis for the common good, which will strengthen and create new organizations.	
A12	Positive	Green Innovation Vouchers (GIV)	Land use planning	The farm plans will be a fundamental instrument for the management of land use on farms, allowing adequate management of the land according to its vocation for use.	
A13	Positive	Green Innovation Vouchers (GIV)	Promote the use of equipment with green technologies	The incorporation of equipment with new technologies will allow better management of natural resources	
A14	Positive	Green Innovation Vouchers (GIV)	Employment increase	The support for farmers will improve family income and encourage the increase of jobs in the different activities and their respective linkages, which will enhance the sector's competitiveness.	
A16	Positive	Green Innovation Vouchers (GIV)	Increase in the labor force	The increase in employment will encourage migration, improving the sector's workforce.	
B9	Positive	Green Agri-Business Plan (GABP)	New economic activities	Implementing Green Agribusiness Plans can generate new socio-productive, inclusive, and technological innovation activities that will benefit the agricultural sector.	
B10	Positive	Green Agri-Business Plan (GABP)	Efficiency in production systems	The incorporation of new technologies will allow the efficiency of production systems by being oriented towards sustainability and resilience to climate change.	

ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
B11	Positive	Green Agri-Business Plan (GABP)	Strengthening the dynamics of associativity	Implementing Green Agribusiness Plans oriented towards environmental sustainability will generate social participation actions where associativity is the basis of the common good, strengthening and creating new organizations. Likewise, using equipment and machinery will facilitate the organization of groups for the common benefit.	
B14	Positive	Green Agri-Business Plan (GABP)	Employment increase	The support for Agribusiness and MSMEs will improve income in the agricultural sector, encouraging the increase of jobs in the different activities and their respective chains, enhancing the sector's competitiveness.	
B15	Positive	Green Agri-Business Plan (GABP)	Improvement in the social environment by inclusion of vulnerable groups	The Program will open up the participation of women, the indigenous population, Afro-descendants, and youth, in the different activities related to the implementation of the Green Agri-Business Plan (GABP).	
B16	Positive	Green Agri-Business Plan (GABP)	Increase in the labor force	The increase in employment will encourage migration, improving the sector's workforce.	
C9	Positive	Sustainable Tourism Business Plan (STBP)	Cost minimization implemented environmental technologies	MSMEs will be able to reduce costs by implementing environmentally sustainable actions. These actions include individual solutions for water management, waste, circular economy practices, and recycling, among others.	
C12	Positive	Sustainable Tourism Business Plan (STBP)	Efficiency in production systems	The incorporation of new technologies will allow the efficiency of production systems by being oriented towards sustainability and resilience to climate change.	
C11	Positive	Sustainable Tourism Business Plan (STBP)	Strengthening the dynamics of associativity	Implementing Sustainable Tourism Business Plans oriented toward environmental sustainability will generate social participation actions where associativity is the basis of the common good, strengthening and creating new organizations. Likewise, using equipment and machinery will facilitate the organization of groups for the common benefit.	
C14	Positive	Sustainable Tourism Business Plan (STBP)	Employment increase	The support for Sustainable Tourism Business Plans MSMEs will improve income in the tourism sector, encouraging the increase of jobs in the different activities and their respective chains, enhancing the sector's competitiveness.	

ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
C15	Positive	Sustainable Tourism Business Plan (STBP)	Improvement in the social environment by inclusion of vulnerable groups	The Program will open up the participation of women, the indigenous population, Afro-descendants, and youth, in the different activities related to the implementation of the Sustainable Tourism Business Plans.	
C16	Positive	Sustainable Tourism Business Plan (STBP)	Increase in the labor force	The increase in employment will encourage migration, improving the sector's workforce.	
OPERATION STAGE					
D1	Positive	Green Innovation Vouchers (GIV)	Improvement of infrastructures to support economic activities	The incorporation of equipment with new technologies under CSA will allow an improvement in the handling and management of natural resources	
D8	Positive	Green Innovation Vouchers (GIV)	Decreased loss or deterioration of aquatic systems	Surface water bodies that serve as aquatic habitats for different species will receive fewer amounts of agrochemicals and sediments by implementing better soil conservation practices.	
F6	Positive	Sustainable Tourism Business Plan (STBP)	Proper use of forest resources	Generation of value chains through the use of appropriate silvicultural techniques to obtain forest resources	
CLOSURE STAGE					
G1	Positive	Green Innovation Vouchers (GIV)	Improvement in post-harvest activities	With farm planning, the use of new resilient technologies and the application of CSA, post-harvest activities will minimize slash-and-burn actions.	

Source: Own elaboration 2022

- **Potential negative impacts and risks**

The negative impacts of the Program are identified in the construction, operation, and closure stages. The following is a general analysis of the negative impacts (Tables 29 and 30):

- **Potential Environmental impacts and risks**

Increased pressure for water use: The risk associated with reducing water resources generated by the increase in crops and the demand for water in agriculture can cause social conflicts over water use. The water available for social use will receive more significant pressure to ensure that the production systems improve productivity and area. The excessive use of water for agricultural activities plus other consumptive uses in certain hydrographic basins of the country can generate a risk of imbalance in the hydrological cycle of water.

Soil removal: Removing the soil during the construction works in the preliminary and excavation phases of execution will generate movements of the land and solid waste considered moderate in scale. In some areas of Belize with soil susceptibility characteristics, soil removal can generate risks related to erosion, loss of nutrients, contamination, and physical alteration of soil.

Increased pressure on protected areas: The excessive influx of tourism to Protected Areas can generate risks for these areas related to disturbance of fauna, destruction of vegetation, contamination by waste, erosion of roads, extraction of natural objects, among other aspects.

Wastewater (black and gray) will be generated in the different execution activities, operations, or close of the projects, for example, the production of excreta by the people who work on the site and the use of water for the different construction activities.Discharging domestic, construction, agricultural, and livestock wastewater without treatment causes contamination of receiving water bodies, reducing the quality of surface and groundwater, putting the population's health and the integrity of ecosystems at risk.

Likewise, the risk associated with the inappropriate use of chemical products is generated by producers who do not want to adopt environmental practices that reduce the use of agrochemical fertilizers and continue to make inefficient use of these products with effects on aquatic ecosystems.

Noise pollution and dust generation may be generated by using machinery and equipment to execute works and by increasing vehicle traffic around the site where the work is being carried out. Likewise, particulate dust may be generated, excess dust resulting from handling inert materials such as cement and clay. Excessive and constant noise can significantly cause risks to human health when sounds exceed 65 decibels (dB). Likewise, air pollution can increase the risk of respiratory infections, heart disease, and stroke.

Presence of solid waste: The solid waste generated in construction activities is classified according to the composition and quantity generated, the process from which it comes and the technology used in the processes it prevents. At a general level, solid waste from a work is classified as: i) General solid waste: includes metal waste, paper, cardboard, wood mixtures, fabrics, paint cans, plastics, pieces of used materials, foams, waterproofing, etc.; ii) Stone waste: Includes inert waste products from demolitions, construction remains, residues from solidified mixtures such as concrete, cement, brick, stucco, clay, stone, mortar, etc; iii) Hazardous waste. Among the main potential impacts due to the presence of garbage is the visual impact, the presence of animals and the formation of leachates that can generate risks when these leachates fall on the soil and water resources.

➢ Potential Social impacts and risks

Pressure towards land use change: The pressure for the change of land use for the implementation of agricultural projects or some type of infrastructure can generate a risk of reduction of forest cover, especially in areas with degraded soil characteristics.

Change in the social environment due to project activities in the Program's benefits under the opening of dialogue processes. This impact has associated risks: (i) The risk is related to the implementation mechanisms for the Program's execution. The inclusion of vulnerable groups will require time and spaces for dialogue, especially with indigenous peoples, which may delay the start of some subprojects. (ii) The risk associated with discrimination in the participation of women when they need to attend to housework and, at the same time, carry out other agriculture activities that require more time to start the subprojects. (iii) The risk associated with the non-appropriation of new planting techniques by indigenous people. (iv) Detriment of labor conditions for migrants.

Increase in migrations and territorial dynamics: The increase in international migrants may lead to unfavorable working conditions for them compared to working conditions for Belizeans

Occupational accidents during the assembly and operation stages. The risk is associated with occupational safety. Some of the Program's beneficiaries may acquire equipment that they do not know how to handle, generating exposure to accidents due to their ignorance. Also, some people will be exposed to occupational hazards in the different phases of the Project.

Other associated risks are:

The risk associated with land speculation: This risk may arise considering that the Program will support agricultural activities based on land, which could generate interest in land cost speculation. The impact of this speculation could be received by some landless people, especially vulnerable groups, who could seek alternatives to participate in the Program's benefits by buying or leasing the land.

The risk associated with possible cross-border effects: The territorial conflict of more than 11,000 km2 requested by Guatemala from Belize, which is currently in the International Court, may increase migrations and implications of social disputes over the territory.

The risk is associated with monitoring the socio-environmental component in the subprojects of the Program. This risk can arise due to two factors: first, the limited presence of professionals or technicians in this specialty in the country, and second, the low economic income that working in Belize would represent for a foreign professional.

Table 29 presents the potential negative environmental and social impacts of the strategic options analyzed through the Program's actions for the Construction, Operation, and Closure stages.

Table 29. Potential environmental negative Impacts

ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
CONSTRUCTION STAGE					
B1	Negative	Green Agri-Business Plan (GABP)	Soil removal	In the construction of infrastructure facilities during the preliminary and excavation phases, movements of the earth and solid waste considered moderate scale will be generated.	
B3	Negative	Green Agri-Business Plan (GABP)	Wastewater generation (black and grey)	Wastewater (black and gray) will be generated in constructing infrastructures. These waters come from the production of excreta from the people who work on the construction site and water use in different construction activities.	Surface waters, especially in populated centers, present effluent contamination due to various uses of water, garbage, and other contaminants.
B4	Negative	Green Agri-Business Plan (GABP)	Noise pollution and dust generation	The installation of machinery and equipment may generate noise pollution. The increased vehicle traffic around the site where the works will be carried out may cause noise. Likewise, the removal of soil and construction activities may generate particulate dust in the different stages of construction. This material corresponds to fine powders from handling inert materials such as cement, and clay, among others.	
C1	Negative	Sustainable Tourism Business Plan (STBP)	Soil removal	During the preliminary and excavation phases, movements of the earth and solid waste considered to be of a moderate scale will be generated.	
C3	Negative	Sustainable Tourism Business Plan (STBP)	Wastewater generation (black and grey)	Wastewater (black and gray) will be generated in constructing infrastructures. These waters come from the production of excreta from the people who work on the construction site and water use in different construction activities.	
C4	Negative	Sustainable Tourism Business Plan (STBP)	Noise pollution and dust generation	The installation of machinery and equipment may generate noise pollution. The increased vehicle traffic around the site where the works will be carried out may cause noise. Likewise, the removal of soil and construction activities may generate particulate dust in the different stages of construction. This material corresponds to fine powders from handling inert materials such as cement, and clay, among others.	

D2	Negative	Green Innvation Vouchers (GIV)	Increased pressure due to the use of water	The water available for social use will receive more significant pressure to ensure that the production systems improve productivity and area.	The presence of agricultural activities in hydrographic basins has generated pressure on water resources, especially in the country's central zone.
OPERATION STAGE					
E1	Negative	Green Agri-Business Plan (GABP)	Presence of solid waste	In implementing the Green Plans for Agribusiness, waste and solid residues may be generated from the transformation of products considered to be of a moderate scale.	
E3	Negative	Green Agri-Business Plan (GABP)	Wastewater generation (black and grey)	Wastewater (black and gray) will be generated in the operation of Green Agri-Business Plans. These waters come from the different activities of the transformation and value addition of production.	
E4	Negative	Green Agri-Business Plan (GABP)	Noise pollution and dust generation	In the operating processes where production and added value transform, it is possible to generate noise pollution from the different equipment and machines.	
F1	Negative	Sustainable Tourism Business Plan (STBP)	Presence of solid waste	In the implementation of the Sustainable Tourism Business Plans, waste and solid residues may be generated by the provision of services, which may be of a moderate scale.	
F7	Negative	Sustainable Tourism Business Plan (STBP)	Increased pressure on protected areas	Implementing sustainable tourism business plans can generate pressure on protected areas in relation to increasing the number of tourists or acceptable visits they may have.	Unsustainable Tourism Practices (exceeding the guide/visitor relationship, bad navigation practices, illegal interactions with wildlife, among others)
CLOSURE STAGE					
H1	Negative	Green Agri-Business Plan (GABP)	Soil removal	In the closure stage of agricultural activities and infrastructure facilities, waste and surplus materials considered to be moderate in scale will be generated.	
I7	Negative	Sustainable Tourism Business Plan (STBP)	Presence of solid waste	In implementing the Sustainable Tourism Business Plan (STBP), waste and solid residues may be generated from work closure activities. This debris is considered moderate on the scale.	

Source: Own elaboration 2022

Table 30. Potential social negative Impacts

ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
CONSTRUCTION STAGE					
A15	Negative	Green Innovation Vouchers (GIV)	Change in the social environment due to project activities	The participation of vulnerable groups in the projects requires a social effort on the part of these groups; this effort is related to the execution times of the projects (which are different from their usual times) and the new roles that people will have to assume.	
A16	Negative	Green Innovation Vouchers (GIV)	Increase in migrations and territorial dynamics.	The increase in international migrants may lead to unfavorable working conditions for them compared to working conditions for Belizeans	
B6	Negative	Green Agri-Business Plan (GABP)	Pressure towards land use change	The possibility of increased income and job creation can encourage changes in land use, especially in areas whose physical characteristics are not suitable for agriculture	
B13	Negative	Green Agri-Business Plan (GABP)	Occupational accidents	During the execution of infrastructure works, occupational accidents may affect workers' health.	
C6	Negative	Sustainable Tourism Business Plan (STBP)	Pressure towards land use change	The possibility of increased income and job creation can encourage changes in land use, especially in areas whose physical characteristics are not suitable for agriculture	
C13	Negative	Sustainable Tourism Business Plan (STBP)	Occupational accidents	During the execution of infrastructure works, occupational accidents may affect workers' health.	
OPERATION STAGE					
E13	Negative	Green Agri-Business Plan (GABP)	Occupational accidents	In the implementation of the Green Agribusiness Plans, operating activities can be developed under the transformation or added value of products. In this operation it is possible that occupational accidents may occur that may affect the health of the workers.	
F13	Negative	Sustainable Tourism Business Plan (STBP)	Occupational accidents	In implementing the Sustainable Tourism Business Plan (STBP), the operational activities are related to providing services to the tourism sector. In this operation, it is possible that occupational accidents may affect the workers' health.	

Source: Own elaboration 2022

7.4. Socio-environmental measures

Table 31 shows socio-environmental measures proposed with the purpose of preventing, controlling, and mitigating the impacts and risks identified.

Tables 32 and 33 show the risks and measures of the Belize Sustainable and Inclusive Program according to the specific studies carried out on the Evaluation of Gender, Youth, and Indigenous Peoples.

Table 31. Proposed socio-environmental measures

ID Consolidated impacts	Program Action	Environmental Factor	Name of Potential Impact	Risk	Measure
					Project File
B1, C1;H1	Green Agri-Business Plan (GABP); Sustainable Tourism Business Plan (STBP)	Soil	Soil removal	Removing the soil during the construction works in the preliminary and excavation phases of execution will generate movements of the land and solid waste considered moderate in scale. In some areas of Belize with soil susceptibility characteristics, soil removal can generate risks related to erosion, loss of nutrients, contamination, and physical alteration of soil.	Soil protection and management of erosive processes
					Management of earthworks and surplus material
D2	Green Innovation Vouchers (GIV)	Water Availability	Increased pressure due to the use of water	The risk associated with the reduction of water resources generated by the increase in crops and the demand for water in agriculture can generate social conflicts over the use of water. The water available for social use will receive more significant pressure to ensure that production systems improve productivity and area. The excessive use of water for agricultural activities plus other consumptive uses in certain hydrographic basins of the country can generate a risk of imbalance in the hydrological cycle of water.	Training and awareness in water resource management
					Micro-watershed Management Plan
					Protection of recharge areas and springs
					Training in the substitution of fertilizers and pesticides by bio-inputs and IPM
F7	Sustainable Tourism Business Plan (STBP)	Protection Areas	Increased pressure on protected areas	The excessive influx of tourism to the Protected Areas can generate risks for these areas related to disturbance of the fauna, destruction of the vegetation, contamination by waste, erosion of roads, and extraction of natural objects, among other aspects.	Awareness of good practices of sustainable tourism
					Participatory management of sustainable tourism
B3, C3,E3	Green Agri-Business Plan (GABP); Sustainable Tourism Business Plan (STBP)	Water Quality	Wastewater generation (black and grey)	Discharging domestic, construction and, agricultural wastewater without treatment causes contamination of receiving water bodies, reducing the quality of surface and groundwater, putting the population's health and the integrity of ecosystems at risk.	Pollution control of polluting liquid substances

B4, C4, E4	Green Agri-Business Plan (GABP); Sustainable Tourism Business Plan (STBP);	Air Quality	Noise pollution and dust generation	Excessive and constant noise can significantly cause risks to human health when sounds exceed 65 decibels (dB). Likewise, air pollution can increase the risk of respiratory infections, heart disease, and stroke.	Management of noise, air emissions and atmospheric effects
E1, F1,I1	Green Agri-Business Plan (GABP); Sustainable Tourism Business Plan (STBP)	Soil	Presence of solid waste	The generation of liquid and solid waste comes from the different construction activities related to rubble, paint, wood, cables, paper and other materials. Among the main potential impacts due to the presence of garbage is the visual impact, the presence of animals and the formation of leachates that can generate risks when these leachates fall on the soil and water resources.	Solid waste management
B6, C6	Green Agri-Business Plan (GABP); Sustainable Tourism Business Plan (STBP)	Vegetal Cover	Pressure towards land use change	The pressure for the change of land use for the implementation of agricultural projects or some type of infrastructure can generate a risk of reduction of forest cover, especially in areas with degraded soil characteristics.	Awareness in Protection and conservation of strategic ecosystems Environmental education and resilience to climate change
A15, A6, A16	Green Innovation Vouchers (GIV)	Population inclusion	Change in the social environment due to project activities	The participation of some people from vulnerable groups may have the following associated risks: i) delay in the execution of projects; ii) low participation of women due to their role as mother and housewife; iii) non-appropriation of new technologies by indigenous groups that have a rooted socio-cultural management; iv) detriment of labor conditions for migrants	Linking strategy for vulnerable groups Dialogue of knowledge Indigenous People Plan* Gender and Diversity Action Plan**
	Green Innvation Vouchers (GIV)		Increase in migrations and territorial dynamics.		Protocol of equal working conditions
B13, C13,E13, F13	Green Agri-Business Plan (GABP); Sustainable Tourism Business Plan (STBP)	Health	Occupational accidents	Occupational accidents can occur due to different environmental factors such as noise, vibration, high temperatures, humidity, etc., which can put the health of project employees at risk.	Management of accidents and occupational risks

*IDB-Hulse,2022. Sustainable and Inclusive Belize Program. Sociocultural Analysis and Indigenous Peoples Plan.

** IDB-FAO, 2022. Sustainable and Inclusive Belize Program. Gender, Youth, and Indigenous People Assessment

Table 32. Risks and measures according to gender study[93]

RISK DESCRIPTION	MITIGATION MEASURE
Ensure that the implementation of the governance and organization mechanism of the project is in full agreement between the responsible body with the policies and strategies of the Government of Belize and ensure compliance with the autonomous mechanisms and traditional structures of indigenous and Afro-descendant (IPADs) communities within the framework of their rights.	Strengthen the territorial coordination of the project, considering the organizational and governance base and participation of the IPs, contextualizing their community development processes recognizing the consultation processes.
Emergence of inter and intra-community conflicts and/or aggravation of pre-existing conflicts due to the project considering equity in the distribution of benefits.	Guarantee the full participation and coordination between the authorized instances of the project to accompany it with the due participation of the communities.
Exclusion of traditionally marginalized sectors of the community from decision-making to access rights (PLwDs, people of LGBTIQ+ sexual diversity women in vulnerable situations).	Ensure that in the processes of participation, decision and consultation, the participation of all groups is called, including those that the project has identified as vulnerable.
Exclusion of women because of their gender status. **Possible increase in violence, sexually transmitted infection, unwanted pregnancies, and other health problems.**	The project must guarantee the implementation of a gender program or component that includes capacity building for women and ensure that women's equal participation is included in any instance of discussion about the benefits of the project. Community and institutional. Involvement of public and NGOs/CSOs networks and ad-hoc working groups, which have emerged to accompany specific cooperation efforts in the field of development, women's groups and organizations such as POWA, Women's Department of the Ministry of Human Development, Families and Indigenous People's Affairs; the National Women's Commission; the Toledo Maya Women's Council, and others to be identified during Stakeholder Engagement Consultation prior to Appraisal.

93 IDB-FAO, 2022. Sustainable and Inclusive Belize Program. Gender, Youth, and Indigenous People Assessment

RISK DESCRIPTION	MITIGATION MEASURE
Gender Violence (GBV) The Gender Action Plan will include specific actions for the prevention and attention of GBV to evaluate and manage GBV and the risk of sexual exploitation and abuse.	A Gender Action Plan will be developed that contains measures to prevent and address GBV aligned with the World Bank's Gender Equality Strategy (2016-2023), the 2030 Sustainable Development Agenda and the UNPOS Gender Mainstreaming Policy.
Lack of access to indigenous communal lands to practice backyard agriculture or other agriculture and/or MSME related activity.	Consultation with village communities, in particular women, negotiation with elders and approval from Alcaldes of each village.
Lack of strategies for the inclusion of women in agriculture, tourism & participation in creative industries/ SMMEs,	Identification of the main environmental & social barriers affecting women in these enterprises, such as no accessible roads; no time to participate in training & work in MSMEs, social norms such as “permission” from husband or other male member of the family; lack of relevant skills, language barriers to participate in training (they do not speak English). BELTRAIDE, through its BelizeINVEST Unit, provides online business support services in the form of business establishment guidance, information on investment opportunities, assistance with setting up virtual business meetings with public and private stakeholders, guidance on fiscal incentives and other related issues.
Risk that women heads of household (HHs) and vulnerable groups belonging to LGBTIQ+ groups will not be included.	Guarantee inclusion of women HHs and LGBTIQ+ population in the benefits of the MSMEs support activities, including training, and participation in VC support and / or start up. Consultations and diagnoses for the participatory design of activities according to costs, design, cultural appropriation and sustainability.
Lack of agreements and consensus for the distribution of resources and benefits in each of the components.	Consider experiences of implementation of FPIC in previous similar projects, analyzing the positive and negative aspects, in order to refine the procedure and generating a protocol that allows the process to be carried out in each of the stages based on the implementation needs of the Project, respecting the traditional forms of decision-making but that allows for the identification of possible conflicts, inequality in the distribution of resources and ensuring the full participation of women and vulnerable groups.

RISK DESCRIPTION	MITIGATION MEASURE
Lack of interest or barriers to participation by youth. Family members, parents, elders, etc. not allowing youth to actively participate in the project, in relation to CSA and / or MSMEs.	Identify main challenges and opportunities among Youth in the Project Area. A top priority of the Ministry of Youth, Sport and E-Governance is youth economic empowerment. Recognizes the challenges of youth unemployment, poverty and exposure to violence. Consider the adoption of a **Positive Youth Development** approach to Project design. To better match education and training to opportunities for youth employment and to generate evidence on youth policies, programs, and practices, the Project could create partnerships between Belize HEIs and the private sector to develop career pathways in high-demand sectors and in TVET programs that target young adults who need specific skills to earn advanced credentials that lead to meaningful employment. To promote evidence-based youth empowerment, the Project could partner with Belize HEIs to conduct applied research, data collection analysis, and generate evidence to inform youth training, policy, and investment. The Project will engage youth entrepreneurs to increase peer support, mentoring, and information sharing through information, communications, and technology (ICTs), especially in response to the impact of COVID-19. The project will ensure that new applications focus on sectors critical to the post-pandemic recovery period[94].

[94] Virginia Tech (2018). Center for International Research, Education and Development (CIRED).

Table 33 Matrix of assessment of potential social and cultural impacts[95]

Proposed interventions / methodologies	**What are the socio-cultural situations/characteristics that could generate exclusion of vulnerable group**	**Mitigation actions = how to adapt the intervention and/or methodology to the situations/characteristics encountered, to limit the risk of exclusion of vulnerable group**
Indigenous Peoples		
Project Design	• Loss of culture and social cohesion may result when there is insufficient opportunity for indigenous peoples to participate in the planning of the project or when projects are rushed.	• Allow representation from indigenous people's groups on committees that will make decisions that will affect them. Ensure ongoing and meaningful engagement with communities. Allow for sufficient time for communities to discuss and think through proposed interventions.
Project information campaign (possibility of being a beneficiary)	• Lack of clarity on the specifics of the project.	• Ensure participation of Representative groups such as the NGC, MLA and TAA, as well as the village councils and Alcalde in each community. • Ensure informational and advertisement is also done in Spanish & Maya (Kekchi & Mopan). Also use plain and direct language (avoid acronyms). Focus on getting the message across and avoid being overly centered on bureaucratic details.
Eligibility criteria for beneficiaries	• Non-traditional land tenure arrangements	• Indigenous Maya may provide a letter from the Village Council and Alcalde certifying that the beneficiary lives in the village and has been assigned use of X land for X number of years.
Issue expression of interest to be a beneficiary	• Individuals who live in remote villages might not have access to collection agents.	• For remote or distant villages designate a local collection agent or determine a pickup date in which the project's proponent would visit the community to pick up all applications.
Technical assistance to develop a farm plan	• Interventions supporting alternative livelihoods and new institutional structures may lead to indigenous communities' dependency on continued support, for example when farmers are encouraged to increase production but have no viable markets. • Poorly planned changes in natural resource use. For example, when farmers are advised to move away from the milpa/slash-and-burn system for more controlled environments where maybe water might be better managed through irrigation.	• TA should consider the entire context of the farmer before providing advice. • Preferences in land use should be taken into account. Consideration must be given to the additional costs that might be borne by farmers when there are changes to how they currently use their natural environment. These costs could include additional fertilizers, additional pest management, etc. This could lead to adverse social consequences such as food insecurity.
Technical support to register for BAIMS	None	None

[95] IDB-Hulse,2022. Sustainable and Inclusive Belize Program. Sociocultural Analysis and Indigenous Peoples Plan.

Participation in Farmer Field Schools Participation in Sustainable Agriculture Training Program	• Travel – distance, time and cost • Some indigenous people might not be literate	• Ensure that indigenous people are able to access training opportunities by organizing them at venues that are convenient, or by providing safe transportation. • Have sessions at convenient times • Focus on oral sessions in the preferred language
Use of the voucher	• Supply stores not located in the south	• Organize for a vendor fair in which farmers could talk to vendors and arrange for their equipment to be accessible to them.
Women		
Project information campaign (possibility of being a beneficiary)	• Traditional dissemination channels usually controlled by men who seldom inform women. This includes village council chairs, alcaldes, lead farmers, etc.	• Inform women's groups, contact potential women farmer beneficiaries directly, inform women at places where they congregate, such as grocery stores, farmers market, schools, and hospitals, inform children in high schools and universities. Use a range of media channels to advertise. Ensure informational and advertisement is also done in Spanish & Maya (Kekchi & Mopan). Also use plain and direct language (avoid acronyms). Focus on getting the message across and avoid being overly centered on bureaucratic details.
Eligibility criteria for beneficiaries	• Women might not be farming on a large scale (backyard farming) and as such might not consider themselves "farmers". Furthermore, many backyards are smaller than the 1/2 acre eligibility requirement, yet they may be producing a considerable amount.	• Provide a profile of eligible female farmer in advertisements. • Assess the backyard farm to determine whether the woman is a legitimate farmer.
Issue expression of interest to be a beneficiary	• Women who live in remote villages might not have access to collection agents.	• For remote or distant villages designate a local collection agent or determine a pickup date in which the project's proponent would visit the community to pick up all applications.
Technical assistance to develop a farm plan	• Farm plans TA might need to be conducted in groups of women and facilitated by a woman so that they are safe.	• Ensure that women are safe by facilitating working groups headed by a female technical assistant.
Technical support to register for BAIMS	• Notions of land tenure might restrict women's eligibility to register	• Apply subjective criteria of "legitimate farmer"
Participation in Farmer Field Schools Participation in Sustainable Agriculture Training Program	• Travel - distance, time, and cost. • Women are primary caregivers. • Some women might not be literate.	• Ensure that women are able to access training opportunities by organizing them at venues that are convenient, or by providing safe transportation. • Have sessions at convenient times • Allow participants to bring their children and provide entertainment for the children, such as books to read, toy to play with, etc. • Focus on oral sessions in the preferred language.
Use of the voucher	• Women might lack transportation and therefore not be able to easily access supply stores.	• Organize for a vendor fair in which farmers could talk to vendors and arrange for their equipment to be accessible to them.

CHAPTER 8: ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM (ESMS)

CHAPTER 8: Environmental and Social Management System (ESMS)

8.1. Environmental and Social Management Framework (ESMF)

8.1.1. Principles

The IDB's Environmental and Social Policy Framework is a guide to adopting the principles that will guide this ESMF. These principles provide high-level governance for the subprojects developed as part of this Program. The role of the ESMF is to verify the adherence of the Program's subprojects to these principles. The nine principles to be adopted follow the approach based on the ESPS of the IDB, which were grouped into five basic principles:

P1. Principles of commitment.

The commitment of the Senior Management of the Ministries with the ESMF is fundamental, to providing the resources, means and adequate conditions for the fulfillment of the national regulation for workers, the community, heritage, and gender equality.

P2. Planning Principles

For each of the hierarchical levels established and defined by the ESMS, measures must be shown to implement actions, update information, consider rights of all kinds and comply with planned consultations.

P3. Principles of Implementation and Operation

The ESMF must implement and operate in pursuit of biodiversity conservation and sustainable management of natural resources.

P4. Principles of Measurement and Evaluation

The ESMF shall establish, implement, and maintain procedures to manage non-conformities, annoyances, complaints, and claims, both actual and potential, to carry out the necessary actions, both preventive and corrective, as required.

P5. Principle of Continuous Improvement and Monitoring

The ESMF in any of the decisions or actions that have been executed must have the results of the periodic reviews that it carries out in its management.

8.1.2. Values[96]

- **Respect for human rights**: recognize that people and those who inhabit their environments have rights under the laws of Belize. Where respect for human rights includes that the environments where man lives have dignity, deserve attention and care. This value is associated with good treatment, consideration, and harmonious coexistence among all the species that inhabit the country.

- **Promotion of gender equality:** This principle is framed in need for each beneficiary of the Program to recognize their duties and rights in environmental matters and to have equal access to all offers, avoiding exclusion due to issues related to environmental thinking. Each member has equal access to all opportunities, preventing discrimination on matters related to environmental review. Promotion of non-discrimination and inclusion of vulnerable groups: implies access to justice with adequate distribution according to the conditions and context.

- **Respect for the rights of indigenous people**, Afro-descendants, and other traditional peoples: as a fundamental human right to meet individual needs aimed at preserving the environment of Belize's irreplaceable heritage. The process is developed throughout life with the teamwork of the interested parties to improve living conditions.

- **Fostering resilience to disasters and climate change and minimizing greenhouse gas emissions** involves taking and correcting actions that include increasing the capacity to improve and reduce emissions in the face of climate change. Enhancing the participation of stakeholders: access to the means of development, to obtain better employment conditions. Manifested in the dialogue, recognizing the other interested parties as valid interlocutors, to express opinions, criticism, and disagreements according to their relationship with the environment. Being oral or written communication is the means to facilitate conflict resolution through consensus between the parties, inform and be informed of relevant issues, and encourage awareness for the protection and care of the environment.

8.1.3. Objectives

The objective of the Environmental and Social Management Framework (ESMF) of the Belize Sustainable and Inclusive Program is to provide the guidelines for the identification, evaluation and establishment of socio-environmental measures of the possible impacts generated by the implementation of the projects of the Program. This framework is guided by compliance with the Socio-environmental Policy Framework, ESPS 1 to 10 of the IDB and national regulation law in Belize.

As specific objectives are:

- Guarantee the execution of the Program's projects under the ESPS of the IDB and the national socio-environmental regulations. The different projects will respect the environment and will guarantee the health and safety of the inhabitants and workers in the areas of intervention of the project.

[96] Adaptation of: "IDB's Commitment to Environmental and Social Sustainability." Online: mpas | IADB, recovered [May 30, 2022]

- Characterize the environmental effects not contemplated within the Environmental Management Plan and propose the socio-environmental measures necessary to solve them.

- Guide the actions to guarantee the participation of the interested parties in the stages of the projects.

- Review the status, scope and specific conditions of all socio-environmental permits and licenses required by each Program project before it begins.

- Comply with the implementation of the Environmental Management Plan carrying out the monitoring, control, and internal surveillance of the different actions in the planning, construction, operation, and closure stages of each project.

8.1.4. Program description

The Environmental and Social Management Framework (ESMF) will apply to all subprojects financed by the IDB under operation BL-1041 of the Sustainable and Inclusive Belize Program. The ESMF was prepared to consider the scope and focus of the activities proposed to be implemented in Components 1 and 2 and is closely related to the Sociocultural and Indigenous Peoples Assessment Plan of the Program.

a. Background[97]

Like many countries in the region, Belize has presented the consequences of the COVID-2019 pandemic, affecting different national development sectors. Some of the most relevant affectations in Belize are the agricultural and tourism sectors.

The agriculture sector is a significant source of income for Belizeans, primarily low-income households (Hersh et al., 2019). This sector could play an essential role in fighting rural poverty, which is significantly higher than urban poverty (59% vs. 43% – SIB, 2018), and in improving the country's food security and nutrition, in a context where 6% of the population are undernourished and 13% of children under five years of age are stunted (FAOSTAT, 2020; IDB, 2020). Most Belizean farmers are small to medium-sized landholders: 25% work on farms with less than 2 ha, and 57% with less than 8 Ha.

Moreover, the agricultural sector faces meaningful climate change (CC) and environmental sustainability challenges. Models developed by IFPRI suggest that the area and the yields of beans, corn, and vegetables will decrease due to CC, and yields increase will be negatively affected for sugarcane, tropical fruits, rice, and cacao. Furthermore, due to negative CC impacts on agriculture, Belize will be the most affected of all LAC countries in terms of poverty (+1,28%), crop imports (+13.5%), and a decrease in GDP (-1.8%) (Banerjee et al., 2021). According to the Yale Environment Performance Index 2020, which measures efforts to support healthy populations while minimizing the threats of agriculture to the environment, Belize ranks 155 of 180 countries, with a low 19,9/100 score, losing 10.1 points since 2010 and far below the 32.7/100 regional average.

[97] BID, 2022. Project Profile

The tourism sector faces several structural challenges which are fundamental for the sector's long-term competitiveness and sustainability. First, limited tourist expenditure: Even though the tourism sector showed a positive growth rate before the pandemic, most of it was associated with cruise ships instead of overnight visitors, generating more expenditure per capita (IDB, 2020). The second is a lack of a skilled labor force (Chow, 2019). The third is the vulnerability of the country's valuable natural resources. It is estimated that Belize's coral reef and mangroves provide goods and services around US$559 million annually (Cooper et al., 2009), supporting activities such as diving, snorkeling, and sport fishing, with 60% of Belize's yearly tourists visiting Belize Barrier Reef and offshore islands (Cherrington, 2014), and providing shoreline protection against erosion and coastal flooding. However, the concentration of the tourism footprint in a limited number of hot-spots destinations in the coastal area has contributed to the degradation of natural resources, which is aggravated by the lack of appropriate sanitation and solid waste disposal systems in some underserved areas (Chow, 2019; IDB, 2020). To seize the opportunity generated by the pandemic to "build back better," tourism development in Belize should (i) integrate crisis response strategies into tourism policies, particularly intending to increase risk governance of tourism destinations; (ii) harness the potential to develop regional or domestic tourism to increase resilience in times of global obstacles; (iii) strengthen the local entrepreneurial capacity to enhance and qualify the tourism value chain, increasing competitiveness and livelihood alternatives; (iv) All at the same time as protecting its natural resources, which form the base of its attractiveness.

b. Objectives and components [98]

The objectives of this operation will be to improve incomes in the **Agriculture and Tourism** sectors, prioritize vulnerable populations such as indigenous peoples, afro descendants, migrants, women, and youth and promote sustainable livelihoods in the agriculture and tourism sectors. The operation seeks to improve MSMEs' profitability, climate resilience/decarbonization, environmental sustainability, and market access by providing non-reimbursable financial support and technical assistance and training. The operation will finance goods and services structured in the following components:

Component 1. Direct support to farmers, agricultural groups and MSMEs for sustainable and inclusive development (IDB: US$11,245,000).

Sub-component 1: Environmentally sustainable, and climate resilient farming systems. To promote the adoption of environmentally sustainable practices, increase climate resilience and agricultural productivity, the project will finance the following activities:

a. ***Technical Assistance (TA),*** with gender and socio-cultural approaches, will be provided for 2 to 3 agricultural cycles. Technical assistants will accompany beneficiary farmers in: (a) the elaboration of a farm plan, a roadmap to improve the farm's organization and management to achieve profitability and sustainability goals; (b) the implementation of the farm plan, including follow-up visits to provide technical advice on production, climate-smart and environmentally sustainable practices, and or standards required to enter formal markets; and (c) farm management (e.g. basic

[98] IDB, 2022. Proposal for Operation Development. Sustainable and Inclusive Belize Program

accounting) and, access to market information (e.g. market requirements, financing opportunities, etc.); (d) Support to registration in BAIMS (requirement to obtain financing), if needed. Technical assistants will also organize and facilitate collective training and learning-by-doing activities such as farmers field schools. A gender approach to TA will be implemented to promote women' participation (i.e. considering domestic burden, childcare, language barriers, etc. The eligibility criteria will ensure that indigenous farmers will be included, and MoU will be signed with indigenous authorities (alcaldes) to ensure participation of indigenous women.

b. ***Green Innovation Vouchers (GIV)*** will be provided to farmers to partially finance the implementation of their farm plans with the support of the technical advisers. The eligibility criteria for the investments to be financed are: (i) inputs/equipment must be are included in the pre-established menu of authorized technologies , (i.e. climate-smart and environmentally sustainable inputs and equipment to support: farm diversification, agroforestry and silvopastoral systems, fodder banks, high quality planting material,; good practices in soil and water management, substitution of chemically synthesized fertilizers and pesticides by bio-inputs, ; water storage and drip irrigation with solar pumps;, cover structures,; among others); (ii) the inputs/equipment selected by the farmers contribute to the implementation of their farm plan; (iii) the inputs/equipment are exchanged with the GIV through a private provider accredited by the project. GIVs will have a maximum amount of US$2,000, and will be provided (along with TA) to approximately 1,500 farmers, who will meet the following eligibility criteria: (i) present proof of land tenure security, according local standards (i.e. not necessary an property title; it could be possession ,right, community or collective land usufruct); and (iii) being a small farmer (from 0.5 acres to 20 acres); and (iii) commit to register in the BAIMS, if not yet the case. Beneficiary farmers for TA and GIV will be selected among the eligible ones through public random, except in indigenous areas where culturally appropriate selection mechanisms will be implemented, validated by the communities. Previous communication campaigns with cultural relevance (e.g. language, communication channels, etc.) will massively inform about the opportunities offered by the project, the eligibility criteria, the complaint mechanisms, etc. 250% of vouchers will be reserved for women, and 15% to indigenous farmers.

Sub-component 2: Sustainable and Inclusive Agri-Food Markets to increase competitiveness and access to markets, the project will finance:

a. ***The preparation of Green Agri-Business Plans (GABP)*** for approximately 40 Farmers Groups (FGs), with an estimated total of 1000 individual beneficiaries, considering an average of 25 member for each FG; and 80 MSMEs, with an estimated total of 320 individual beneficiaries, considering an average of 3 employees for each MSME. MSMEs (not FGs) will have to present evidence of having conducted business activities for at least one year prior to registering in the project. The GABP will include investments that aim to improve access to markets, with emphasis on environmental sustainability and/or climate resilience, including: storage, processing, transportation, market intelligence, compliance with formal requirements (registrations and legal certificates), certifications (i.e. environmental, fair trade, etc.), digitalization, diversification, ; among others. To elaborate the GABPs, the project will finance and managerial advice to FGs/MSMEs through "business advisors". The business advisor will also provide, during an estimated period of 3 years, technical assistance to the FG/MSME in topics such as:

formalization/registration and elaboration of financial statements, business management, financing, and market opportunities among others.

b. **The implementation of Green Agri-Business Plans (GABP)** for approximately 20 FGs (estimated total of 500 individual beneficiaries) and 40 MSMEs (estimated total of 160 individual beneficiaries). To that purpose, FGs could receive a grant up to a maximum amount of US$75,000; and MSMEs could receive a grant for a maximum of US$25,000. To be eligible to financing, the GABP will meet the following criteria: (i) proof of formal legal status of the FG/MSME; (ii) proof of land tenure when the GABP includes the construction of infrastructure facilities; (iiii) profitability and financial viability assessment; (iv) socio-environmental management strategy; (v) others included in the MOP. Qualification criteria of GABPs; will include (ii) evidence that investments to be implemented are low carbon or environmentally sustainable (e.g. solar panels, waste reuse or reduction, circular economy practices;(iii) others included in the MOP. It is expected to finance initiatives of innovative environmentally friendly technologies; transformation and value addition of production, maintenance and improvement of quality, reduction of losses and waste, storage, and collection (improvement of processes within the production process), diversification of products and use of by-products (new markets), among others. Eligible GABP's expenses will include TA and training; small infrastructure facilities, goods, equipment and machinery; costs of formalization, certifications and registrations; as well as all the costs associated with the implementation of the socio-environmental management strategy that will be part of the GABP.

Sub-component 3: Sustainable and Inclusive Tourism. To address competitiveness, sustainability, and resilience entrepreneurship the project will finance:

a. **The preparation of Sustainable Tourism Business Plans (STBP)** for approximately 200 MSMEs in the tourism sector. Eligibility criteria for beneficiary MSMEs will include: evidence of having conducted business activities for at least one year prior to registering in the project. The STBP will include investments that aim to reduce negative environmental externalities, enhance innovation and digitalization, and support and market intelligence. To elaborate the STBPs, the project will finance managerial advise to MSMEs through "business advisors. The business advisors will also provide technical assistance to the MSMEs in topics such as: formalization/registration and elaboration of financial statements, business management, financing, and market opportunities, among others.

b. ***The implementation of approximately 150 STBP***, for an average amount of US$15,000. To be eligible to financing, the STBPs will meet the following criteria: (i) proof of formal legal status of the MSME; (ii) proof of land tenure when the STBP includes the construction of small facilities; (iii) profitability and financial viability assessment; (iv) socio-environmental management strategy; (v) others included in the MOP. Qualification criteria of STBP will include: (i) evidence of the STBP's financial sustainability; (ii) evidence that investments to be implemented are low carbon or /environmentally sustainability (e.g. individual sewage/waste management solutions, reuse or reduction, circular economy practices, among others) (v) others included in the MOP. Eligible STBP's expenses will include: training, goods, equipment, and machinery, costs of formalization, certifications and registrations; as well as all the costs associated with the implementation of the socio-environmental management strategy that will be part of the STBP.

Component 2. Enabling environment for sustainable and inclusive development (IDB US$2´755,000).

To contribute to the sustainability and scaling-up of results, this component will finance:

a. The creation of a Skills Development Ecosystem for sustainable and inclusive the agriculture and tourism sectors. This includes: (i) The establishment of an industry-led body (hereafter the skills consortium) to identify skills needs, set standards, and chart career pathways; (ii) design and implementation of certified training programs to MSMEs owners and MSMEs employees, and to future service providers (such as agricultural technical advisors) in the areas of sustainable tourism and agriculture; (iii) A train-the-trainer program; (iv) strengthening of quality assurance mechanisms for the skills development system which includes mapping of training providers' characteristics and enhancement of quality standards to measure training provider performance based on quality of teaching and learning outcomes.

b. The upscale of the existing "Climate Risks Information System" (CRIS) to a "Climate and Environmental Risks Information System". to incorporate key environmental information for the long-term competitiveness and sustainability of the agriculture and tourism sectors and enhance system-users approach.

c. Market information Systems. This includes the strengthening of Agrilinks Belize, a platform that links farmers to buyers; as well as to support the development of the first stages of a Tourism Market Intelligence System at BTB.

***d. The design and pilot implementation of Green Certification Schemes*.** One pilot will be implemented for the tourism sector and, one for the agricultural sector, considering the potential benefits to develop linkages between both sectors the pilots will ideally be implemented in the same territory to obtain economies of scale.

e. Communication and public information campaigns on climate and environmental risks and on resilient, low carbon and environmentally sustainable practices in agriculture and tourism, to increase awareness and enhance more responsible behavior from MSMEs and visitors.

Other (IDB: US$1,000,000). This category includes administration, monitoring, evaluation, and auditing costs.

c. Lines of Action

The lines of action are conceived as the general orientation strategies that the projects must have to guarantee the integration and articulation of the different activities of the Program coherently and systematically. Below are the lines of action:

Line 1: Climate-Smart Agriculture (CSA)

The Project will finance investments related to the agricultural sector to improve the small-scale production systems and the processes of conservation, transformation, value addition, transport material, and packaging to reduce losses. Table 33 shows the selected CSA, Environmental and agroecological practices, and technologies.

Table 34. Eligible CSA practices and technologies for farm plans

CSA practice and technologies	Crops
Soil and land management (minimum tillage) & planting of disease toler	All crops* including vegetables**
Water-efficient management & soil and land management (minimum ti	All crops* including vegetables**
Use of certified planting material & improved drainage (raised beds)	Citrus
Intercropping with coconut	Citrus
Use of improved pastures (Mombasa) & use of improved breeds	Cattle/sheep
Use of hay and silage	Cattle/sheep
Crop rotation with corn & planting high yielding varieties	All crops* including vegetables**
Adjust planting date	All crops* including vegetables**
Premature bagging & water-efficient management (drainage [canals] ar	Banana
Crop rotation with & plant density management	All crops* including vegetables**
Water-efficient irrigation	All crops* including vegetables**
Water-efficient irrigation (alternate wetting and drying)	Rice
High-yielding varieties tolerant to water stress	All crops* including vegetables**
Water harvesting and water storage systems	All crops* including vegetables**
Intercropping with lime	Coconut
Use of high-quality certified planting material & IPM (pheromone traps)	Coconut
Agroforestry & management of cacao trees: pruning & grafting	Cocoa
Cover structures (bubble houses, greenhouses)	Vegetables
Disease tolerant varieties & drip irrigation (fertigation)	Vegetables

*All crops: sugar cane, citrus, banana, vegetables, coconut, rice, corn, legumes, pineapple, soursop, sweet potato, pitahaya)
**Vegetables: tomato, onion, sweet paper, hop pepper, carrots, cabbage
Source: Financing Strategies for Climate-smart Agriculture Investments in Belize. World Bank, 2018.

Line 2: Environmental and agroecological practices

The projects under this line seek the promotion and strategic adoption of new technological tools that promote the efficient management of natural resources, prevent increased soil erosion, and reduce deforestation and pollution by waste. Table 34 will present the options selected.

Table 35. Eligible Environmental and agroecological practices and technologies farm plans

Agroecological practices
Land-use change, from areas under low agricultural use/productivity to conservation
Implementation of agroforestry and silvopastoral systems, using native plant species
Implementation of agroecological practices: cover crops management, nutrient recycling, organic fertilization, and integrated pest management.
Substitution of chemically synthesized fertilizers and pesticides, solid and liquid organic fertilizers, organic matter, and green manures.
Investments to isolate and protect water sources (native tree species, wire fences, etc.)
Improvement of grazing pastures
Implementation of fodder banks for animal feeding

Source: Identification of agroecological practices. CIPAV, 2021

Line 3: Strategic Infrastructure

This line of action is oriented towards projects related to the execution of small constructions that facilitate the projects' activities. Table 35 s shows the eligible infrastructures for this line of action

Table 36. Eligible investment items for Farm and Business Plans.

TYPE	DESCRIPTION
Infrastructure	• Workrooms and work sheds • Warehouses • Washing and processing areas • Grain drying areas (canopy type) • Grain drying yards • Small infrastructure for displaying and selling products. • Livestock facilities
Machinery and equipment	• Engines • Pulpers • Dryers • Packers • Humidity and temperature meters, etc. • Sorting tables, shelving, washing • Scales • Grain silos • Cold rooms, refrigerators • Biodigesters • Digital commerce and communications • Computer equipment: Digital commerce • Communication equipment
Associated costs	• Specialized technical assistance (management support; marketing; market intelligence; quality control; etc.) • Services associated with digital commerce and communication • Specific training • Installation costs • Cost of transportation of materials • Materials transportation cost

Source: FAO-IDB, 2022. Draft Design Sustainable and Inclusive Belize Program

8.1.5. Regulatory Framework

The Sustainable and Inclusive Belize Program is governed by the regulatory framework of the National Constitution of Belize, by its laws and regulations. The Constitution is the supreme law under section 2 and takes precedence over sub-national or sectoral legislation and regulations. In implementing the Program, the agriculture and tourism sectors are governed by national, subnational, or sectoral laws.

The agriculture sector is governed by the Ministry of Agriculture, Food Security, and Business. This ministry has a Department of Agriculture and another of Cooperatives, which are in charge of carrying out the functions for the development and control of the agricultural sector.

The Ministry of Tourism and Relations with the Diaspora governs the tourism sector, in charge of dictating the policies and regulations for this sector. The ministry has a Department of Tourism Operations and another of Foreign Investment Tourism Operations, responsible for the sector's sustainable development.

The most relevant aspects of the country's regulatory, institutional, and policy framework are presented below concisely. In addition, the applicable laws, regulations, and rules with their executing institutions at the national, subnational, or sectoral level relevant to the Project's environmental and social aspects are included. Next, Tables 37,38,39 and 40 show the Laws and Regulations applicable to the Program, with a brief description.

Table 37. Laws and Regulations for the Agricultural Sector

Reference	Date	Government level	Key points	Description	Requirements applicable to the Project	Responsible Authority
AGRICULTURE SECTOR						
Forest Law, Cap. 213	Revised Edition 2000	National	Establishes forest and mangrove reserves. It shows the norms for its administration. Specifies the requirements for legal production. Set compensation and penalties.	This law seeks to protect and conserve forests and mangroves. In addition, it establishes the requirements for legal production, compensation, and penalties in case of non-compliance with these regulations.	The project will develop actions to improve agricultural production, seeking the protection of forests and must follow the regulations established for its legal production.	Forest Department, Ministry of Sustainable Development, Climate Change and Disaster Risk Management
National Lands Act, Cap. 191	Revised Edition 2000	National	Classification of National Lands. Disposal of National Lands. Exceptions. Leases. Sale of National Lands. Reserve Regulation. Resolution of land occupation conflicts.	This Law establishes the classification of National Lands, their uses, and exceptions. It creates the regulation of the Reserves and issues the formulation of the resolution of conflicts of occupied lands.	The areas involved in the Project must abide by the National Land Law, in terms of its use, regulation and classification.	Ministry of Nature Resources
Land Development Authority Act, Cap. 181	Revised Edition 2000	National	Establishes the regulations to acquire, develop and improve, including providing infrastructure for roads, bridges, drainage, and irrigation. Promotes increased land development. The standard for the possession, rental, and operation of machinery for agricultural development.	This law issues the rules for land development in its acquisition, possession, rental, and operation of agricultural machinery. In addition, it promotes land development to improve infrastructures such as drainage and irrigation.	The Project can propose the development of lands that are still unexploited at the level of agriculture. It will offer land development through small-scale infrastructure improvement.	Ministry of Nature Resources
Banana Industry Act, Cap. 205	Revised Edition 2000	National	Regulation of the banana industry. Establishes prohibitions on plantations in areas designated for banana cultivation. Requirements for the issuance of licenses.	The agreement aims to ensure that international trade in specimens of wild animals and plants does not constitute a threat to their survival.	The project may develop new crops to create new adequate jobs, which must take into account the areas where banana cultivation is prohibited, according to this Law.	Ministry of Agriculture, food security and enterprises
Citrus (Processing and Production) Act, Cap. 277	Revised Edition 2000	National	Regulation for issuing export control and processing licenses for the citrus industry. Establishes control for citrus production. Determines citrus prices between individual growers and the Association.	Los cultivos nuevos o los existentes donde se contemple la producción de cítricos deberán seguir los controles y regulaciones según esta Ley. Esta Ley determina la regulación para las licencias en caso de control y procesamiento de productos cítricos.	The project may develop new citrus crops or improve existing ones, which must consider these regulations and controls established in this Law.	Ministry of Agriculture, food security and enterprises

Sugar Industry Act, Cap. 283	Revised Edition 2000	National	Establishes the requirements for the issuance of licenses and manufacturing of sugar cane. Establishes control regulations for the sugar cane industry.	This law establishes the requirements for issuing the license for new sugar cane crops. In addition, they must follow the controls and regulations of the sugarcane industry.	The project may develop new sugar cane crops or improve existing ones; to maintain or create new jobs, which must take into account the regulations of this Law.	Ministry of Agriculture, food security and enterprises
Corn Law Cap. 288	Revised Edition 2000	National	Establishes the powers and duties of the Grain Commission. Establishes the Grain Growers Association. Promotes the development of the grain industry. Promotes grain utilization.	This Law promotes the development of the grain industry, seeks the association of grain growers and the use of their derivatives.	The project may implement new corn crops, and create new enterprises for which it must follow the recommendations of this Law.	Ministry of Agriculture, food security and enterprises
Bee Control Act, Cap. 206	Revised Edition 2000	National	Establishes the requirements for the registration of owners and apiaries. Sets the granting of permissions. Establish the regulations of the apiaries.	This Law establishes the requirements for new apiaries and their owners, registration, and granting the respective permits.	The project may develop new apiaries or improve existing apiaries, to improve the profitability of MSMEs, which must consider the regulations under this Law.	Ministry of Agriculture, food security and enterprises
Comprehensive National Law on Water Resources, Act.	Edition 2010	National	Establishes the water controls for its extraction and use. Shows the regulation of licenses for the extraction of water. Plan the necessary permits.	This Law establishes that all projects that have to use water resources must follow the controls of use and extraction.	The project may develop actions that will require water resources, therefore, it is necessary to know and follow the existing controls and regulations to comply with this Law.	Ministry of Nature Resources
Water and Sewer Act, Chapter 222	Revised Edition 2000	National	Functions of the Authority. Establishes the regulation to issue licenses for the extraction of industrial water. Laws to prevent the misuse and contamination of water. Establishes penalties for contamination of water for human consumption.	This Law establishes that all irrigation and flooding projects for crops are considered industrial water extraction and must follow the set regulations.	The project must consider this Law to develop new crops where it will not be possible to misuse and contaminate the water. Regulations for obtaining licenses for industrial water extraction must be followed.	Ministry of Nature Resources
Pesticide Control Act, Chapter 216	Revised Edition 2000	National	Establishes the control and registration in the control table of pesticides allowed and prohibited in Belize. It also issues licenses for its manufacture and importation. Please keep a record of restricted pesticides and documents of places that sell them.	This Law establishes the control and registration of pesticides used and prohibited in the country for use in agriculture.	The project will develop actions for crops and pesticides, taking into account the list of permitted and prohibited pesticides in the area of influence.	Court may authorize the City, Village or Town Council in whose district the building, place or way is situated

Belize Agricultural Health Authority Act, Chapter 211	Revised Edition 2000	National	Strengthen information systems and needs for agricultural health. Organizes and plans agricultural health programs. Promotes the development of private participation in agricultural health programs.	This Law organizes, plans, and promotes agricultural health in the country with the participation of the private sector.	The project will apply the existing regulations to maintain and follow the rulesthority of health regulations in the country's crops.	Agricultural Health Authority, Ministry of Agriculture, Food Safety and Entrepreneurship
Prevention of Plant and Animal Diseases by Fumigation, Inspection of Fish and Fishery Products, No. 211S	2003 Edition	National	Establishes regulations to prevent plant and animal diseases. Carry out inspections of fishery products.	Statutory body designed to modernize Agricultural Health Services in Belize	The project must follow the regulations for fumigation and inspection of the crops to be developed.	Agricultural Health Authority, Ministry of Agriculture, Food Safety and Entrepreneurship
Registration and Registered Pesticides: uses, restrictions and precautions,	2003 Edition	National	Pesticide control. Registration of pesticides used—certification of pesticide users.	The statutory body is responsible for the control, registration, and certification of pesticide users in Belize.	The project will follow the regulation of control and registration of pesticides to be used in the tasks to be developed.	Pesticide Control Board, Ministry of Agriculture, Food Safety and Entrepreneurship
Belize Development and Marketing Corporation No 281	2003 Edition	National	It helps small agricultural companies to commercialize their products. Improves the development of agricultural products.	The agency assists in economic development by ensuring food security, improving product development, providing marketing services for small agro-enterprises, and operating on an ecological, sustainable, and viable basis.	The project may incorporate the Belize Development and Marketing Corporation in developing its actions to promote new agribusinesses.	Ministry of Agriculture, Food Security and Entrepreneurship

Source: Own elaboration 2022, based on national laws

Table 38. Laws and Regulations for the Tourism Sector

TOURISM SECTOR						
Cultural Heritage Preservation Law	2017 Edition	National	Responsibilities and functions of the National Institute of Culture and History. Guidelines and requirements for the preservation and heritage plan. Establishment of a registry. Protection of Cultural Heritage.	This Law establishes that all projects to be developed must comply with the guidelines and requirements for preserving and conserving the Cultural Heritage of Belize.	When implementing actions to create new jobs in the tourism sector, the project must consider the plans and measures to protect Belize's cultural heritage.	Ministry of Education, Culture, Science and Technology
Law of the National Institute of Culture and History, Cap 331	2003 Edition	National	Protection and conservation of historical monuments. Power and authority to enter landmark sites. Rules and limitations for each of the reservations	This Act seeks to protect and preserve the ancient monuments of Belize. To access the archaeological moments, permits are required, comply with the rules, and follow each reserve's limitations.	The project will seek to meet and abide by recommendations for access to Belize's old reserve sites.	Ministry of Education, Culture, Science and Technology
National Parks System Act, Cap. 215	Revised Edition 2000	National	Defines the essential characteristics to establish an area as a National Park, Nature Reserve, Wildlife Sanctuary, or Natural Monument. Restrictions to entering these areas.	The Law of the National Park System establishes the regulation of use and prohibitions of activities to be developed within the zones of the national park system. In addition, it creates the protection and conservation measures of the national parks.	Through ecotourism activities, the Project aims to expand the employment offer and promote the development of the country's tourism sector. Therefore, you must be aware of and abide by existing regulations on national parks.	Department of the Environment, Ministry of Sustainable Development, climate change and Disaster Risk Management
Ancient Monuments and Antiquities Act, Cap. 330	Revised Edition 2000	National	Archaeological Reserves are open to the public. Rules for the Archaeological Reserve. Control of ground operations.	This Law establishes the archaeological reserves that can be opened to the public. In addition, it creates the rules and control of the use of archaeological reserves.	The Project will develop activities in the tourism sector where the entrance to the archaeological reserves will be contemplated and must comply with this regulation.	Ministry of Education, Culture, Science and Technology
Law of Hotels and Tourist Accommodation in Belize, Act. 285	2003 Edition	National	Licensing and operational requirements for the operation of hotels and resorts. Guest registration standards. Minimum requirements for accommodation in apartments and villas.	This Law establishes that all hotel accommodation projects in Belize must follow the recommendations found in this regulation, such as registration standards and minimum accommodation requirements.	When implementing actions to create new jobs in the tourism sector, the project must consider the minimum accommodation conditions required by this Law.	Ministry of Tourism and Diaspora Relations
Minimum Registration, License, Operating Requirements, Guide No 286S	2003 Edition	National	Accommodation regulations. Regulation for tour operators. Rules for tourist guides.	All accommodations, operators, and tour guides in Belize must meet the quality standards of the tourism industry and comply with the requirements established in the Law.	The possibility of creating new jobs in the project's development leads to following this regulation of the tourism sector.	Ministry of Tourism and Diaspora Relations
Foreign-owned passenger buses No. 144S	2003 Edition	National	Regulation of border crossing. Code for the circulation of automobiles and passenger buses.	Agency in charge of border management about the circulation of automobiles, passenger buses, and the collection of transit fees.	The project may develop actions that include the transit of cross-border tourism passengers.	Ministry of Tourism and Diaspora Relations

Table 39. Laws and Regulations for the Environmental and Social Sector

Reference	Date	Government level	Key points	Description	Requirements applicable to the Project	Responsible Authority
SOCIAL ENVIRONMENTAL						
Industrial Water Act, Cap. 222S	Revised Edition 2000	National	Industrial Water Rates. Infrastructure charges. Water supply areas. Wastewater disposal areas. Methodology for calculation.	The agreement aims to ensure that international trade in specimens of wild animals and plants does not constitute a threat to their survival.	The new and existing crops that the Project may develop or assist in the country must comply with this Law to not contradict the norm.	Ministry of Nature
Private Forests (Conservation) Act, Cap. 217	Revised Edition 2000	National	Establishes the regulations of private forests. Conservation of remote forests. Sustainable management	This Law establishes that private forests must follow the regulations set for their conservation in management, handling, and cutting.	The Project must follow this regulation when establishing activities to develop within these private forests.	Forest Department, Ministry of Sustainable Development, climate change and Disaster Risk Management
Protected Areas Conservation Trust Act, Cap. 218	Revised Edition 2000	National	Establishes the functions of trusts Trust powers. Conservation of protected areas. Sustainable management and development of protected areas.	This Act establishes the functions of trust foundations to protect protected areas in Belize.	The project must comply with the agreements established between the foundations and the government to develop protected areas.	Forest Department, Ministry of Sustainable Development, climate change and Disaster Risk Management
Environmental Protection Act, Cap. 328	2011 Edition	National	Powers to intervene, prevent and control environmental pollution. Disposal prohibitions. Regulation and requirements for environmental assessment. Regulation and inspection of nutrients.	This Law establishes that every project to be developed in all its phases must implement and follow all regulations and guidelines for environmental protection in terms of pollution control and environmental impact assessment.	The project may develop implementation activities, which must comply with the regulations and requirements necessary to comply with the measures adopted or to mitigate the impacts according to the environmental assessment.	Forest Department, Ministry of Sustainable Development, climate change and Disaster Risk Management
Wildlife Protection Act, Cap. 220	Revised Edition 2000	National	Hunting check. Restrictions. Forbidden activities. Dealer license requirement. Permit requirements for import and export.	This Law seeks the protection of wildlife concerning hunting control and restrictions, requirements that must be taken into account by all projects in the areas to be	Environmental sustainability is one of the components to be developed in the implementation of the project. With ecotourism activities in areas where there is wildlife, it will be necessary to take into account existing regulations.	Forest Department, Ministry of Sustainable Development, climate change and Disaster Risk Management
Solid Waste Management Authority Law, Cap. 224	Revised Edition 2000	National	Authority functions. Service areas. Solid waste regulations.	This Law establishes the regulations for the management, transportation and disposal of solid waste. In addition, it establishes the necessary conditions for the service areas.	The Project will develop activities that must consider the management, transportation, and final disposal of solid waste to guarantee sustainability for future generations.	Forest Department, Ministry of Sustainable Development, climate change and Disaster Risk Management
Comprehensive National Law on Water Resources, 222:01	2011 Edition	National	Water resource management. National policy and licensing. Licensing functions, powers, and duties. Control, protection, and use of drilling wells and water. Water pollution control.	This Law promotes the efficient use of water resources by monitoring and preventing contamination. Licensing is required for the extraction of water from deep wells.	The project will develop actions that must consider the efficient and appropriate use of water resources. And if necessary, the licenses established by this Law will be obtained.	Ministry of Nature Resources
Land Use Act, Cap. 188	Revised Edition 2000	National	Restrictions on the subdivision of land. Regulation of land use.	This Law establishes the regulations for the use of land.	The project must follow the guidelines of the Law according to their use.	Ministry of Nature Resources
Workers' Compensation Act, Cap. 303	2003 Edition	National	Compensation conditions for work accidents. Employment for special people.	This Law establishes that in the event of an accident at work, it will issue the regulated compensation to the workers.	The project will seek to develop the activities in compliance with the regulations on the matter.	Labor Department, Ministry of Rural transformation

Nuisance Law, Cap 118	Revised Edition 2000	National	Faculty of courts of summary jurisdiction to order the abatement of nuisances. Power to revoke order prohibiting recurrence of problem. Recording of prohibition orders.	This Law establishes the procedure for filing complaints before the courts of jurisdiction. In addition, he has the power to revoke orders.	The project will seek to comply with and abide by this Law, paying attention to the inconvenience caused by the actions to be carried out.	Court may authorize the City, Village or Town Council in whose district the building, place or way is situated
Environmental Impact Assessment Regulations, Cap. 328 Section 21	2011 Eedition	National	Powers to intervene, prevent and control environmental pollution. Disposal prohibitions. Regulation and requirements for environmental assessment. Regulation and inspection of nutrients. Investigation and procedures for penalizing ecological damage.	This rule establishes that every project to be developed in all phases must implement and follow all regulations and guidelines for environmental protection in terms of pollution control and environmental impact assessment.	The project may develop implementation activities, which must comply with the regulations and requirements necessary to comply with the measures adopted or to mitigate the impacts according to the environmental assessment.	Department of the Environment, Ministry of Sustainable Development, climate change and Disaster Risk Management
Pollution Regulation, Capt. 328 Section 45	Revised Edition 2000	National	Emission of pollutants into the environment. General aspects of air pollution. Water contamination. Land pollution.	Emission of pollutants into the environment. General aspects of air pollution. Water contamination. Land pollution.	The project must avoid contamination of water, air, and land resources in the development of all its phases.	Department of the Environment, Ministry of Sustainable Development, climate change and Disaster Risk Management
Public Health Regulations, Cap. 40	2003 Edition	National	Regulation of water supply. Storage. Proper waste management.	This Law regulates the supply of drinking water to protect public health. In addition, it holds the storage and handling of waste.	The actions to be developed in the project must consider the adequate supply of water and the conditions established by this Law.	Ministry of Health, Public Health Department
Social Security Regulations, Cap. 44	2003 Edition	National	Regulations for the payment of social security. Regulations for benefits. Occupational diseases and accidents.	This Law establishes that all employers contribute to social security by the established norms.	All the actions to be carried out by the project must abide by these social security regulations.	Ministry of Finance
Labor Regulations, Cap. 297	2003 Edition	National	Recruitment. Hours of work and rest days. Labor regulations. Work for women and children.	This Law establishes the regulations that must be considered for all work under certain conditions and provisions.	The project will develop actions in which the existing regulations for the work must be followed.	Labor Department, Ministry of Rural transformation
Immigrant Regulations, Cap. 156 Section 35	Revised Edition 2000	National	Regularization of immigrants. Temporary permits. People who do not require a passport	This Law establishes the requirements for the regularization of the migrant population.	The project will seek the integration of the migrant population, complying with the existing regulations on the matter.	Ministry of Foreign Affairs, Foreign Trade and Immigration

Table 40. International agreements

Reference	Date	Government level	Key points	Description	Requirements applicable to the Project	Responsible Authority
INTERNATIONAL AGREEMENTS						
Paris Agreement (Of the Framework Convention on Climate Change)	April 22, 2016	National	The mitigation or reduction of CO2 emissions Transparency and global balance. The adaptation of government is is is is a point in which it is intended to strengthen the capacity of societies to face the consequences of climate change.	It aims to keep the global temperature rise well below 2ºC, increasing the ability to adapt to the adverse effects of climate change and promoting climate resilience and low-carbon development.	The project will seek to fulfill this agreement to implement climate resilience/decarbonization actions and environmental sustainability.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
International Convention to combat desertification in countries affected by severe drought or desertification, particularly in Africa.	July 26, 1998	National	Binding international agreement that relates the environment and development to the sustainable management of soils. Specifically focused on arid, semi-arid and sub-humid and dry areas, where some of the most vulnerable ecosystems are found. Emphasizes the important role played by women in regions affected by desertification	Combat desertification and mitigate the effects of drought in countries affected by severe drought or desertification, in particular in Africa, through the adoption of effective measures at all levels, supported by international cooperation and association agreements.	In implementing the project, the cooperation measures adopted in the country to avoid desertification and achieve the sustainable development of Belize will be taken into account. The Project must avoid desertification actions, such as indiscriminate felling of trees and erosion caused by intensive agricultural activity.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
United Nations Framework Convention on climate change.	October 31, 1994	National	It establishes a general framework for intergovernmental efforts to face the challenges caused by climate change.	The United Nations Framework Convention on Climate Change (UNFCCC) aims to stabilize greenhouse gas concentrations in the atmosphere to combat climate change.	To reduce the greenhouse effect caused by agriculture, the Project must increase the production of biomass; apply low-cost plant growth regulators and biofertilizers; adopt agricultural conservation practices	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Convention on International Trade in Endangered Species of Wild Fauna and Flora.	August 19, 1986	National	Regulation of trade in specimens of species. Permits and certificates. Exemptions and other special trade-related provisions.	The agreement aims to ensure that international trade in specimens of wild animals and plants does not constitute a threat to their survival.	The project will develop activities in the agriculture sector and the tourism sector following the indications of national species protection; it will avoid the trade of wild plants and animals.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal.	May 5, 1997	National	Enact adequate national legislative provisions to prevent and punish illicit traffic in hazardous and other wastes. Obligation ensures that dangerous and other debris are managed and disposed of environmentally soundly.	The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted in response to strong public protests in the 1980s, following the discovery of toxic waste deposits in developing countries from abroad.	Modern agriculture is responsible for the discharge of large amounts of agrochemicals, organic matter, sediments, and salts into bodies of water, so the Project must opt for innovative and sustainable agriculture actions. It will seek strict control of hazardous waste from its origin to its final disposal. To comply with this environmental agreement.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.

Stockholm Convention on Persistent Organism Pollution.	May 16, 2004	National	It determines the compounds on which action must be taken as a priority, due to their harmful effects, their presence in the environment and their persistence inside the human body, given that they are organochlorine products.	The Stockholm Convention on Persistent Organic Pollutants is a Multilateral Environmental Treaty that seeks to protect human health and the environment against persistent organic pollutants.	Agriculture can contaminate the soil due to excessive use of chemicals of various kinds, pesticides or pesticides to prevent local fauna from ruining crops; The project must propose the adequate use of pesticides and fertilizers so as not to contaminate the soil.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Rotterdam Convention for the Application of the Prior Basic Consent Procedure or Certain Hazardous Chemicals and Pesticides in International Trade	24 de febrero 2004	Nacional	Establishes a prior informed consent (CPI) procedure for importing dangerous chemical products.	The convention aims to promote shared responsibility and joint efforts of the Parties in international trade in certain hazardous chemicals to protect human health and the environment from potential harm.	The Project will seek to avoid the use of pesticides and dangerous products for crops so that the agreement is fulfilled.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Vienna Convention for the protection of the ozone layer.	June 6, 1997	National	Rights and obligations of the parties. Actions in case of non-compliance. The basic principle of good faith. Autonomy of the will of the parties. Good behavior of the parties.	The Convention aims to encourage the Parties to promote cooperation through systematic observations, research, and information exchange on the impact of human activities on the ozone layer and adopt legislative or administrative measures against actactionsat that may affect the ozone layer.	The Project will follow the agreement's recommendations to prevent the depletion of the ozone layer.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Convention on biological diversity.	December 30, 1993	National	The conservation of biological diversity. The sustainable use of the components of biological diversity. The fair and equitable sharing of benefits arises from genetic resources.	The Convention on Biological Diversity (CBD) is the first global agreement on the conservation and sustainable use of biological diversity.	The Project will seek the conservation of biological diversity, through the sustainable use of the available genetic resources of the country.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
The Montreal Protocol on Substances that Deplete the Ozone Layer.	January 9, 1989	National	Criteria and indicators for the conservation and sustainable management of temperate and boreal forests	Its objective is to apply limits to the production and consumption of the leading chemical products that destroy the ozone layer that protects the Earth.	The Project will follow the Montreal protocol to prevent the depletion of the ozone layer.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.
Cartagena Protocol on Biosafety of the Convention on Biological Diversity.	September 11, 2003	National	Specifically focused on the transboundary movement of LMOs (living modified organisms), promoting biosafety by establishing standards and procedures that allow the safe transfer, handling, and use of LMOs.	The primary objective is to ensure an adequate level of protection in the area of the safe transfer, handling, and use of living modified organisms resulting from modern biotechnology	The Project will follow the Caratagena protocol, avoiding the misuse, manipulation and transfer of living organisms.	Ministry of Agriculture, Food Security and Entrepreneurship, Ministry of Tourism and Diaspora Relations.

Source: Own elaboration 2022, based on national laws

8.1.6. Compliance of the Program with the ESPS of the IDB

Based on the Strategic Environmental and Social Assessment Analysis, Table 41 presents the result of the IDB ESPS Screening application for the Sustainable and Inclusive Belize Program.

Table 41. ESPS´ IDB applies to the Program

Program Effect	Aspects of ESPS identified	Proposed actions
ESPS 1: Assessment and Management of Environmental and Social Risks and Impacts		
The Environmental and Social Management System (ESMS) and the ESMF will be implemented according to the different program interventions.	**Applies to this Program:** The Program will provide access to financing for infrastructure investments at the level of i) Cover structures, ii) Water-efficient irrigation; iii) Water harvesting and water storage systems; iv) Infrastructure that generates added value and avoid losses; solar pumps. These constructions require an environmental analysis considering that the project is classified in category B.	The borrower/executing agency must enforce the provisions of the DOE, beginning with the checklist and the socio-environmental categorization criteria of the regulations, and implement the socio-environmental instruments requested by this institution.
ESPS2: Work and Working Conditions		
The Program will develop inclusive actions and promote respect for protecting the fundamental rights of workers, non-discrimination, and equal opportunities. This protection of rights is immersed in the Program's objectives, especially for vulnerable groups that include indigenous peoples, Afro-descendants, migrants, women, and youth.	**Applies to this Program:** The Program will provide opportunities to vulnerable groups for which the eligibility criteria incorporate specific weights that ensure this inclusion. Likewise, these actions must be secured towards the contractors and primary suppliers of the Program in such a way that they are included within the requirements to work with the different projects: i) the measures applicable to respect the rights of workers; ii) non-discrimination; iii) equal opportunities and iv) avoid child labor.	The borrower/executing agency must: i) make contractors and primary suppliers comply with the provisions of national regulations; ii) Prepare and implement a Protocol of equal working conditions for projects and contractors; iii) Monitor compliance with the established protocol and in case of non-compliance apply the respective sanctions.
ESPS 3: Efficiency in the Use of Resources and the Prevention of Contamination		
The program will develop actions aimed at climate-smart agricultural production oriented towards climate resilience and environmental sustainability, which will affect the protection and management of natural resources.	**Applies to this Program:** The Program will implement CSA practices and technologies and Environmental and agro-ecological practices. The program excludes initiatives that can generate large amounts of greenhouse gases; on the contrary, an increase in carbon sequestration in the soil and crops due to project actions is expected. The program excludes the use of highly toxic products prohibited by international conventions and IDB policies. However, the following risks exist:	As actions to minimize the risks, the following are proposed:

	i) Risk associated with the reduction in water quantity due to increased consumption by consumptive uses which includes agriculture. The excessive use of water and inappropriate cultural practices for agricultural activities plus other consumptive uses in certain hydrographic basins of the country can generate a risk of imbalance in the hydrological cycle of water.	The Borrower must implement an Ecosystem Services Management Program that includes training for water management, coordination with other institutions, and preparation of Micro-basin Plans, especially where more than five projects are developed.
	ii) Risk associated with the change of land use from forests to agriculture;	The Borrower shall verify in the farm plans that the beneficiary is not changing land use from forests to agriculture.
	iii) Risk associated with contamination of water resources, the air in the stages of construction and operation of infrastructure and assembly or operation of equipment;	The Borrower/Executing Agency will implement specific mitigation measures and management plans to prevent pollution during the construction, operation, and closure phases.
ESPS 4: Community Health and Safety		
The Program will seek to ensure that the protection of the personnel linked to the projects is carried out by the relevant human rights principles and in a way that avoids or minimizes the risks for the people affected by the project.	**Applies to this Program:** The Program, in addition to adopting environmentally sustainable and resilient practices, seeks to improve the occupational safety of the people working on the different projects. One way to minimize risks to the health of potentially affected people is to anticipate and avoid adverse impacts on the health and safety of people during the project's life cycle, both from routine and non-routine circumstances.	The Borrower/Executing Agency will evaluate the risks and impacts on the health and safety of the affected parties, as well as the effects that could be generated on the communities during the program's life cycle. The analysis of these risks and impacts on workers' health must establish preventive measures under international occupational safety standards.
ESPS 5: Land Acquisition and Involuntary Resettlement		
Program will not acquire land or generate any type of involuntary displacement	Does not apply for this Program	Does not apply for this Program
ESPS 6: Conservation of Biodiversity and Sustainable Management of Living Natural		
The program will develop actions aimed at environmentally sustainable products that will enhance protected areas' protection and management.	**Applies to the present:** The implementation of climate-smart technologies for the agricultural sector will include the implementation of agroforestry, silvopastoral, forest protection, and conservation system models, as well as minor constructions that will require environmental management measures for their performance. These projects will not affect critical habitats or conservation objects in protected areas and will have a low impact on natural habitats. The program will not be affected by the use or introduction of exotic invasive species.	The Borrower/Executing Agency will not support operations that may significantly convert or degrade natural habitats or that affect or damage critical cultural sites

ESPS 7: Indigenous Peoples		
The Program will develop inclusive actions where the Indigenous Peoples will participate as Program beneficiaries in any of its Components. • Component 1 “Direct support for MSMEs.” Component II: "Enabling environment for sustainable development"	**Applies to this Program:** Implementing the CSAs will allow the participation of different groups that will benefit from the Program. Within this context, the following risks may arise: i) Indigenous peoples do not appropriate the new technologies; ii) Inequity conflicts may be generated in the distribution of access to Program benefits; iii) There is a delay in the start of the projects because the execution with the indigenous peoples requires more time for planning and execution.	The Borrower/Executing Agency must carry out actions related to: i) Implementing meetings with the Indigenous Peoples that include their ancestral knowledge and are linked to the new technologies that are to be implemented under a "Construction of knowledge"; ii) To avoid conflicts of inequity of beneficiaries, a "Protocol for the Distribution of Beneficiaries in the Indigenous Peoples" must be carried out; Implement a Participation strategy that allows feedback information and faster identification of project development obstacles.
ESPS 8: Cultural Heritage		
The program excludes actions that may impact cultural sites.	**Applies to this Program:** Program projects will be implemented in areas where cultural sites cannot be impacted. However, understanding that agriculture is an activity that requires earthworks, it is possible that during these activities, there may be a risk of finding unforeseen archaeological materials such as vessels, fragments or lithics, etc.	The Borrower/Executing Agency must prepare a Chance Finds Protocol and implement it. This protocol must comply with the provisions of the Institute of Archeology (NICH) Belize.
ESPS 9: Gender Equality		
The Program has a vision of sustainability and inclusion of vulnerable groups that include the participation of Women.	**Applies to this Program:** The actions of the Program are aimed at supporting vulnerable groups and gender equality. This is how the training, technical assistance, and eligibility criteria consider women's participation relevant to the program's implementation. However, there is a risk of exclusion from the participation of women as beneficiaries due to the multiple activities she develops. These activities are part of her daily role and may be affected by being accepted as the program's beneficiary.	The Borrower/Executing Agency will ensure that the Program will not negatively affect women or gender equality. Likewise, the program will offer opportunities to promote gender equality and empower women, understanding the limitations they may have as housewives, mothers, wives, or daughters. For this, she will create: i) A Strategy to link the women beneficiaries of the Program; ii) will carry out campaigns that help prevent gender-based violence; iii) will support the creation of care networks that allow women to participate in the projects; iv) Incorporate women in the different training.

ESPS 10: Participation of Stakeholders and Information Disclosure		
The project's development seeks to be inclusive in the participation of men and women in the different activities to prevent, avoid or mitigate adverse impacts and risks of exclusion.	**Apply for this Program.** In all phases of the Program, the participation of stakeholders will be ensured. For this, the information will be recorded with data disaggregated by gender. Including women, men, young people, and the elderly will be confirmed according to interest groups in the consultation process.	The Borrower/Executing Agency will develop the Stakeholder Engagement Plan. It will establish a grievance mechanism to receive and facilitate the resolution of possible conflicts with the Affected Communities by resolving concerns and complaints about the environmental and social performance of the different projects.

8.1.7. Environmental and Social Baselines

All the projects of the Component I Program must have a socio-environmental baseline which must correspond to the dimension and activities to be carried out in each project. The purpose of the baseline is to identify the initial state of the project before carrying out any activity in order to trace the development of the project and monitor both the progress and the different impacts or changes on the project's socio-environmental environment may occur.

The preparation of the baseline at the level of secondary data and the collection of primary data will be in charge of the socio-environmental professionals of the PEU who will prepare technical reports with maps and key data that will serve as a starting point for each project. As relevant data, each project must have at least the following base information (Table 42)

Table 42. General Baseline information

Project Name	
Location	
Objectives	
Project Description	
Information by component	
1. Physical component	
Soils	
Topography	
Water resources	
Threats and risks	
2. Biotic component	
Forest resources	
Biodiversity	
Protection zones	
Coverages	
3. Socio-economic component	
Land tenure	
Employment	

Gender Equity	
Inclusivity of vulnerable groups	
Cultural heritage	
Health & Safety	

8.2. Potential environmental and social impacts and risks

The negative impacts of the Program are identified in the construction, operation, and closure stages. The following is a general analysis of the negative impacts:

➢ Potential Environmental impacts and risks

Increased pressure for water use: The risk associated with reducing water resources generated by the increase in crops and the demand for water in agriculture can cause social conflicts over water use. The water available for social use will receive more significant pressure to ensure that the production systems improve productivity and area. The excessive use of water for agricultural activities plus other consumptive uses in certain hydrographic basins of the country can generate a risk of imbalance in the hydrological cycle of water.

Soil removal: Removing the soil during the construction works in the preliminary and excavation phases of execution will generate movements of the land and solid waste considered moderate in scale. In some areas of Belize with soil susceptibility characteristics, soil removal can generate risks related to erosion, loss of nutrients, contamination, and physical alteration of soil.

Increased pressure on protected areas: The excessive influx of tourism to Protected Areas can generate risks for these areas related to disturbance of fauna, destruction of vegetation, contamination by waste, erosion of roads, extraction of natural objects, among other aspects.

Wastewater (black and gray) will be generated in the different execution activities, operations, or close of the projects, for example, the production of excreta by the people who work on the site and the use of water for the different construction activities.Discharging domestic, construction, agricultural, and livestock wastewater without treatment causes contamination of receiving water bodies, reducing the quality of surface and groundwater, putting the population's health and the integrity of ecosystems at risk.

Likewise, the risk associated with the inappropriate use of chemical products is generated by producers who do not want to adopt environmental practices that reduce the use of agrochemical fertilizers and continue to make inefficient use of these products with effects on aquatic ecosystems.

Noise pollution and dust generation may be generated by using machinery and equipment to execute works and by increasing vehicle traffic around the site where the work is being carried out. Likewise, particulate dust may be generated, excess dust resulting from handling inert materials such as cement and clay. Excessive and constant noise can significantly cause risks to human health when sounds exceed 65 decibels (dB). Likewise, air pollution can increase the risk of respiratory infections, heart disease, and stroke.

Presence of solid waste: The solid waste generated in construction activities is classified according to the composition and quantity generated, the process from which it comes and the technology used in the processes it prevents. At a general level, solid waste from a work is classified as: i) General solid waste: includes metal waste, paper, cardboard, wood mixtures, fabrics, paint cans, plastics, pieces of used materials, foams, waterproofing, etc.; ii) Stone waste: Includes inert waste products from demolitions, construction remains, residues from solidified mixtures such as concrete, cement, brick, stucco, clay, stone, mortar, etc; iii) Hazardous waste. Among the main potential impacts due to the presence of garbage is the visual impact, the presence of animals and the formation of leachates that can generate risks when these leachates fall on the soil and water resources.

➢ Potential Social impacts and risks

Pressure towards land use change: The pressure for the change of land use for the implementation of agricultural projects or some type of infrastructure can generate a risk of reduction of forest cover, especially in areas with degraded soil characteristics.

Change in the social environment due to project activities in the Program's benefits under the opening of dialogue processes. This impact has associated risks: (i) The risk is related to the implementation mechanisms for the Program's execution. The inclusion of vulnerable groups will require time and spaces for dialogue, especially with indigenous peoples, which may delay the start of some subprojects. (ii) The risk associated with discrimination in the participation of women when they need to attend to housework and, at the same time, carry out other agriculture activities that require more time to start the subprojects. (iii) The risk associated with the non-appropriation of new planting techniques by indigenous people. (iv) Detriment of labor conditions for migrants.

Increase in migrations and territorial dynamics: The increase in international migrants may lead to unfavorable working conditions for them compared to working conditions for Belizeans

Occupational accidents during the assembly and operation stages. The risk is associated with occupational safety. Some of the Program's beneficiaries may acquire equipment that they do not know how to handle, generating exposure to accidents due to their ignorance. Also, some people will be exposed to occupational hazards in the different phases of the Project.

Other associated risks are:

The risk associated with land speculation: This risk may arise considering that the Program will support agricultural activities based on land, which could generate interest in land cost speculation. The impact of this speculation could be received by some landless people, especially vulnerable groups, who could seek alternatives to participate in the Program's benefits by buying or leasing the land.

The risk associated with possible cross-border effects: The territorial conflict of more than 11,000 km2 requested by Guatemala from Belize, which is currently in the International Court, may increase migrations and implications of social disputes over the territory.

The risk is associated with monitoring the socio-environmental component in the subprojects of the Program. This risk can arise due to two factors: first, the limited presence of professionals or technicians in this specialty in the country, and second, the low economic income that working in Belize would represent for a foreign professional.

Table 43 and 44 presents the potential negative environmental and social impacts of the strategic options analyzed through the Program's actions for the Construction, Operation, and Closure stages.

Table 43. Potential environmental negative Impacts

ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
CONSTRUCTION STAGE					
B1	Negative	Green Agri-Business Plan (GABP)	Soil removal	In the construction of infrastructure facilities during the preliminary and excavation phases, movements of the earth and solid waste considered moderate scale will be generated.	
B3	Negative	Green Agri-Business Plan (GABP)	Wastewater generation (black and grey)	Wastewater (black and gray) will be generated in constructing infrastructures. These waters come from the production of excreta from the people who work on the construction site and water use in different construction activities.	Surface waters, especially in populated centers, present effluent contamination due to various uses of water, garbage, and other contaminants.
B4	Negative	Green Agri-Business Plan (GABP)	Noise pollution and dust generation	The installation of machinery and equipment may generate noise pollution. The increased vehicle traffic around the site where the works will be carried out may cause noise. Likewise, the removal of soil and construction activities may generate particulate dust in the different stages of construction. This material corresponds to fine powders from handling inert materials such as cement, and clay, among others.	
C1	Negative	Sustainable Tourism Business Plan (STBP)	Soil removal	During the preliminary and excavation phases, movements of the earth and solid waste considered to be of a moderate scale will be generated.	
C3	Negative	Sustainable Tourism Business Plan (STBP)	Wastewater generation (black and grey)	Wastewater (black and gray) will be generated in constructing infrastructures. These waters come from the production of excreta from the people who work on the construction site and water use in different construction activities.	

C4	Negative	Sustainable Tourism Business Plan (STBP)	Noise pollution and dust generation	The installation of machinery and equipment may generate noise pollution. The increased vehicle traffic around the site where the works will be carried out may cause noise. Likewise, the removal of soil and construction activities may generate particulate dust in the different stages of construction. This material corresponds to fine powders from handling inert materials such as cement, and clay, among others.	
D2	Negative	Green Innvation Vouchers (GIV)	Increased pressure due to the use of water	The water available for social use will receive more significant pressure to ensure that the production systems improve productivity and area.	The presence of agricultural activities in hydrographic basins has generated pressure on water resources, especially in the country's central zone.
OPERATION STAGE					
E1	Negative	Green Agri-Business Plan (GABP)	Presence of solid waste	In implementing the Green Plans for Agribusiness, waste and solid residues may be generated from the transformation of products considered to be of a moderate scale.	
E3	Negative	Green Agri-Business Plan (GABP)	Wastewater generation (black and grey)	Wastewater (black and gray) will be generated in the operation of Green Agri-Business Plans. These waters come from the different activities of the transformation and value addition of production.	
E4	Negative	Green Agri-Business Plan (GABP)	Noise pollution and dust generation	In the operating processes where production and added value transform, it is possible to generate noise pollution from the different equipment and machines.	
F1	Negative	Sustainable Tourism Business Plan (STBP)	Presence of solid waste	In the implementation of the Sustainable Tourism Business Plans, waste and solid residues may be generated by the provision of services, which may be of a moderate scale.	
F7	Negative	Sustainable Tourism Business Plan (STBP)	Increased pressure on protected areas	Implementing sustainable tourism business plans can generate pressure on protected areas in relation to increasing the number of tourists or acceptable visits they may have.	Unsustainable Tourism Practices (exceeding the guide/visitor relationship, bad navigation practices, illegal interactions with wildlife, among others)
CLOSURE STAGE					
H1	Negative	Green Agri-Business Plan (GABP)	Soil removal	In the closure stage of agricultural activities and infrastructure facilities, waste and surplus materials considered to be moderate in scale will be generated.	
I7	Negative	Sustainable Tourism Business Plan (STBP)	Presence of solid waste	In implementing the Sustainable Tourism Business Plan (STBP), waste and solid residues may be generated from work closure activities. This debris is considered moderate on the scale.	

Source: Own elaboration 2022

Table 44. Potential social negative Impacts

ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
CONSTRUCTION STAGE					
A15	Negative	Green Innovation Vouchers (GIV)	Change in the social environment due to project activities	The participation of vulnerable groups in the projects requires a social effort on the part of these groups; this effort is related to the execution times of the projects (which are different from their usual times) and the new roles that people will have to assume.	
A16	Negative	Green Innovation Vouchers (GIV)	Increase in migrations and territorial dynamics.	The increase in international migrants may lead to unfavorable working conditions for them compared to working conditions for Belizeans	
B6	Negative	Green Agri-Business Plan (GABP)	Pressure towards land use change	The possibility of increased income and job creation can encourage changes in land use, especially in areas whose physical characteristics are not suitable for agriculture	
B13	Negative	Green Agri-Business Plan (GABP)	Occupational accidents	During the execution of infrastructure works, occupational accidents may affect workers' health.	
C6	Negative	Sustainable Tourism Business Plan (STBP)	Pressure towards land use change	The possibility of increased income and job creation can encourage changes in land use, especially in areas whose physical characteristics are not suitable for agriculture	
C13	Negative	Sustainable Tourism Business Plan (STBP)	Occupational accidents	During the execution of infrastructure works, occupational accidents may affect workers' health.	
OPERATION STAGE					
E13	Negative	Green Agri-Business Plan (GABP)	Occupational accidents	In the implementation of the Green Agribusiness Plans, operating activities can be developed under the transformation or added value of products. In this operation it is possible that occupational accidents may occur that may affect the health of the workers.	
F13	Negative	Sustainable Tourism Business Plan (STBP)	Occupational accidents	In implementing the Sustainable Tourism Business Plan (STBP), the operational activities are related to providing services to the tourism sector. In this operation, it is possible that occupational accidents may affect the workers' health.	

Source: Own elaboration 2022

8.3. Environmental and Social Management Measures

8.3.1. Programs

The subprojects financed by the program will be subject to the framework of the leading project's prevention and mitigation instruments and mechanisms. Thus, the activities to be carried out do not give rise to changes in the PTU category, which will remain in B. Likewise, it is expected that none of the Program's subprojects will generate new environmental and social risks that trigger the activation of new IDB ESPS compared to with the original scope of the main project.

The proposed Environmental and Social Management Measures respond to the impacts, risks and strategies proposed in the SESA in the different stages of the Program. The measures seek to prevent, control, and mitigate adverse impacts for which they are organized under seven programs. Table 45 resents the summary of the proposed measures.

Table 45. Environmental and Social Management Measures

ID	Strategic	Program		ID	Measure
S1, S2	Implement smart agriculture and support land use management	P1	Management and soil conservation	M1	Soil protection and management of erosive processes
				M2	Management of earthworks and surplus material
S3	Support in water resource management	P2	Micro-watershed management	M3	Training and awareness in water resource management
				M4	Micro-watershed Management Plan
				M5	Protection of recharge areas and springs
				M6	Training in the substitution of fertilizers and pesticides by bio-inputs and IPM
S7	Adoption of technologies for CC adoption	P3	Protection of forests and biodiversity	M7	Awareness in Protection and conservation of strategic ecosystems
				M8	Environmental education and resilience to climate change
S4, S5	Improvement of storage facilities and generation of value chains	P4	Good environmental management practices	M9	Pollution control of polluting liquid substances
				M10	Management of noise, air emissions andof atmospheric effects
				M11	Solid waste management
S8	Increase resilience to CC	P5	Strengthening the Participation of vulnerable groups	M12	Linking strategy for vulnerable groups
				M13	Dialogue of knowledge
				M14	Protocol of equal working conditions
				M15	Indigenous People Plan**
				M16	Gender and Diversity Action Plan*
		P6	Environment and tourism	M17	Awareness of good practices of sustainable tourism
				M18	Participatory management of sustainable tourism
SO6	Increased competitiveness	P7	Health and Environment	M19	Management of accidents and occupational risks

- Each of the programs is described below with its respective measures.

Program 1: Management and soil conservation

1. Justification

In the absence of structured management, steep slopes and high rainfall conditions predispose soils to erosion, particularly in southern Belize. In addition, farmers use the traditional method slash-and-burn system of their ancestors. This process involves cutting down trees from the forest to plant crops, which leaves little vegetation to prevent and absorb surface water from rains. Therefore, the topsoil is removed, and the stream's sediment load increases. The topsoil is quickly depleted, forcing farmers to move to another area, where the same practices are repeated with similar results. Although farmers will return to the original plot after a fallow period, the fallow period is not long enough to fully rehabilitate the soil, and the cultivation period gets shorter and shorter[99]. In addition, 21.66% of the territory of Belize presents conditions of land degradation, which shows that some areas have soil susceptibility[100].

Agricultural activities and infrastructure projects can generate direct anthropic actions on the soil. When carried out under natural conditions of susceptibility in the Area of Influence of the Program, these actions can trigger effects that cause erosion processes and chains of environmental impact if the respective control measures are not established. In some areas of Belize with soil susceptibility characteristics, soil removal can generate risks related to erosion, loss of nutrients, contamination, and physical alteration of soil.

2. Strategic alignment

This Program is aligned with the following strategies:

- SO1: Smart agriculture and infrastructure improvement
- SO2: Support in land management for agricultural use
- ESPS3: Efficiency in the Use of Resources and the Prevention of Contamination

3. Objectives

- Prevent the possible impact on the soil quality as a result of the activities or works of the Program.
- Control erosive processes and soil compaction in areas susceptible to environmental degradation.
- Manage leftover soil removal materials

[99] UNDP-GEF, 2010. A Manual of Soil Conservation and Slope Cultivation.
[100] LDN, et al., 2020. Land Degradation Neutrality Target Setting Programme. Final Report.

4. Potential impacts

Table 46 shows the potential impacts that could occur in the construction and operation stages.

Table 46. Potential negative Impacts related to soil

Stage	ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact
Construction	B1	Negative	Green Agri-Business Plan (GABP)	Soil removal	In the construction of infrastructure facilities during the preliminary and excavation phases, movements of the earth and solid waste considered moderate scale will be generated.
Construction	C1	Negative	Sustainable Tourism Business Plan (STBP)	Soil removal	During the preliminary and excavation phases, movements of the earth and solid waste considered to be of a moderate scale will be generated.
Closure	H1	Negative	Green Agri-Business Plan (GABP)	Soil removal	In the closure stage of agricultural activities and infrastructure facilities, waste and surplus materials considered to be moderate in scale will be generated.

5. Environmental Measures

As preventive measures for the impact of soil removal, there are:

M1. Soil protection and management of erosive processes
M2: Management of earthworks and surplus material

Tables 47 and 48 present the descriptive files of the environmental measures M1 and M2, respectively.

Table 47. Description Measure M1

PROGRAM 1: SOIL MANAGEMENT AND CONSERVATION						
MEASURE M1 **Management and protection erosive processes**						
1. Objective						
Develop training sessions on soil management and protection in order to preserve the resource and control possible erosion processes and landslides, in sensitive areas of the country, where infrastructure projects are implemented for agriculture and tourism activities.						
2. Impacts to manage						
Id	**Guy**	**Direct hit name**		**Apply to the Sector**	**Application stage**	**Place of execution**
B1	Prevention	Loss of land in construction of the Green Agribusiness Plan.		Agriculture	Construction Phase	Work fronts
C1	Prevention	Loss of land in construction of the Sustainable Tourism Business Plan.		Tourism	Construction Phase	Work fronts
H1	Prevention	Land loss at the closure of the Green Agribusiness Plan.		Agriculture	Closing Phase	Crops
3. Support Program						
Socio-environmental communication plan						
4. Goals						
Designación	**Descripción**					
G1	15% of the 1,500 individual farmers benefiting from the Program will be trained in soil management and protection and prevention of erosion processes.					
G2	5% of the 1,400 owners and/or employees of Tourism MSMEs will be trained in soil management and protection and prevention of erosion processes.					
5. Responsible						
Executing Unit of the Program in coordination with those in charge of Agencies and extensionists of the MAFSE						
6. Beneficiaries						
Individual farmers beneficiaries of the Program.						
Owners or employees of tourism MYPIMES beneficiaries of the Program.						
7.1. Activities in the Construction Phase						
Designation	**Specific objectives**					
C.1.	Formulate the Environmental Training and Education Plan for the management and protection of soil erosion processes aimed at projects where the construction of small infrastructure works is required. Topics such as: i) importance of caring for floors and covers in construction activities should be included. ii) importance of environmental compliance. iii) Consequences of environmental non-compliance and poor management and performance. iv) Bioengineering and works for soil protection.					
C.2.	Design of training materials.					
C.3.	Preparation of materials for delivery to beneficiaries.					
C.4.	Community management to establish an implementation schedule.					
C.5.	Implementation of training sessions.					
7.2. Activities in the Operation Phase						
Designation	**Specific objectives**					
O.1.	Community management of program operation actions.					
O.2.	Implementation of actions to prevent erosion in the operation of the program.					
7.3. Closing Phase Activities						
Designation	**Specific objectives**					
F.1.	Community management of actions to close the program.					
F.2.	Implementation of erosion prevention actions at the end of the program.					
8. Results						
Beneficiary population of the Program trained in management and protection of soil erosion processes.						
9. Indicators						
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1$_{P1M1}$	% People trained in erosion prevention	Establishes the percentage of people trained in management and protection of soil erosion processes.	Npc = people trained in soil erosion prevention Ntp = total number of people to be trained according to goal.	(∑ Npc * 100) / ∑ Ntp	Percentage	Compliance
IND2$_{P1M1}$	% Districts with erosion prevention training	Establishes the percentage of Districts where training has been developed on the management and protection of soil erosion processes.	Ndc = Districts where training in the prevention of soil erosion has been carried out Ndt = Total Districts	(∑ Ndc * 100) / ∑ Ndt	Percentage	Compliance

10. Means of verification			
Designation	**Name**	**Description**	**Medium**
V-1	Proceedings	Training assistance list	Written or digital document
V-2	Training	Environmental training material	Written or digital document
V-3	Plan	Environmental training plan in management and protection of the soil and management of erosive processes.	Written or digital document

11. Resources needed for implementation			
Designation	**Means**	**Description**	**Quantity**
R-1	Printed media	Notices for call	30
R-2		Training material	1
R-3		Environmental brochures	300
R-4		Photocopies for training	30
R-5	Refreshments	Food and drinks	300

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
C-1	Formulation Training plan	X		
C-2	Design of training materials.	X		
C-3	Design of the material for delivery to the beneficiaries.	X		
C-4	Implementation schedule.	X		
C-5	Training days.	X		
O-1	Actions in the operation of the program.		X	
F-2	Actions at the end of the program.			X

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	raining workshops in groups of 50 people	Global	6	2,987	17,922
	Subtotal				17,922
	Unforeseen (3%)				538
	Total Cost P1-M1				**18,460**

Estimated Costs for Training Workshops					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	Materials to deliver to beneficiaries by topic	Global	1	1,900	1,900
3	Refreshment	Unit	50	20	1,000
	Subtotal				2,900
	Unforeseen (3%)				87
	Total cost				**2,987**

Estimated Costs for Training Talks					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Site of the event productive units				
2	Materials to deliver to beneficiaries by topic	Global	1	700	700
2	Refreshment	Unit	25	20	500
	Subtotal				1,200
	Unforeseen (3%)				36
	Total cost				**1,236**

Table 48. Description Measure M2

PROGRAM 1: SOIL MANAGEMENT AND CONSERVATION					
MEASURE M2 **Management of surplus material from earthworks**					
1. Objective					
Reduce the contamination of the soil and the landscape in the projects benefited by the Program due to the effect of unnecessary material produced by the movement of earth for the construction and closure of infrastructure works, through proper management by the beneficiaries.					
2. Impacts to manage					
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**
B1	Prevention	Loss of land in construction of the Green Agribusiness Plan.	Agriculture	Construction Phase	Work fronts
C1	Prevention	Loss of land in construction of the Sustainable Tourism Business Plan.	Tourism	Construction Phase	Work fronts
H1	Prevention	Land loss at the closure of the Green Agribusiness Plan.	Agriculture	Closing Phase	Crops
3. Support Program					
Socio-environmental communication plan					
4. Goals					
Designación	**Descripción**				
G1	15% of the 1,500 individual farmers benefiting from the Program will be trained in handling leftover material from earthworks.				
G2	5% of the 1,400 owners and/or employees of Tourism MIPYMES will be trained in the handling of leftover material from earthworks				
5. Responsible					
Program Executing Unit in coordination with those in charge of Agencies, MAFSE extension agents and the Ministry of Tourism					
6. Beneficiaries					
Individual farmers benefited by the Program, organized farmers and employees of agricultural MSMEs.					
Owners or employees of tourism MSMES beneficiaries of the Program.					
7.1. Activities in the Construction Phase					
Designation	**Specific objectives**				
C.1.	Formulate the Environmental Awareness and Education Plan for the proper management and handling of unnecessary material from earthworks, including:				
C.2.	Identification of actors involved in the process.				
C.3.	Realization of a participatory diagnosis of the problem on the management of unnecessary material from earthworks.				
C.4.	Analysis of the main ways of handling unnecessary material on work fronts.				
C.5.	Formulation of the management system for unnecessary material from earthworks.				
C.6.	Formulation of strategies for system management.				
C.7.	Implementation of the management system for unnecessary material in the construction of the program.				
C.8.	Communal management of actions in the construction of the program.				
7.2. Activities in the Operation Phase					
Designation	**Specific objectives**				
O.1.	Implementation of the unnecessary material handling system in the operation of the program				
O.2.	Communal management of actions in the operation of the program.				
7.3. Closing Phase Activities					
Designation	**Specific objectives**				
F.1.	Community management of actions to close the program.				
F.2.	Implementation of management actions and management of unnecessary material at the end of the program.				
8. Results					
PThe beneficiary population of the Program adopts actions for the management and management of unnecessary material resulting from the movement of earth for the protection of the soil due to the activities carried out in the construction of infrastructure works.					
Unnecessary material management system for earthworks.					

9. Indicators						
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P1M2	% People trained in the management of unnecessary material for earthworks.	Establishes the percentage of people trained in the proper management and handling of unnecessary material produced by earthworks.	Pca = people trained in the management of unnecessary material for earthworks. Ptg = total number of people to train according to goal.	(∑ Pca * 100) / ∑ Ptg	Percentage	Compliance
IND2P1M2	% Districts with training campaigns	Percentage of districts with training in the management of unnecessary material produced by earthworks.	Ddc = Districts where training campaigns have been carried out. Ddt = Total Districts.	(∑ Ddc * 100) / ∑ Ddt	Percentage	Compliance

10. Means of verification			
Designation	**Name**	**Description**	**Medium**
V-1	Proceedings	Training assistance list	Written or digital document
V-2	Plan	Awareness and environmental education plan in the management of unnecessary material in earthworks.	Written or digital document
V-3	Printed media	Material environmental training in the management of unnecessary material in earthworks.	Written or digital document
V-4	System	Management system for unnecessary material in earthworks.	Written or digital document

11. Resources needed for implementation			
Designation	**Means**	**Description**	**Quantity**
R-1	Printed media	Notices for call	30
R-2		Training material	1
R-3		Environmental brochures	300
R-4		Photocopies for training	30
R-5	Refreshments	Food and drinks	300

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
C-1	Formulation Training plan	X		
C-2	Identification of actors.	X		
C-3	Participatory diagnosis.	X		
C-4	Management system formulation.	X		
C-5	Formulation of management strategies.	X		
C-6	System implementation.	X		
C-7	Communal management of actions in the construction of the program.	X		
O-1	Communal management of actions in the operation of the program.		X	
F-1	Communal management of actions at the end of the program.			X

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	Training workshops in groups of 50 people	Global	6	2,987	17,922
	Subtotal				17,922
	Unforeseen (3%)				538
	Total Cost P1-M2				**18,460**

Program 2: Micro-watershed management

1. Justification

Water availability in a territory is directly related to the balance of the hydrological cycle in a hydrographic basin. Hydrographic basins are territorial units that contribute to the flow of water in a river or stream under the hydrological cycle. This hydrological cycle results from the interrelation between surface water and groundwater through the processes of evaporation and runoff, where soil resources and vegetation are significant. The water resource is vital for ecosystems and for carrying out different human activities such as domestic activities, industrial development, agriculture, livestock, and tourism. However, in some watersheds, the activities carried out using more water than the watershed can hold. The pressure for water use in the different activities generates an imbalance in the hydrological cycle between supply and demand for water with the respective implications on the systems supplied with it.

The Program's support for the development of agricultural activities through the implementation of actions of the Green Innovation Vouchers (GIV) may cause the excessive use of water. This increase in the use of water resources, added to other consumptive uses[101] in certain hydrographic micro-basins in the country, could generate a risk of imbalance in the hydrological water cycle.

Likewise, although the Program has actions aimed at supporting the substitution of chemically synthesized fertilizers and pesticides for bio-inputs, it is essential to consider that the agricultural sector in Belize is the second largest importer and user of chemical products such as pesticides and fertilizers (Belize National EnvironmentalSummary, 2011). This situation denotes a cultural tradition of using pesticides and fertilizers that can affect the quantity and quality of available water. Given this possible risk, it is necessary within the framework of the Program to establish support measures for the transition toward bio-inputs and Integrated Pest Management (IPM).

Therefore, any action intended to be carried out on hydrographic micro-basins must have adequate socio-environmental management so as not to affect the abundance, availability, balance, or deficit of water resources.

2. Strategic alignment

This Program is aligned with the following strategy:

- **SO3:** Support in water resource management
- **ESPS3:** Efficiency in the Use of Resources and the Prevention of Contamination

[101] Consumptive use is water that is evaporated, transpired, incorporated into products or crops, consumed by humans or livestock, or otherwise removed from an immediate water environment.

3. Objectives

- Establish general socio-environmental guidelines that promote the rational, planned, and efficient use of water resources in the hydrographic micro-basin.
- Prevent and control the impact on the quantity and quality of surface and groundwater.
- Protect the springs and recharge areas of the hydrographic micro-basins.

4. Potential impacts

Table 49 shows the potential impacts that could occur in the construction stage.

Table 49. Potential negative Impacts related to water

Stage	ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
Construction	D2	Negative	Green Innvation Vouchers (GIV)	Increased pressure due to the use of water	The water available for social use will receive more significant pressure to ensure that the production systems improve productivity and area.	The presence of agricultural activities in hydrographic basins has generated pressure on water resources, especially in the country's central zone.

5. Environmental Measures

As preventive measures for the impact of increased pressure due to the use of water, there are:

M3. Training and awareness in water resource management
M4: Micro-watershed Management Plan
M5: Protection of recharge areas and springs
M6: Training in the substitution of fertilizers and pesticides by bio-inputs and IPM

Tables 50, 51, 52 and 53 present the descriptive files of the environmental measures M3 to M6, respectively.

Table 50. Description Measure M3

PROGRAM 2: MANAGEMENT OF MICROWATERS						
SIZE M3 Training and awareness in water resources management						
1. Objective						
Instruct, train and motivate the beneficiary producers of the Program to implement practices of conservation and management of hydrographic micro-basins by deepening knowledge about the importance of managing, protecting and caring for recharge areas, springs, aquifers, hydrographic micro-basins and the its relationship with other natural systems.						
2. Impacts to manage						
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**	
D2	Prevention	Increased pressure due to the use of water by Green Innovation Vouchers (GIV).	Agriculture	Operation Phase	Crops	
3. Programa de Apoyo						
Socio-environmental communication plan						
4. Goals						
Designación	**Descripción**					
G1	30% of the estimated 1,500 individual farmers benefiting from the Program will have at least one training and awareness campaign on water resource management carried out.					
5. Responsible						
Program Execution Unit in coordination with those in charge of MAFSE Agencies and extensionists.						
6. Beneficiaries						
Individual farmers benefited by the Program, organized farmers and employees of agricultural MSMEs.						
7. Activities in the Operation Phase						
Designation	**Specific objectives**					
O.1.	Identify the recharge areas of aquifers, springs and buffer zones in the projects to be developed.					
O.2.	Identify and define the groups of actors to raise awareness around the environmental component and the integrated management of hydrographic micro-basins.					
O.3.	Identify key concerns and issues for beneficiaries.					
O.4.	Select the topics according to the different projects to be implemented. As minimum central issues, the following should be addressed: i) Concepts of the Environment, natural resources and hydrographic micro-basin; ii) Protection of springs and buffer zones; iii) Care of aquifer recharge areas; iv) Recycling of water; v) Water resource management.					
O.5.	Design materials for training, awareness and communication campaigns.					
O.6.	Negotiate with the communities the establishment of a schedule for the implementation of training and awareness.					
O.7.	Implement training and awareness campaigns through workshops, courses, talks, field days, campaigns in social media and/or traditional media and printed material.					
O.8.	Present the results of the training and awareness campaigns carried out.					
8. Results						
Population beneficiary of the Program made aware of the rational use of water resources and the importance of the protection and sustainability of recharge areas, aquifers and hydrographic micro-basins.						
Environmental training and awareness plan for water resource management.						
9. Indicators						
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P2M3	% People trained and sensitized in the management of water resources.	It establishes the percentage of people trained and sensitized in the management of water resources.	Arc = people trained and sensitized in the management of water resources Atp = total number of people to train and raise awareness of water resources management according to goal	(∑ Arc * 100) / ∑ Atp	Percentage	Compliance
IND2P2M3	% Districts with training and awareness campaigns on water resource management.	Percentage of districts with training and awareness in water resources management.	Adc = Districts where training and awareness in water resources management have been carried out. Adt = Total Districts to train and raise awareness in water resources management.	(∑ Adc * 100) / ∑ Adt	Percentage	Compliance

10. Means of verification			
Designation	**Name**	**Description**	**Medium**
V-1	Plan	Training and awareness plan in water resources management.	Written or digital document
V-2	Proceedings	Assistance to training and environmental awareness.	Written or digital document
V-3	Printed media	Printed material for training and awareness.	Written or digital document

11. Resources needed for implementation			
Designation	**Means**	**Description**	**Quantity**
R-1	Printed media	Notices for call	45
R-2		Training material	1
R-3		Environmental brochures	450
R-4		Photocopies for training	45
R-5	Refreshments	Food and drinks	450

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
A.1.	Identify and define awareness groups		X	
A.2.	Formulate training.		X	
A.3.	Preparation of training materials.		X	
A.4.	Awareness schedule.		X	
A.5	Awareness days.		X	
A.6	Sensitization results.		X	

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	Training workshops in groups of 50 people	Global	9	2,987	26,883
	Subtotal				26,883
	Unforeseen (3%)				806
	Total Cost P2-M3				**27,689**

Table 51. Description Measure M4

PROGRAM 2: MANAGEMENT OF MICROWATERS					
SIZE M4 Pilot plan for the management of Hydrographic Micro-basins					
1. Objective					
Formulate a pilot plan for the management of a hydrographic micro-basin in the areas where more than five projects are linked, with the purpose of ordering the actions that a hydrographic micro-basin requires towards the sustainable use of natural resources that serves as a guide for the management of other micro-basins.					
2. Impacts to manage					
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**
D2	Prevention	Increased pressure due to the use of water by Green Innovation Vouchers (GIV).	Agriculture	Operation Phase	Crops
3. Programa de Apoyo					
Socio-environmental communication plan					
4. Goals					
Designación	**Descripción**				
G1	3.33% of the estimated 1,500 beneficiary individual farmers will participate in the Pilot Plan for the Management of Micro-watersheds.				
5. Responsible					
Program Execution Unit in coordination with those in charge of MAFSE Agencies and extensionists					
6. Beneficiaries					
Population beneficiary of the Program appropriate actions for the management of hydrographic micro-basins.					
7. Activities in the Operation Phase					
Designation	**Specific objectives**				
O.1.	Select critical hydrographic basins where projects are developed.				
O.2.	Identify the number of beneficiary producers located in the micro-basins.				
O.3.	Select a hydrographic micro-basin where more than five beneficiary producers of the Project are located.				
O.4.	Prepare a baseline under participatory diagnosis that allows identifying the general problems of the micro-basin and the different actors related to it.				
O.5.	Carry out participatory workshops with the users of the hydrographic basins to evaluate the main problems.				
O.6.	Formulate a pilot plan for the management of the micro-basin that allows the establishment of intervention actions.				
O.7.	Carry out a model of environmental zoning and land use planning.				
O.8.	Present the results to the communities present in the micro-basin.				
O.9.	Establish micro-watershed management actions that involve a participatory process.				
O.10.	Promote the social organization of a micro-basin committee.				
8. Results					
Pilot plan for the management of hydrographic micro-basins.					
The beneficiary population of the Program adopts actions in the management of hydrographic micro-basins.					
Micro-watershed committee formed as a social organization.					
9. Indicators					
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P2M4	% Progress of the pilot plan for managing the hydrographic micro-basin.	Establishes the percentage of activities developed in the advancement of the pilot plan for the management of hydrographic micro-basins.	Ude = latest data of executed actions of the hydrographic basin management pilot plan. Atg = total number of actions to be carried out in the pilot plan for the management of hydrographic basins.	(∑ Ude * 100) / ∑ Atg	Percentage	Flow compliance
IND2P2M4	% People participating in the implementation of the pilot plan.	Establishes the percentage of people who participated in the workshops for the implementation of the Pilot Plan for the management of hydrographic micro-basins.	Wpt = number of people participating in the workshop Wtg = total number of people to participate in the target workshop	(∑ Wpt * 100) / ∑ Wtg	Porcentaje	Compliance

10. Means of verification			
Designation	**Name**	**Description**	**Medium**
V-1	Plan	Pilot plan for management of hydrographic micro-basins.	Written or digital document
V-2	Proceedings	Attendance at workshops for the implementation of the Pilot Plan	Written or digital document
V-3	Model	Environmental zoning model and land use planning.	Written or digital document
V-4	Proceedings	Formation of a committee for the management of hydrographic basins.	Written or digital document

11. Resources needed for implementation			
Designation	**Means**	**Description**	**Quantity**
R-1	Printed media	Notices for call	30
R-2		Training material	6
R-3		Environmental brochures	300
R-4		Photocopies for training	30
R-5	Refreshments	Food and drinks	300

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
A.1	Selection of basins and identification of actors.		X	
A.2	Participatory diagnosis.		X	
A.3	Participatory workshop.		X	
A.4	Pilot plan		X	
A.5	participatory actions		X	
A.6	Results presentation		X	

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	Consulting including participation processes.	Global	1	20,000	20,000
3	Micro-watershed management workshop group of 50 people (1 every 2 months)	Global	6	2,987	17,922
	Subtotal				37,922
	Unforeseen (3%)				1,138
	Total Cost P2-M4				**39,060**

Table 52. Description Measure M5

PROGRAM 2: MANAGEMENT OF MICROWATERS						
SIZE M5 Protection of recharge areas and springs						
1. Objective						
Establish and adopt coordinated actions so that the community and the beneficiaries of the Project adopt practices for the protection of aquifer recharge areas and springs.						
2. Impacts to manage						
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**	
D2	Prevention	Increased pressure due to the use of water by Green Innovation Vouchers (GIV).	Agriculture	Operation Phase	Crops	
3. Support Program						
Socio-environmental communication plan						
4. Goals						
Designación	**Descripción**					
G1	30% of the estimated 1,500 beneficiary individual farmers will have at least one training in the protection of recharge zones and springs.					
5. Responsible						
Program Execution Unit in coordination with those in charge of MAFSE Agencies and extensionists						
6. Beneficiaries						
Individual farmers benefited by the Program, organized farmers and employees of agricultural MSMEs.						
7. Activities in the Operation Phase						
Designation	**Specific objectives**					
O.1.	(i) Carry out a training workshop for the protection of recharge zones and springs with the actors involved where the water sources are identified, based on local knowledge. ii) Have an approach to determine the potential areas of water recharge, analysis and evaluation of the potential areas of water recharge; iii) determine the farms where the potential water recharge zones are located.					
O.2.	Identification and characterization of water sources and potential water recharge areas.					
O.3.	Prepare a participatory diagnosis where the most important recharge areas and areas of springs for the community are identified.					
O.4.	Prepare a map with the participation of the communities where the recharge and protection areas of the micro-basin are delimited.					
O.5.	Establish community actions for the management and protection of aquifer and spring recharge areas. Among the actions to be carried out, the following can be taken into account: Adoption of protection practices (fencing of potential water recharge areas), soil management (infiltration ditches, no burning, leaving plant residues, carrying out firebreak rounds), vegetation management (establishment of deciduous species in the area, perennial crops (fruit), planting of forage species, living fence barriers, elimination of neem trees).					
O.6.	Arrange among the actors in the area the coordination of actions to be carried out for the protection of potential water recharge areas.					
8. Results						
Population beneficiary of the Program aware of the care, management and protection of potential water recharge areas, aquifers and springs.						
Training workshop for protection of recharge zones and springs.						
9. Indicators						
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P2M5	% People trained in the care and protection of water recharge areas	Establishes the percentage of people trained in the care and protection of water recharge areas.	Rzc = people trained in care and protection of water recharge areas Rzt = total number of people to be trained in the care and protection of water recharge zones according to goal	(∑ Rzc * 100) / ∑ Rzt	Percentage	Compliance
IND2P2M5	% Progress of actions for the care of hydric recharge zones	Establishes the percentage of activities developed for the care and protection of water recharge areas.	Uda = latest data on actions carried out to protect water recharge zones Atg = total number of actions to be carried out to protect water recharge zones	(∑ Uda * 100) / ∑ Atg	Percentage	Flow compliance

10. Means of verification			
Designation	**Name**	**Description**	**Medium**
V-1	Actions	List of actions to protect water recharge zones.	Written or digital document
V-2	Proceedings	Assistance to environmental training.	Written or digital document
V-2	Printed media	Training material	Written or digital document

11. Resources needed for implementation			
Designation	**Means**	**Description**	**Quantity**
R-1	Printed media	Notices for call	45
R-2		Training material	1
R-3		Environmental brochures	450
R-4		Photocopies for training	45
R-5	Refreshments	Food and drinks	450

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
A.1	Formulation Training plan		X	
A.2	Design of training materials.		X	
A.3	Preparation of materials for delivery to beneficiaries.		X	
A.4	Community management to establish an implementation schedule.		X	
A.5	Training days.		X	
A.6	Communal management of project closure actions.		X	

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	Training workshops in groups of 50 people	Global	9	2,987	26,883
	Subtotal				26,883
	Unforeseen (3%)				806
	Total Cost P2-M5				**27,689**

Table 53. Description Measure M6

PROGRAM 2: MANAGEMENT OF MICROWATERS					
SIZE M6 **Training in the substitution of fertilizers and pesticides for bioinsumos-mip**					
1. Objective					
Train, instruct and guide on the use of substitutes for chemical substances such as fertilizers and pesticides in agricultural activity; through the use of biochemical inputs for the comprehensive management of pests, which allows their use at low cost, in a way that reduces the risk of affecting water bodies, human health and the environment.					
2. Impacts to manage					
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**
D2	Prevention	Increased pressure due to the use of water by Green Innovation Vouchers (GIV).	Agriculture	Operation Phase	Crops
3. Support Program					
Socio-environmental communication plan					
4. Goals					
Designación	**Descripción**				
G1	30% of the estimated 1,500 beneficiary individual farmers will have at least one training campaign on the control and management of fertilizers and pesticides.				
5. Responsible					
Program Execution Unit in coordination with those in charge of MAFSE Agencies and extensionists					
6. Beneficiaries					
Individual farmers benefited by the Program, organized farmers and employees of agricultural MSMEs.					
7.1. Activities in the Construction Phase					
Designation	**Specific objectives**				
As safety measures when handling dangerous polluting products or others with the potential to contaminate water sources, the following guidelines will be followed in such cases:					
C.1.	Assess IPM needs and set priorities				
C.2.	Carry out talks with the beneficiaries that allow: i) Identifying the needs for Integrated Pest Management, establishing: ii) Characterizing the types of crops and the need to apply pesticides; iii) Analyze the history of pesticide use; iv) Identify the main relevant issues for the implementation of the IPM.				
C.3.	Identify the most relevant pests according to each target crop, identifying the damage they cause and the behavior of the pest.				
C.4.	Monitor the fields regularly in order to inspect the crops and determine the type of protection that is being given at the time of inspection.				
C.5.	Select the appropriate combination of IPM kits that allow. i) maximize the effectiveness of traditional and introduced non-chemical control techniques; ii) Use targeted (non-broad spectrum) pesticides when there are no other practical, effective and economical methods; iii) Rely on natural traditional knowledge for pest control.				
8. Results					
Beneficiary population of the Project trained in the substitution of pesticides and fertilizers as well as in the Implementation of Integrated Pest Management (IPM)					
9. Indicators					
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P2M6	% farms with IPM implementation	Establishes the percentage of farms that implement IPM	Fca = number of farms that apply IPM Ftc = total number of farms in the project	(∑ Fca * 100) / ∑ Ftc	Porcentaje	Cumplimiento
IND2P2M6	% People trained in IPM	Establishes the percentage of people trained in IPM	Cap = number of people trained in IPM Cat = total number of target people to train	(∑ Cap * 100) / ∑ Cat	Porcentaje	Cumplimiento

10. Means of verification			
Designation	**Name**	**Description**	**Medium**
V-1	List	List of farms with use of polluting substances.	Written or digital document
V-2	Proceedings	Attendance at environmental talks.	Written or digital document
V-3	Printed media	Training material	Written or digital document
V-4	Printed media	Alternative product catalogs.	Written or digital document

11. Resources needed for implementation			
Designation	**Means**	**Description**	**Quantity**
R-1	Printed media	Notices for call	45
R-2		Training material	1
R-3		Environmental brochures	450
R-4		Photocopies for training	45
R-5	Refreshments	Food and drinks	450

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
A.1	Formulation Training plan		X	
A.2	Design of training materials.		X	
A.3	Preparation of catalogs for delivery to beneficiaries.		X	
A.4	Implementation schedule.		X	
A.5	Training talks.		X	
A.6	Demonstration farms		X	

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	Training talks in groups of 25 people	Global	18	1,236	22,248
	Subtotal				22,248
	Unforeseen (3%)				667
	Total Cost P2-M6				**22,915**

Program 3: Protection of forest and biodiversity

1. Justification

According to LDN 2020, there have been negative changes in land cover between 2000 and 2015. The most significant change is the loss of forest cover to cropland and pasture. Agriculture (cropland) has grown considerably since 2000, showing an expansion of 44.96% in 2015.

From 2000 to 2015, the north and center of Belize have lost significant forest cover due to increased mechanized agriculture in sectors such as the Mennonite community, the Valle de la Paz farms, and a second sugar mill Cayo district. In converting forests to grasslands, 42.63% of this change is attributed to grasses, which have increased due to livestock activity in border areas with Guatemala and Mexico, which has generated pressure to convert forests into cattle ranches or cattle pastures[102].

The pressure for the change of land use for the implementation of agricultural projects or some types of infrastructure can generate a risk of reducing forest cover, especially in areas with degraded land characteristics.

[102] LDN, et al., 2020. Land Degradation Neutrality Target Setting Programme. Final Report.

2. Strategic alignment

This Program is aligned with the following strategy:

- SO7: Adoption of technologies for CC adoption
- ESPS3: Efficiency in the Use of Resources and the Prevention of Contamination

3. Objectives

- Establish general environmental guidelines for the prevention and control of potential environmental damage that some project actions may produce on the biodiversity located in the area of influence of the Program.
- Make beneficiaries aware of the importance of protecting and conserving strategic ecosystems.

4. Potential impacts

Table 54 shows the potential impacts that could occur in the construction stage.

Table 54. Potential negative Impacts related to land use change

Stage	ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
Construction	B6	Negative	Green Agri-Business Plan (GABP)	Pressure towards land use change	The possibility of increased income and job creation can encourage changes in land use, especially in areas whose physical characteristics are not suitable for agriculture	
Construction	C6	Negative	Sustainable Tourism Business Plan (STBP)	Pressure towards land use change	The possibility of increased income and job creation can encourage changes in land use, especially in areas whose physical characteristics are not suitable for agriculture	

5. Environmental Measures

As preventive measures of the pressure towards the change of land use, there are:

M7. Awareness of Protection and conservation of strategic ecosystems
M8. Environmental education and resilience to climate change

Tables 55 and 56 present the descriptive files of the environmental measures M7, and M8 respectively.

Table 55. Description Measure M7

PROGRAM 3: PROTECTION OF FORESTS AND BIOVIDERSITY						
SIZE M7 Awareness in protection and conservation of strategic ecosystems						
1. Objective						
Preserve and protect the vegetation cover of protective forests or agroecological units to conserve strategic ecosystems in the area of influence of the Program where infrastructures will be developed.						
2. Impacts to manage						
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**	
B6	Prevention	Loss of vegetation cover due to the construction of the Green Agribusiness Plan.	Agriculture	Construction Phase	Work fronts	
C6	Prevention	Loss of vegetation cover due to the construction of the Sustainable Tourism Business Plan.	Tourism	Construction Phase	Work fronts	
3. Support Program						
Socio-environmental communication plan						
4. Goals						
Designación	**Descripción**					
G1	15% of the 1,500 individual farmers benefiting from the Program improve the vegetation cover of their units through the implementation of sustainable actions.					
G2	5% of the 1400 owners or employees of tourism MSMEs estimated beneficiaries adopt measures to improve the vegetation cover of their units through the implementation of sustainable actions.					
5. Responsible						
Program Executing Unit in coordination with those in charge of Agencies, MAFSE extension agents and the Ministry of Tourism						
6. Beneficiaries						
Individual farmers benefited by the Program, organized farmers and employees of agricultural MSMEs.						
7. Activities in the Construction Phase						
Designation	**Specific objectives**					
C.1.	Carry out awareness talks for the protection and conservation of strategic ecosystems in the production units.					
C.2.	Plan the intervention actions of the projects analyzing all the possible alternatives in order to select the one that meets the objective of the minimum environmental effect. As a fundamental strategic guideline, the fragmentation of natural biological corridors should be avoided.					
C.3.	All protection areas established by law and current regulations must be respected.					
8. Results						
Beneficiary population of the Program sensitized for the protection and conservation of strategic ecosystems in productive units.						
9. Indicators						
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P3M7	% sensitized producers	Establish the percentage of sensitized producers in strategic ecosystems	Adc = number of sensitized producers. Am = total number of target producers of areas to be fenced.	(∑ Adc * 100) / ∑ Acg	Percentage	Compliance
10. Means of verification						
Designation	**Name**	**Description**			**Medium**	
V-1	Proceedings	Training assistance list			Written or digital document	
11. Resources needed for implementation						
Designation	**Means**	**Description**			**Quantity**	
R-1	Printed media	Notices for call			30	
R-2		Training material			1	
R-3		Environmental brochures			300	
R-4		Photocopies for training			30	
R-5	Refreshments	Food and drinks			300	

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
A.1	Formulation Training plan	X		
A.2	Design of training materials.	X		
A.3	Implementation schedule.	X		
A.4	Training talks.	X		

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Site of the event productive units				
2	Awareness talks in groups of 25 people	Global	12	1,236	14,832
	Subtotal				14,832
	Contingencies (3%)				445
	Total Cost P3-M7				**15,277**

Table 56. Description Measure M8

PROGRAM 3: PROTECTION OF FORESTS AND BIOVIDERSITY					
SIZE M8 Environmental education and resilience to climate change					
1. Objective					
Train in environmental education and generate an exchange of experiences among the beneficiaries of the Project that allow identifying the effects of climate change, prevention against the risks associated with this phenomenon and the proposals of the projects to minimize these effects.					
2. Impacts to manage					
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**
B6	Prevention	Loss of vegetation cover due to the construction of the Green Agribusiness Plan.	Agriculture	Construction Phase	Work fronts
C6	Prevention	Loss of vegetation cover due to the construction of the Sustainable Tourism Business Plan.	Tourism	Construction Phase	Frentes de obra
3. Support Program					
Socio-environmental communication plan					
4. Goals					
Designación	**Descripción**				
G1	15% of the 1,500 individual farmers benefiting from the Program improve the vegetation cover of their units through the implementation of sustainable actions.				
G2	5% of the 1400 owners or employees of tourism MSMEs estimated beneficiaries adopt measures to improve the vegetation cover of their units through the implementation of sustainable actions.				
5. Responsible					
Program Executing Unit in coordination with those in charge of Agencies, MAFSE extension agents and the Ministry of Tourism					
6. Beneficiaries					
Individual farmers benefited by the Program, organized farmers and employees of agricultural MSMEs.					
7. Activities in the Construction Phase					
Designation	**Specific objectives**				
C.1.	Definition of the representative group of the beneficiary population.				
C.3.	Carry out a participatory environmental training workshop where the following are established:				
C.2.	Description of the state of the environment and its effects on their quality of life.				
C.4.	Identification of problems on: management of water resources, management of organic and inorganic waste, management of agrochemicals on farms, effects of climate change.				
C.5.	Proposal of solutions to minimize the impact of its activities and environmental resilience.				
C.7.	Systematization of the results in management manuals by subject: best agricultural practices, water resource management, organic and inorganic waste management, management of agrochemicals on farms, and experiences of adaptation to the effects of climate change.				
C.8.	Design of a plan for the implementation of measures for environmental management of farms and adaptation to climate change in a practical way (Demonstration farm)				
C.9.	Monitoring of adaptation measures to climate change.				
8. Results					
Appropriation of the decision-making process by the population of interest and adoption of adaptation measures to climate change.					
Plan for the implementation of adaptation measures to climate change in a demonstration farm.					
9. Indicators					
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P3M8	% Participants in workshop on environmental education and resilience to Climate Change	Establishes the percentage of people who participated in the workshops on environmental education and resilience to Climate Change.	Ecp = number of participants Ecg = total number of participants	(∑ Ecp * 100) / ∑ Ecg	Percentage	Compliance
IND2P3M8	% Production Units with adaptation measures to climate change.	It establishes the percentage of productive units of the Project where climate change adaptation measures have been carried out.	Ucc = number of production units with adaptation measures to climate change. Ucg = total number of production units with adaptation measures to climate change according to goal.	(∑ Ucc * 100) / ∑ Ucg	Percentage	Compliance

10. Means of verification			
Designation	**Name**	**Description**	**Medium**
V-1	Proceedings	Training attendance records	Written or digital document
V-2	Manual	Manual of environmental management of water resources	Written or digital document
V-3	Manual	Manual for the management of organic and inorganic waste	Written or digital document
V-4	Manual	Manual of good agricultural practices	Written or digital document
V-5	Manual	Manual for the safe handling of agrochemicals on farms	Written or digital document
V-6	Manual	Manual of adaptation to the effects of climate change	Written or digital document

11. Resources needed for implementation			
Designation	**Means**	**Description**	**Quantity**
R-1	Printed media	Notices for call	30
R-2		Training material	1
R-3		Environmental brochures	300
R-4		Photocopies for training	30
R-5	Refreshments	Food and drinks	300

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
A.1	Definition representative group.	X		
A.2	Participatory workshop.	X		
A.3	General framework definition for environmental management.	X		
A.4	Systematization of results of the results.	X		
A.5	Community management to establish an implementation schedule.	X		
A.6	Demonstration farm	X		
A.7	Monitoring of adaptation measures to climate change.	X		

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	Training workshops in groups of 50 people	Global	6	2,987	17,922
	Subtotal				17,922
	Unforeseen (3%)				538
	Total Cost P3-M8				**18,460**

Program 4: Good environmental management practices

1. Justification

Various types of solid and liquid waste can be generated in the construction activities of a project, as well as noise and particles that can affect the environment, which require efficient and effective environmental management.

The sources of these wastewaters can be diverse, including among others: a) rainwater that drains in the area where the project is carried out; b) black and soapy water from the facilities of the activity, work or project, c) wastewater from construction works and d) wastewater with special or dangerous contaminants produced by operating accidents within the activity, work or project. At the level of solid waste or construction waste, there are two types, one ordinary and the other special or inert waste.

Solid waste: The solid waste generated in construction activities is classified according to the composition and quantity generated, the process from which it comes and the technology used in the processes it prevents. At a general level, solid waste from a work is classified as: i) General solid waste: includes metal waste, paper, cardboard, wood mixtures, fabrics,

paint cans, plastics, pieces of used materials, foams, waterproofing, etc.; ii) Stone waste: Includes inert waste products from demolitions, construction remains, residues from solidified mixtures such as concrete, cement, brick, stucco, clay, stone, mortar, etc; iii) Hazardous waste: These wastes are made up of residues of chemical products such as acids, solvents, paints, glues, waterproofing, among others.

In consideration of the different impacts and based on the environmental principle of reducing the production of pollution, it is necessary to implement a series of measures aimed at mitigating the potential impacts generated by the construction of infrastructure works.

2. Strategic alignment

This Program is aligned with the following strategy:

- SO4: Improvement of storage facilities and business development
- SO5: Generation of value chains
- ESPS3: Efficiency in the Use of Resources and the Prevention of Contamination

3. Objectives

- Raise awareness and train different social actors in the implementation of mitigation measures.
- Make the beneficiary population aware of their role in the preservation, protection and conservation of the environment in the exercise of their functions.
- Establish specific actions and the commitment of the beneficiaries
- Management of natural resources under the implementation of good environmental practices.

4. Potential impacts

Table 57 shows the potential impacts that could occur in the operation stage. These impacts are considered on a moderate scale.

Table 57. Potential negative Impacts in different stages

Stage	ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
Construction	B3, C3	Negative	Green Agri-Business Plan (GABP); Sustainable Tourism Business Plan (STBP)	Wastewater generation (black and grey)	These waters come from the production of excreta from the people who work on the construction site and water use in different construction activities.	
Operation	E3	Negative				
Construction	B4, C4,	Negative	Green Agri-Business Plan (GABP); Sustainable Tourism Business Plan (STBP);	Noise pollution and dust generation	The installation of machinery and equipment may generate noise pollution. The increased vehicle traffic around the site where the works will be carried out may cause noise. This material corresponds to fine powders from handling inert materials such as cement, and clay, among others.	
Operation	E4	Negative				
Operation	E1, F1,	Negative	Green Agri-Business Plan (GABP); Sustainable Tourism Business Plan (STBP)	Presence of solid waste	Waste and solid residues may be generated from the transformation of products and the closure stage is considered to be of a moderate scale.	
Closure	I1	Negative				

5. Environmental Measures

In accordance with the impacts described in the table above, the proposed measures are framed within the guidelines established by the World Bank Group, which can be found on the World Bank website. Environmental, Health, and Safety Guidelines (ifc.org). The main guidelines to consider are related to:

1.0 Environmental

1.1 Air Emissions and Ambient Air Quality
1.3 Wastewater and Ambient Water Quality
1.4 Water Conservation
1.5 Hazardous Materials Management
1.6 Waste Management
1.7 Noise

As mitigation measures for the listed impacts are:

M9. Pollution control of polluting liquid substances.

M10. Management of noise, air emissions, and atmospheric effects

M11. Solid waste management

Tables 58, 59 and 60 present the descriptive files of the environmental measures M9, M10 and M11, respectively.

Table 58. Description Measure M9

PROGRAM 4: GOOD ENVIRONMENTAL PRACTICES						
SIZE M9 Pollution control of polluting liquid substances						
1. Objective						
Management of wastewater (black and gray) generated by the excreta of the people who work in the works and the use of water in the different activities of infrastructure construction.						
2. Impacts to manage						
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**	
B3	Mitigation	Generation of wastewater (black and gray) by constructing the Green Agri-Business Plans (GABP).	Agriculture	Construction stage	work fronts	
C3	Mitigation	The generation of wastewater (black and grey) is due to sustainable tourism business plans (STBP).	Tourism	Construction stage	work fronts	
E3	Mitigation	Generation of wastewater (black and gray) by operation of the Green Agri-Business Plans (GABP).	Agriculture	Operation Stage	Crops	
3. Support Program						
Socio-environmental communication plan						
4. Goals						
Designación	**Descripción**					
G1	100% of the infrastructure works implemented by the Program will control polluting wastewater.					
G2	100% of the green agribusiness plans of the Program will control polluting wastewater.					
G3	15% of the estimated 1,500 beneficiary individual farmers will have at least one training campaign on the control of polluting wastewater.					
G4	15% of the 1,400 owners and/or employees of tourism MSMEs will be trained on the control of polluting wastewater.					
5. Responsible						
Program Executing Unit						
6. Beneficiaries						
All the people who work in the infrastructure works and the populations near these works.						
7.1. Activities in the Construction Phase						
Designation	**Specific objectives**					
C.1.	Review of the contaminating wastewater control plan that contains at least:					
C.2.	Location of the wastewater management and treatment system at the work sites.					
C.3.	land suitability					
C.4.	Excavation of the pits					
C.5.	Installation of septic tanks or settling systems					
C.6.	Construction of infiltration field.					
C.7.	Training in wastewater control.					
7.2. Activities in the Operation Phase						
Designation	**Specific objectives**					
O.1.	Control and monitoring of the wastewater control plan					
8. Results						
Protection of human health and water resources in production units.						
9. Indicators						
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P6M16	% Production units reviewed with their wastewater control plan	Establishes the percentage of production units reviewed with their wastewater control plan.	Src = number of production units reviewed with a wastewater control plan. Srg = Total number of production units to review wastewater control plan according to goal.	(∑ Src * 100) / ∑ Srg	Percentage	Compliance

10. Means of verification			
Designation	**Name**	**Description**	**Medium**
V-1	List	List of Productive Units resivadas with wastewater control plan.	Written or digital document
V-2	Minutes	List of participants in the training on wastewater control.	Written or digital document

11. Resources needed for implementation			
Designation	**Means**	**Description**	**Quantity**
R-1	Printed media	Notices for call	85
R-2		Training material	1
R-3		Environmental brochures	850
R-4		Photocopies for training	85
R-5	Refreshments	Food and drinks	850

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
A.1	Plan Review.	X		
A.2	Implementation of actions.	X		
A.3	Residual water control training.	X		
O.1.	Tracing		X	

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture facilities)				
2	Training workshop	Global	17	2,987	50,779
	Subtotal				50,779
	Unforeseen (3%)				1,523
	Total Cost P4-M9				**52,302**

Table 59. Description Measure M10

PROGRAM 4: GOOD ENVIRONMENTAL PRACTICES

SIZE M10
Management of noise, air emissions and atmospheric effects

1. Objective

Maintain air quality and noise levels within the standards established in current national regulations and implement environmental controls on the use of equipment with mobile sources that emit combustion gases and/or exceed permissible noise limits.

2. Impacts to manage

Id	Guy	Direct hit name	Apply to the Sector	Application stage	Place of execution
B4	Mitigation	Noise pollution and dust generation due to the construction of Green Agribusiness Plans (GABP).	Agriculture	Construction	work fronts
C4	Mitigation	Noise pollution and dust generation due to the construction of Sustainable Tourism Business Plans (STBP).	Tourism	Construction	work fronts
E4	Mitigation	Noise pollution and dust generation due to the operation of Green Agribusiness Plans (GABP).	Agriculture	Operation	Crops
H4	Mitigación	Noise pollution and dust generation due to the closure of Green Agribusiness Plans (GABP).	Agriculture	Clouser	Crops

3. Support Program

Socio-environmental communication plan

4. Goals

Designación	Descripción
G1	100% of the infrastructure works implemented by the Program will control noise pollution and mitigate dust generation.
G2	100% of the green agribusiness plans of the Program will control noise pollution and mitigate dust generation.
G3	15% of the estimated 1,500 beneficiary individual farmers will have at least one training campaign on the control of polluting wastewater.
G4	15% of the 1,400 owners and/or employees of tourism MSMEs will be trained on the control of polluting wastewater.

5. Responsible

Program Executing Unit and the Ministry of Tourism

6. Beneficiaries

All the people who work in the infrastructure works and the populations near these works.

7.1. Activities in the Construction Phase

Designation	Specific objectives
C.1.	In projects where infrastructure works are carried out, noise mitigation plans and effects on the air will be reviewed, as well as preventive maintenance of noise generation sources and the mandatory use of personal protection equipment according to the activity to be carried out, considering current regulations.
C.2.	Carrying out training talks and raising awareness of environmental education on risks due to emissions, vibrations and noise.

7.2. Activities in the Operation Phase

Designation	Specific objectives
O.1.	Inspection of equipment and machinery capable of producing particle or noise emissions.

7.3. Closing Phase Activities

Designation	Specific objectives
F.1.	Noise and pollution mitigation control for project closure.

8. Results

Protection of human health and mitigation of pollution due to the emission of particles into the air and atmospheric effects.

9. Indicators

Designation	Name	Description	Data	Formula	Measure	Dimension
IND1P6M17	% People who attended the talks on noise management and air emissions.	Establishes the percentage of people who attended the talks on noise management, air emissions and atmospheric effects.	Ai =number of people who attended the talks on noise management and air emissions. Ag =Total number of people invited to talks on noise management and air emissions according to goal.	(∑ Si * 100) / ∑ Sg	Percentage	Compliance
IND2P6M17	% Production Units with noise and air emissions management.	Establishes the percentage of the Production Units where noise, air emissions and atmospheric effects are managed.	Ei = number of production units with noise management and air emissions. Eg = total number of target production units.	(∑ Ei * 100) / ∑ Eg	Percentage	Compliance

10. Means of verification			
Designation	**Name**	**Description**	**Medium**
V-1	Minutes	List of people who attended the talks on noise management and air emissions.	Written or digital document
V-2	List	List of Production Units that develop infrastructure works with talks on noise management and air emissions.	Written or digital document

11. Resources needed for implementation			
Designation	**Means**	**Description**	**Quantity**
R-1	Printed media	Notices for call	85
R-2		training material	1
R-3		environmental brochures	850
R-4		Photocopies for training	85
R-5	refreshments	Food and drinks	850

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
A.1	Review of mitigation plans for noise pollution and dust generation.	X		
A.2	Design of training materials.	X		
A.3	Preparation of materials for delivery to beneficiaries.	X		
A.4	Schedule of training talks.	X		
A.5	Training talks.	X		
A.6	Control and follow up.		X	

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Site of the event productive units				
2	Training talks in groups of 25 people	Global	17	1,236	21,012
	Subtotal				21,012
	Unforeseen (3%)				630
	Total Cost P4-M10				**21,642**

Table 60. Description Measure M11

PROGRAM 4: GOOD ENVIRONMENTAL PRACTICES						
SIZE M11 Solid waste management						
1. Objective						
Reduce the contamination of the soil and the landscape of the areas benefiting from the Project due to the effect of solid waste of different categories, both from waste management and with the awareness of the beneficiary community.						
2. Impacts to manage						
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**	
E1	Mitigation	Presence of solid waste in the operation of the Green Agribusiness Plans (GABP).	Agriculture	Operation Phase	Work fronts	
F1	Prevention	Presence of solid waste in the operation of the Sustainable Tourism Business Plans (STBP).	Tourism	Operation Phase	Work fronts	
I7	Prevention	Presence of solid waste in the closing of Sustainable Tourism Business Plans (STBP).	Tourism	Closing Phase	Protected areas	
3. Support Program						
Socio-environmental communication plan						
4. Goals						
Designation	**Description**					
G1	100% of the infrastructure works implemented by the Program will have solid waste control.					
G3	15% of the estimated 1500 individual beneficiary farmers will have at least one solid waste training campaign.					
G4	15% of the 1400 owners and/or employees of Tourism MSMEs will be trained on solid waste control					
5. Responsible						
U.G.P. Program Management Unit						
6. Beneficiaries						
All the people who work in the infrastructure works and the populations close to these works.						
7.1. Activities in the Operation Phase						
Designation	**Specific objectives**					
O.1.	Formulate an environmental awareness plan for waste management that includes:					
O.2.	Identification of the actors involved in the process.					
O.3.	Carrying out a participatory diagnosis on the problem of existing waste.					
O.4.	Analysis of the main forms of current disposition.					
O.5.	Formulation of waste management strategies.					
O.6.	Composition and source of waste generation.					
O.7.	Estimation of per capita production.					
O.8.	Implementation of waste management systems in recycling centers.					
7.2. Closing Phase Activities						
Designation	**Specific objectives**					
O.1.	Closure of the waste management system in recycling centers.					
8. Results						
Protection of human health and mitigation of solid waste pollution.						
9. Indicators						
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P6M18	% People who attended the awareness plan on solid waste management.	Establish the percentage of people who attended the awareness plan on solid waste management.	Ssi = number of people attending the Solid Waste Management Awareness Plan. Ssg = total number of people invited to the Solid Waste Management Awareness Plan.	(∑ Ssi * 100) / ∑ Ssg	Percentage	Compliance
IND2P6M18	% Productive Units with awareness of solid waste management.	It establishes the percentage of the Productive Units with awareness about the management of solid waste.	Usi = number of production units with awareness of solid waste management. Usg = total number of production units for awareness of solid waste management according to goal.	(∑ Usi * 100) / ∑ Usg	Percentage	Compliance

10. Means of verification			
Designation	**Name**	**Description**	**Medium**
V-1	Minutes	List of people who attended the trainings	Written or digital document
v-2	List	List of Productive Units that develop infrastructure works with solid waste management plan.	Written or digital document

11. Resources needed for implementation			
Designation	**Means**	**Description**	**Quantity**
R-1	Print Media	Notices for call	85
R-2		Training material	1
R-3		Environmental brochures	850
R-4		Photocopies for training	85
R-5	Snacks	Food and beverages	850

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
C-1	Formulation Training Plan		X	
C-2	Design of materials for training.		X	
C-3	Preparation of materials for delivery to beneficiaries.		X	
C-4	Communal management for the establishment of an implementation schedule.		X	
C-5	Training days.		X	
F-1	Communal management of actions to close the program.			X

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	Training workshops in groups of 50 people	Global	17	2,987	50,779
	Subtotal				50,779
	Unforeseen events (3%)				1,523
	Total Cost P4-M11				**52,302**

Program 5: Strengthening the Participation of vulnerable groups

1. Justification

The main objective of the sustainable and inclusive Belize Program is to maintain and create jobs as well as improve income in the agriculture and tourism sectors, prioritizing vulnerable populations such as indigenous peoples, Afro-descendants, migrants, women, and youth.

However, although the Program is evident in the inclusion of vulnerable groups, in Belize, as in other parts of the world, the social conditions of vulnerable groups sometimes prevent the Participation of these people in different development projects.

Among the main limitations that people belonging to vulnerable groups may have to be part of development projects are i) The meetings for some projects are held when these people are looking for their daily livelihood and therefore cannot attend the meetings; ii) The meetings are convened in areas far from their home or work sites, and these people do not have the technological or transportation facilities for their mobilization; iii) Sometimes the meetings for projects are very long. In the case of women, they are faced with deciding who they can leave their children with and mediating with their husband to execute household activities that she postpones when going to meetings; iv) In some meetings, people from these groups arrive without having eaten a meal that day, which is why they quickly lose attention to the meeting topics; v) Generally, in project meetings, technicians tend to use PowerPoint presentations that are sometimes too heavy in terms of information, generating

fatigue on the part of the participants. Likewise, this type of presentation loaded with technical details causes frustration for people from vulnerable groups as they do not understand the technical language used; vi) Some meetings are not culturally appropriate for vulnerable populations, which creates a barrier between the interlocutor and potential beneficiaries.

2. Strategic alignment

This Program is aligned with the following strategy:

- SO7: Adoption of technologies for CC adoption
- SO8: Increase resilience to CC
- ESPS2: Labor and Working Conditions
- ESPS7: Indigenous People
- ESPS9: Gender Equality
- ESPS10: Participation of Stakeholders Information Disclosure

3. Objectives

- Improve the response capacity of the Program to include vulnerable groups.
- Implement dialogue to improve the adoption of technologies by vulnerable groups.

4. Potential impacts

Table 61 shows the potential impacts that could occur in the construction stage.

Table 61. Potential negative Impacts related to population inclusion

Stage	ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
Construction	A15	Negative	Green Innvation Vouchers (GIV)	Change in the social environment due to project activities	The participation of vulnerable groups in the projects requires a social effort on the part of these groups; this effort is related to the execution times of the projects (which are different from their usual times) and the new roles that people will have to assume.	
Construction	A16	Negative	Green Innvation Vouchers (GIV)	Increase in migrations and territorial dynamics.	The increase in international migrants may lead to unfavorable working conditions for them compared to working conditions for Belizeans	

5. Environmental Measures

As preventive measures for the impact of change in the social environment due to project activities, there are:

M12. Linking strategy for vulnerable groups

M13. Dialogue of knowledge

M14. Protocol of equal working conditions

M15. Indigenous People Plan corresponds to the document: IDB-Hulse,2022. Sociocultural Analysis and Indigenous Peoples Plan. Sustainable and Inclusive Belize Program.

M16. Gender and Diversity Action Plan corresponds to the document: IDB-FAO, 2022. Sustainable and Inclusive Belize Program. Gender, Youth, and Indigenous People Assessment

Tables 62, 63, 64 and 65 present the descriptive files of the environmental measures M12, M13 and M14, respectively.

Table 62. Description Measure M12

PROGRAM 5: STRENGTHENING FOR THE PARTICIPATION OF VULNERABLE GROUPS						
SIZE M12 Linking strategy for vulnerable groups						
1. Objective						
Formulate a strategy that allows the linking of vulnerable groups to the different activities of the Program projects.						
2. Impacts to manage						
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**	
A15	Mitigation	Change in social environment due to program activities.	Agriculture	Construction Phase	Work fronts	
3. Support Program						
Socio-environmental communication plan						
4. Goals						
Designación	**Descripción**					
G1	15% of the total of the 1,500 beneficiary individual farmers belong to the women's group.					
G2	3% of the total of the 1,500 beneficiary individual farmers belong to the indigenous group.					
G3	2% of the total of the 1,500 beneficiary individual farmers belong to the group of migrants.					
G4	100% of the projects implement the strategy of linking vulnerable groups.					
5. Responsible						
Program Executing Unit in coordination with those in charge of Agencies, MAFSE extension agents and the Ministry of Tourism						
6. Beneficiaries						
Collective of women, indigenous, Afro-descendants, migrants and youth.						
7. Activities in the Construction Phase						
Designation	**Specific objectives**					
C1	Carry out a participatory diagnosis with vulnerable groups in which the following is identified: i) Number of vulnerable groups according to district; ii) Main limitations or problems that vulnerable groups have to participate in the projects of the Program; iii) Approach of possible alternatives to solve the limitations or problems of participation of these groups in the projects.					
C.2.	Strategy formulation for linking vulnerable groups.					
C.3.	Implementation of actions to develop the strategy.					
8. Results						
Procedure for linking the group of women, indigenous, Afro-descendants, migrants and youth to the project.						
9. Indicators						
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P4M9	% Actions carried out to link vulnerable groups	Establishes the percentage of actions carried out according to the strategy for the engagement of people belonging to vulnerable groups.	Vpa = last action carried out of the strategy for linking vulnerable groups. Vpg= total number of actions to be carried out of the strategy for linking vulnerable groups.	(∑ Vpa * 100) / ∑ Vpg	Percentage	Flow compliance
10. Means of verification						
Designation	**Name**	**Description**			**Medium**	
V-1	Strategy	Linking strategy for vulnerable groups.			Written or digital document	
11. Resources needed for implementation						
Designation	**Means**	**Description**			**Quantity**	
R-1	Printed media	Notices for call			30	
R-2		Training material			0	
R-3		Strategy Documents			300	
R-4		Photocopies for strategy			30	
R-5	Refreshments	Food and drinks			0	
12. Schedule						
Designation	**Exercise**			**Building**	**Operation**	**Closing**
C-1	Carrying out participatory diagnosis			X		
C-2	Strategy design.			X		
C-3	Disclosure of procedure.			X		
C-4	Implementation schedule.			X		
C-5	Strategy implementation.			X		
13. Estimated Costs						
Item	**Description**		**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)					
2	Social specialist consultancy		Global		U.G.P.	
3	Consulting including participation processes.		Global	1	20,000	20,000
4	Actions		Global	1	600	600
	Subtotal					20,600
	Unforeseen (3%)					*618*
Total Cost P5-M12						**21,218**

Table 63. Description Measure M13

PROGRAM 5: SOCIAL MANAGEMENT					
SIZE M13 Dialogue of knowledge					
1. Objective					
Strengthen and build knowledge for the implementation of Climate Smart Agriculture (CSA) through the meeting of knowledge that allows the exchange of experiences and reflections with the contribution of the technical assistance provided by the project.					
2. Impacts to manage					
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**
A15	Mitigation	Change in social environment due to program activities.	Agriculture	Construction Phase	Work fronts
3. Support Program					
Socio-environmental communication plan					
4. Goals					
Designación	**Descripción**				
G1	13% of the total of the 1,500 beneficiary individual farmers participate in the construction and dialogue of knowledge for the implementation of the projects				
5. Responsible					
Program Executing Unit in coordination with those in charge of Agencies, MAFSE extension agents and the Ministry of Tourism					
6. Beneficiaries					
Individual farmers benefited by the Program, organized farmers and employees of agricultural MSMEs.					
7. Activities in the Construction Phase					
Designation	**Specific objectives**				
C.1.	Definition of the representative group of the beneficiary population.				
C.2.	Carry out a talk where the following are established: i) dialogue on traditional agricultural practices; ii) reflection on the effects and changes that natural resources have had due to traditional practices; iv) identification of local problems in the management of natural resources; vi) proposals to improve agricultural practices and environmental performance; v) construction of a new sense of agricultural techniques incorporating new technologies; vii) conclusions and results of the dialogue.				
C.3.	Systematization of the conclusions and dialogues.				
C4.	Implementation of agreements.				
8. Results					
Agreements established by dialogue and exchange and reflections of knowledge.					
9. Indicators					
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P4M10	% Participation in knowledge dialogues.	Establishes the percentage of people who participated in the knowledge dialogue for the care of natural resources and the environment.	Dkp = number of people who participated in the knowledge dialogue. Dkg = total number of people invited to the knowledge dialogue according to goal.	(∑ Dkp * 100) / ∑ Dkg	Percentage	Compliance
IND2P4M10	% Actions of the agreements to be implemented from the knowledge dialogue.	Sets the percentage of actions performed on agreements in the lore dialog.	Pka = number of actions carried out in the knowledge agreement. Pkg = total number of shares established by the knowledge agreement.	(∑ Pka * 100) / ∑ Pkg	Percentage	Flow compliance
10. Means of verification						
Designation	**Name**	**Description**			**Medium**	
V-1	List	Acciones para implementar por los acuerdos de diálogo de saberes.			Written or digital document	
V-2	Proceedings	Asistencia a taller de diálogo.			Written or digital document	
11. Resources needed for implementation						
Designation	**Means**	**Description**			**Quantity**	
R-1	Printed media	Notices for call			20	
R-2		Material for dialogue			1	
R-3		Dialogue Documents			200	
R-4		Photocopies of the dialogue			20	
R-5	Refreshments	Food and drinks			200	
12. Schedule						
Designation	**Exercise**			**Building**	**Operation**	**Closing**
C-1	Group definition.			X		
C-2	Dialogue talks.			X		
C-3	Systematization of the conclusions and dialogues.			X		
C-4	Implementation schedule.			X		
C-5	Implementation of agreements.			X		
13. Estimated Costs						
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**	
1	Event site (Ministry of Agriculture Facilities)					
3	Dialogue talks.	Global	8	1236	9888	
	Subtotal				9,888	
	Unforeseen (3%)				*297*	
Total Cost P5-M13					**10,185**	

Table 64. Description Measure M14

PROGRAM 5: SOCIAL MANAGEMENT						
SIZE M14 Protocol of equal working conditions						
1. Objective						
Formulate a procedure of effective rules that allow equal working conditions for vulnerable groups, guaranteeing the same opportunities of access, development and working conditions for the actors interested in participating in the Program.						
2. Impacts to manage						
Id	**Guy**	**Direct hit name**		**Apply to the Sector**	**Application stage**	**Place of execution**
A16	Mitigation	Migration		Agriculture	Construction Phase	Work fronts
3. Support Program						
Socio-environmental communication plan						
4. Goals						
Designación	**Descripción**					
G1	Protocol of equal working conditions for migrants.					
G2	100% of the Productive Units implement measures that guarantee equal opportunities for migrants.					
G3	3% of the total of the 1,500 beneficiary individual farmers participate as migrants in Projects with added social and environmental value.					
5. Responsible						
Program Executing Unit in coordination with those in charge of Agencies, MAFSE extension agents and the Ministry of Tourism						
6. Beneficiaries						
Vulnerable population groups, Migrant beneficiaries of the Program.						
7. Activities in the Construction Phase						
Designation	**Specific objectives**					
C.1.	Formulate a procedure for equal working conditions that contains the following phases: i) commitment; ii) equal opportunities committee; iii) diagnosis of working conditions; iv) programming; v) implementation.					
C.2.	Elaborate the commitment: decision, communication and work team.					
C.3.	Creation of equal opportunities committee.					
C.4.	Diagnosis of the current situation of the hiring of the migrant population: planning, collection of information, analysis and results, presentation of proposals.					
C.5.	Preparation of a plan for equal working conditions: objectives, actions, monitoring and evaluation.					
C.6.	Implement a procedure for equal working conditions that contains the following steps: i) promotion and summons; ii) selection and hiring with equal opportunities; iii) remuneration under established standards.					
C.7.	Recruitment of women and men under equal working conditions.					
8. Results						
Equalize working conditions for vulnerable groups participating in the Program.						
9. Indicators						
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P4M11	% Actions carried out in the equal working conditions protocol.	Establishes the percentage of actions carried out in the equal working conditions protocol.	Arp = Number of actions carried out in the equal working conditions protocol. Atp = total number of actions of the equal working conditions protocol.	(∑ Arp * 100) / ∑ Atp	Percentage	Flow compliance
IND2P4M11	Hired migrants by district	Establishes the number of migrants hired to participate in the Project.	Mcd = total number of hired migrants	∑ Mcd	Number	Compliance
10. Means of verification						
Designation	**Name**	**Description**			**Medium**	
V-1	Protocol	Procedural document.			Written or digital document	
11. Resources needed for implementation						
Designation	**Means**	**Description**			**Quantity**	
R-1	Printed media	Notices for call			0	
R-2		Training material			9	
R-3		Environmental brochures			0	
R-4		Photocopies for training			40	
R-5	Refreshments	Food and drinks			0	
12. Schedule						
Designation	**Exercise**			**Building**	**Operation**	**Closing**
A.1	Formulation Procedure for equal working conditions.			X		
A.2	Committee of equality for migrants.			X		
A.3	Diagnosis of working conditions for migrants.			X		
A.4	Formulation Plan for equal working conditions.			X		
A.5	Protocol Implementation			X		
13. Estimated Costs						
Item	**Description**		**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)					
2	Social specialist consultancy		Global	U.G.P.		
3	Implementation		Global	1	600	600
	Subtotal					600
	Unforeseen (3%)					*18*
Total Cost P5-M14						**618**

Program 6: Environment and tourism

1. Justification

The tourism sector in Belize is one of the most important for the country's economy. This industry was the largest source of income in 2005 and 2006, accounting for about BZ$350 and 400 million in profits, respectively (Belize Tourism Board (BTZ): Summary of Travel and Tourism Statistics, 2012). In 2015 Belize had approximately 1,299,100 visitors who traveled. However, around 73% of visitors arrived via cruise ships. More than 326,000 were overnight visitors (BTB, 2016), which is critical to ensuring that tourism benefits are distributed and reach communities throughout Belize (NBSAP et al., 2018.).

Tourist visits to national protected areas are a significant financial contribution to effectively managing these sites. Many hunters have now switched to offering guided tours of the protected area (NBSAP et al., 2018). The collateral benefits of tourism-related protected areas for communities are evident in rural areas, such as the Centro Maya, adjacent to the Cockscomb Basin Wildlife Sanctuary, where women have a thriving craft market. Nevertheless, according to the NBSAP 2018, in Belize, the principal pressures and threats to Biodiversity and Ecosystems are unsustainable Tourism Practices. These practices are related to:

- Exceed guide/guest ratios
- Exceed the limits of acceptable change
- Bad navigation practices
- Illegal interactions with wildlife.
- Large-scale cruise ships with a high number of tourist visits impact the environment.

Considering that the Program will support the implementation of environmentally sustainable investments related to sustainable tourism, there may be an excessive influx of tourism to the Protected Areas. This excessive influx can generate risks for these areas related to disturbance of fauna, destruction of vegetation, contamination by waste, erosion of roads, and extraction of natural

2. Strategic alignment

This Program is aligned with the following strategy:

- SO8: Increase resilience to CC
- ESPS3: Efficiency in the Use of Resources and the Prevention of Contamination

3. Objectives

- Support the management of sustainable tourism.
- Encourage the management of sound environmental practices in tourism, incorporating the Participation of communities.

4. Potential impacts

Table 65 shows the potential impacts that could occur in the operation stage.

Table 65. Potential negative Impacts related to increasing pressure on protected areas

Stage	ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
Operation	F7	Negative	Sustainable Tourism Business Plan (STBP)	Increased pressure on protected areas	Implementing sustainable tourism business plans can generate pressure on protected areas in relation to increasing the number of tourists or acceptable visits they may have.	Unsustainable Tourism Practices (exceeding the guide/visitor relationship, bad navigation practices, illegal interactions with wildlife, among others)

5. Environmental Measures

As preventive measures for the impact of increased pressure on protected areas, there are:

M13. Awareness of good practices of sustainable tourism.

M14. Participatory management of sustainable tourism.

Tables 66 and 67 present the descriptive files of the environmental measures M13, and M14, respectively.

Table 66. Description Measure M17

PROGRAM 6: ENVIRONMENT AND TOURISM					
SIZE M17 Awareness for good practices of sustainable tourism					
1. Objective					
Make the beneficiaries of tourism projects aware of the need to implement good practices of sustainable tourism.					
2. Impacts to manage					
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**
F7	Mitigation	Increased pressure on protected areas by sustainable tourism business plans.	Tourism	Operation Phase	Protected areas
3. Support Program					
Socio-environmental communication plan					
4. Goals					
Designación	**Descripción**				
G1	30% of the 1,400 owners and/or employees of Tourism MSMEs participate in raising awareness to implement good sustainable tourism practices.				
5. Responsible					
Program Executing Unit and the Ministry of Tourism					
6. Beneficiaries					
1,400 owners and employees of MSMEs with a Sustainable Tourism Business Plan.					
7. Activities in the Operation Phase					
Designation	**Specific objectives**				
O.1.	Carry out a participatory workshop of actors from the tourism industry where the following topics are taken into account:				
O.2.	General diagnosis of the tourist system: i) installed tourist infrastructure. ii) tourism products and services and ii) main socio-environmental problems related to the use of water, energy, solid and liquid waste management.				
O.3.	Impact of Tourism on Biodiversity: i) effect on ecosystems. ii) Importance of carrying capacity analysis of visitation areas.				
O.4.	Good practices of sustainable tourism: i) advantages and benefits of the implementation of sustainable tourism. ii) Climate Change challenges. iii) climate change adaptation strategies for tourism businesses.				
O.6.	Systematization and synthesis of the results of the workshop.				
8. Results					
Beneficiary sensitized in good environmental practices in tourism.					
9. Indicators					
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P5M14	% People who participated in the sustainable tourism occupation workshop.	Establishes the percentage of people who participated in the sustainable tourism occupation management workshop.	Pop = number of participants in the sustainable tourism occupation management workshop. Ptg = total number of invited participants.	(∑ Pop * 100) / ∑ Ptg	Percentage	Compliance
10. Means of verification					
Designation	**Name**	**Description**			**Medium**
V-1	Proceedings	Attendance at a study workshop on the management of good sustainable tourism practices.			Written or digital document
V-2	Plan	Sustainable tourism occupation management plan.			Written or digital document
11. Resources needed for implementation					
Designation	**Means**	**Description**			**Quantity**
R-1	Printed media	Notices for call			40
R-2		Training material			1
R-3		Environmental brochures			400
R-4		Photocopies for training			40
R-5	Refreshments	Food and drinks			400
12. Schedule					
Designation	**Exercise**		**Building**	**Operation**	**Closing**
A.1	Formulation Training plan			X	
A.2	Material design.			X	
A.3	Workshops.			X	
A.4	Systematization of results.			X	
A.5	Socialization of the Plan.			X	
A.6	Adoption and monitoring.			X	
13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	Training workshops in groups of 50 people	Global	8	2,987	23,896
	Subtotal				23,896
	Unforeseen (3%)				717
Total Cost P6-M17					**24,613**

Table 67. Description Measure M18

PROGRAM 6: ENVIRONMENT AND TOURISM						
SIZE M18 Participatory management of sustainable tourism						
1. Objective						
Develop participatory workshops to determine essential elements and basic tools to improve tourism management with existing environmental, business and sociocultural elements.						
2. Impacts to manage						
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**	
F7	Mitigation	Increased pressure on protected areas by sustainable tourism business plans.	Tourism	Operation Phase	Protected areas	
3. Support Program						
Socio-environmental communication plan						
4. Goals						
Designación	**Descripción**					
G1	30% of the 1,400 owners and/or employees of Tourism MSMEs participate in the management of sustainable tourism.					
5. Responsible						
Program Executing Unit and the Ministry of Tourism						
6. Beneficiaries						
1,400 owners and employees of MSMEs with a Sustainable Tourism Business Plan.						
7. Activities in the Operation Phase						
Designation	**Specific objectives**					
O.1.	Carry out a participatory workshop of actors from the tourism industry where the following issues are taken into account:					
O.2.	Sustainable Development and Tourism: i) Challenges of local development; ii) Axes for the development of local tourism					
O.3.	Sustainable tourism and local development: i) contribution of tourism to local development. ii) agreements for positive participation in their social and cultural environment. iii) Inclusion of local cultures and populations in sustainable tourism.					
O.4.	Good practices of sustainable tourism: i) advantages and benefits of the implementation of sustainable tourism. ii) Climate Change challenges. iii) climate change adaptation strategies for tourism businesses.					
O.5.	Systematization and synthesis of the results of the workshop.					
O.6.	Formulation of a pilot plan for participatory management of sustainable local tourism.					
O.7.	Socialization of the study carried out.					
O.8.	Adoption and follow-up in the implementation of the established actions.					
8. Results						
Inclusion of program beneficiaries in issues of local management and sustainable tourism.						
9. Indicators						
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P5M15	% People who participated in the sustainable tourism management workshop.	Establishes the percentage of people who participated in the sustainable tourism management workshop.	Ptp = number of participants in the sustainable tourism management workshop. Ptg = total number of invited participants.	(∑ Ptp * 100) / ∑ Ptg	Percentage	Compliance
IND2P5M15	% Actions implemented for the management of sustainable tourism.	Establishes the percentage of actions implemented for the management of sustainable tourism.	Utb = number of actions implemented for sustainable tourism management. Utg = total number of actions to be implemented for sustainable tourism management.	(∑ Utb * 100) / ∑ Utg	Percentage	Flow compliance
10. Means of verification						
Designation	**Name**	**Description**			**Medium**	
V-1	Proceedings	Attendance at the workshop on sustainable tourism management.			Written or digital document	
V-2	Plan	Participatory management plan for sustainable local tourism.			Written or digital document	
11. Resources needed for implementation						
Designation	**Means**	**Description**			**Quantity**	
R-1	Printed media	Notices for call			40	
R-2		Training material			1	
R-3		Environmental brochures			400	
R-4		Photocopies for training			40	
R-5	Refreshments	Food and drinks			400	

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
A.1	Participatory workshop.		X	
A.2	Formulation of the Management Plan.		X	
A.3	Systematization of results.		X	
A.4	Socialization of the Plan.		X	
A.5	Adoption of sustainable practices.		X	
A.6	Monitoring of the Plan.		X	

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	Training workshops in groups of 50 people	Global	8	2,987	23,896
	Subtotal				23,896
	Unforeseen (3%)				717
	Total Cost P6-M18				**24,613**

Program 7: Health and Environment

1. Justification

During the construction and operation phases of the Program projects, activities can be developed that generate work accidents and/or public accidents, which must be controlled under specific guidelines or regulations that allow workers and the general public to be informed about the security management practices.

Likewise, in the face of the risks caused by COVID-19, and while the pandemic is not completely over, it will be necessary to establish prevention measures in the projects that apply.

2. Strategic alignment

This Program is aligned with the following strategy:

- SO6: Increased producer's competitiveness
- ESPS4: Labor and Working Conditions

3. Objective

Establish adequate social management measures in order to guarantee the safety of workers and the population during the construction and operation stage of the Program's projects.

4. Potential impacts

Table 68 shows the potential impacts that could occur in the construction and operation stage. These impacts are considered on a moderate scale.

Table 68. Potential negative Impacts in different stages

Stage	ID	Impact Type	Program Action	Name of Direct Impact	Description Direct Impact	Description Cumulative Impact
Construction	B13	Negative	Green Agri-Business Plan (GABP)	Occupational accidents	During the execution of infrastructure works, occupational accidents may affect workers' health.	
Construction	C13	Negative	Sustainable Tourism Business Plan (STBP)	Occupational accidents	During the execution of infrastructure works, occupational accidents may affect workers' health.	
Operation	E13	Negative	Green Agri-Business Plan (GABP)	Occupational accidents	In the implementation of the Green Agribusiness Plans, operating activities can be developed under the transformation or added value of products. In this operation it is possible that occupational accidents may occur that may affect the health of the workers.	
Operation	F13	Negative	Sustainable Tourism Business Plan (STBP)	Occupational accidents	In implementing the Sustainable Tourism Business Plan (STBP), the operational activities are related to providing services to the tourism sector. In this operation, it is possible that occupational accidents may affect the workers' health.	

5. Environmental Measures

As mitigation measures for the impacts listed in the table above are:

M19. Management of accidents and occupational risks

Table 69, resent the descriptive files of the environmental measures M19.

Table 69. Description Measure M19

PROGRAM 7: HEALTH AND ENVIRONMENT					
SIZE M19 Management of accidents and occupational risks					
1. Objective					
Carry out prevention, control and mitigation actions in the face of potential accidents and occupational risks related to occupational health and industrial safety in the different projects					
2. Impacts to manage					
Id	**Guy**	**Direct hit name**	**Apply to the Sector**	**Application stage**	**Place of execution**
B13	Mitigation	Occupational accidents due to the construction of Green Agribusiness Plans (GABP).	Agriculture	Construction Phase	Work fronts
C13	Mitigation	Occupational accidents due to the construction of Green Agribusiness (GABP).	Tourism	Construction Phase	Work fronts
E13	Mitigation	Occupational accidents due to the operation of Green Agribusiness Plans (GABP).	Agriculture	Operation Phase	Crops
F13	Mitigation	Occupational accidents due to the operation of Green Agribusiness (GABP).	Tourism	Operation Phase	Operation sites
3. Support Program					
Socio-environmental communication plan					
4. Goals					
Designation	**Description**				
G1	100% of the infrastructure works implemented by the Program will have an occupational health plan.				
G2	Evaluation of the management capacity of the Program to deal with occupational accidents and risks.				
G3	15% of the estimated 1500 individual beneficiary farmers will have at least one occupational risk prevention and occupational health campaign				
G4	15% of the 1400 owners and / or employees of MSMEs of Tourism will be trained on occupational risk prevention and occupational health				
5. Responsible					
U.G.P. Program Management Unit					
6. Beneficiaries					
All the people who work in the infrastructure works.					
7.1. Activities in the Construction Phase					
Designation	**Specific objectives**				
C.1.	Formulate a training plan in health occupations, equipment handling, industrial safety and occupational hazards				
C.2.	Evaluate the management capacity of the project in the face of occupational risks.				
C.3.	Identify the critical points of occurrence of occupational accidents.				
C.4.	Training in industrial safety and occupational risks.				
C.5.	Training in the handling of equipment and machinery.				
C.6.	Protocol for the installation of solar panels.				
C.6.	Formulate action plans to minimize risks.				
7.2. Activities in the Operation Phase					
Designation	**Specific objectives**				
O.1.	Monitoring compliance with industrial safety regulations and equipment handling.				
O.2.	Report and record of occupational accidents.				
8. Results					
Protection of human health and water resources in production units.					
Adoption of protocol for the installation of solar panels.					
9. Indicators					
Designation	**Name**	**Description**	**Data**	**Formula**	**Measure**	**Dimension**
IND1P7M19	% People trained in industrial safety and occupational hazards.	It establishes the percentage of people who were trained in industrial safety and occupational hazards.	Li = number of people attending training in industrial safety and occupational hazards. Lg = total number of people invited to train in industrial safety and occupational hazards.	(∑ Li * 100) / ∑ Lg	Percentage	Compliance
IND2P7M19	% People trained in handling equipment and machinery.	Establishes the percentage of people who were trained in handling equipment and machinery.	Cei = number of people who attended the training on the handling of equipment and machinery. Ceg = total number of people invited to the training on the handling of equipment and machinery.	(∑ Quay * 100) / ∑ Ceg	Percentage	Compliance

10. Means of verification			
Designation	**Name**	**Description**	**Medium**
V-1	Minutes	Act of attendance at training on industrial safety and occupational risks.	Written or digital document
v-2	Minutes	Act of attendance at training on the handling of equipment and machinery.	Written or digital document
V-3	Plan	Training plan in occupational health, equipment management, industrial safety and occupational risks.	Written or digital document

11. Resources needed for implementation			
Designation	**Means**	**Description**	**Quantity**
R-1	Print Media	Notices for call	85
R-2		Training material	1
R-3		Environmental brochures	850
R-4		Photocopies for training	85
R-5	Snacks	Food and beverages	850

12. Schedule				
Designation	**Exercise**	**Building**	**Operation**	**Closing**
A.1	Formulation Training Plan	X		
A.2	Design of materials for training.	X		
A.3	Preparation of materials for delivery to beneficiaries.	X		
A.4	Protocol for the installation of solar panels.	X		
A.5	Training days.	X		
A.6	Control and monitoring		X	

12. Means of verification			
Designation	**Number**	**Description**	**Middle**
V-1	Minutes	Act of attendance at training on industrial safety and occupational risks.	Written document the digital
v-2	Minutes	Act of attendance at training on the handling of equipment and machinery.	Written document the digital
V-3	Plan	Training plan in occupational health, equipment management, industrial safety and occupational risks.	Written document the digital

13. Estimated Costs					
Item	**Description**	**Unit**	**Quantity**	**Unit Value ($)**	**Total Value ($)**
1	Event site (Ministry of Agriculture Facilities)				
2	Training workshops in groups of 50 people	Global	17	2,987	50,779
	Subtotal				50,779
	Unforeseen events (3%)				1,523
	Total Cost P7-M19				**52,302**

8.4. Preliminary socio-environmental analysis

Under the IDB's Environmental and Social Policy Framework and compliance with the ESPS in the IDB's Pre-Assessment and Classification stages, all operations must be pre-assessed and classified according to their level of potential impact to be defined. Likewise, the preliminary analysis will determine the necessary environmental and social studies to comply with national regulations and with the IDB's ESPS. The preliminary environmental analysis includes the development of the following points

a. Screening

Following the IDB Environmental and Social Policy Framework in IDB Pre-Assessment and Classification, all operations must be pre-assessed and classified according to their level of potential impact so that applicable ESPS, and requirements can be defined. The preliminary analysis requirement will determine the necessary environmental and social studies to comply with the national regulations for reviewing these studies and with the IDB's socio-environmental safeguards.

1) Preliminary analysis by type

Bearing in mind that not all projects are in an initial phase of development, it is necessary to analyze the execution stage of the different projects. Below are the categories of projects according to the stage of development in which they are:

T-1: Corresponds to new projects that had not previously been developed and that, based on a farm plan or business plan, following the purposes of the Program, define their objectives, goals, activities, times, and budgets, taking into account technical, economic, administrative and socio-environmental aspects for its planning and execution.

T-2: Corresponds to projects that are already being executed and require adaptation in some of their activities with particular support to meet the proposed farm or business plan goals. These projects follow the purposes of the Program. They have defined their objectives, goals, activities, times, and budgets, considering technical, economic, administrative, and socio-environmental aspects for their planning and execution.

The Determination of the typology of projects described above will make it possible to identify the form of socio-environmental intervention since, for Type-1 projects, it is possible to establish a diagnosis and a future socio-environmental scenario. In contrast, for Type-2 projects, it will be necessary to initially review compliance of the existing Project concerning national regulations and IDB ESPS to start with the stages of analysis and future environmental scenarios.

2) Preliminary analysis by category

After identifying the type of Project and considering the national environmental regulations of Belize of the DOE, the qualification of the type of Project is carried out. Table 70 shows the categories established by the DOE.

Table 70 Category Eligibility

	**Projects without EIA**	**C-1a**	Applicable to subprojects, works, or new activities that, according to the list in Annex 1, according to Belize regulations, do not require an Environmental Impact Assessment (EIA) study. An environmental authorization request is needed to develop a subproject, work, or activity.	The environmental authorization is issued based on an Environmental Compliance Plan (ECP), which describes the specific terms and conditions for the ecological approval.
	**Projects without EIA with visit**	**C-1b**	Applicable to subprojects, works, or activities that do not require Environmental Impact Assessment (EIA) studies according to the list in Annex 1. But they do require an on-site inspection. An environmental authorization request is needed to develop a subproject, work, or activity. The environmental authorization is issued based on an Environmental Compliance Plan (ECP), which describes the specific terms and conditions for the ecological approval.	An in-situ visit is required where the subproject, work, or activity will be carried out.
	**Projects with EIA with inspection**	**C-2a**	Applicable to subprojects, works, or activities that require an Environmental Impact Assessment study or Low-Level Environmental Study (EIA/LLES). An environmental authorization request is needed to develop a subproject, work, or activity. The environmental authorization is issued based on an Environmental Compliance Plan (ECP), which describes the specific terms and conditions for the ecological approval.	A site survey (TOR) and an Environmental Compliance Plan (ECP) are required.
	**Projects with EIA with public consultation**	**C-2b**	Applicable to Projects preparing an Environmental Impact Assessment (EIA) study. An environmental authorization request is required to develop a subproject, work, or activity. The environmental authorization is issued based on an Environmental Compliance Plan (ECP), which describes the specific terms and conditions for the ecological approval.	It requires an Environmental Impact Assessment study; it also has a public Consultation, an inspection of the NEAC site, a Meeting between the parties (NEAC), an Environmental Compliance Plan (ECP), and monitoring.

Source: Own elaboration 2022

3) Medium sensitivity analysis

The purpose of the classification based on the sensitivity of the environment is to define more precisely the level of socio-environmental risk where it is planned to develop the different projects to be financed by the Program. For this classification, it is necessary to check the list of sensitivity to the environment, which will be required to complement the results of reports, maps, supporting documents, and the field visits corresponding to each Project. Table 71 presents the checklist prepared for this purpose. The purpose of this checklist is to identify the ESPS that is activated. As a result of this analysis, it will be determined if the environmental and social sensitivity of the environment is High, Medium, or Low for the execution of the Project.

Table 71 Classification of a project based on the sensitivity of the medium

Sensitivity Eligibility		ID	Description	Check	
Symbol	Name			Ok	ESPS
	SA-Hight	SA-1	Within forests and/or Protected Areas		ESPS6
		SA-2	In areas with greater vulnerability to Climate Change		ESPS4
		SA-3	In areas with high risk of natural disasters		ESPS4
		SA-4	In areas with mountainous or rugged slope > 30°, High degree of erosion		ESPS4
		SA-5	Presence of indigenous or vulnerable population in areas of direct influence AID		ESPS7
		SA-6	Presence of sites of archaeological and cultural value in areas of direct influence AID		ESPS8
		SA-7	Affectation of more than 200 properties or homes in areas of direct influence AID		ESPS5
		SA-8	Location in areas of direct influence AID in critical hydrographic basins		ESPS3
	SM-Medium	SM-1	Within buffer zones of forests or Protected Areas		ESPS6
		SM-2	In areas with medium vulnerability to Climate Change		ESPS4
		SM-3	In areas with medium risk of natural disasters		ESPS4
		SM-4	In areas with undulating slopes between 16-30°, Medium degree of erosion		ESPS4
		SM-5	Presence of indigenous or vulnerable population in the area of influence Indirect		ESPS7
		SM-6	Presence of sites of archaeological and cultural value in areas of indirect influence AII		ESPS8
		SM-7	Affectation of more than 200 properties or homes in areas of indirect influence AII		ESPS5
		SM-8	Location in area of indirect influence AII in critical hydrographic basins		ESPS3
	SB-Low	SB-1	Anthropically intervened areas outside of forests and/or Protected Areas		ESPS6
		SB-2	In areas with low vulnerability to Climate Change		ESPS4
		SB-3	In areas with low risk of natural disasters		ESPS4
		SB-4	In flat areas, low degree of erosion		ESPS4
		SB-5	No presence of indigenous or vulnerable population		ESPS7
		SB-6	No presence of sites of archaeological and cultural value		ESPS8
		SB-7	Not affecting more than 200 properties or homes		ESPS5
		SB-8	Location outside critical watersheds		ESPS3

Source: Own elaboration 2022

b. Scoping environmental and social issues

1) Determination of potential socio-environmental impact

The potential socio-environmental impact of projects eligible for the Program is based on the Environmental Impact Study Category established by the DOE and the Environmental Sensitivity Analysis. Table 72 shows the matrix under which the level of socio-environmental risk is set.

Table 72 Determination of socio-environmental risk

Category Eligibility		Environmental Sensitivity Eligibility		
		SM-A	SM-B	SM-B
Designation	Name	Mid-high sensitivity	Medium medium sensitivity	Low Mid Sensitivity
C-1a	Projects without EIA	N2	N3	N3
C-1b	Projects without EIA with visit	N2	N3	N3
C-2a	Projects with EIA with inspection	N2	N2	N2
C-2b	Projects with EIA with public consultation	N1	N1	N1

N1=high level
N2= medium level
N3= low level

Source: Own elaboration-based information DOE, 2022

Considering that the projects to be carried out by the Program will be oriented toward environmental sustainability, it is expected that all the projects, when evaluated for sensitivity, will have a risk classification of N2 (MEDIUM potential impact level) or N3 (LOW possible impact level).

2) Eligibility Criteria

The eligibility criteria in the socio-environmental context that must be applied in the project call stage are:

- The Program will finance the projects located in the defined intervention areas.
- Projects to be financed T-1 and T-2 at levels N2 and N3 of potential socio-environmental impact are eligible.
- No area of Forests or Protected Areas may be deforested with Program funds following the IDB's ESPS. Likewise, the Program will not finance compensation activities.

3) Exclusion criteria

The exclusion criteria determine the ineligibility of projects financed by the Program. They are related to the socio-environmental sensitivity and functionality of the areas to be intervened, the self-recovery capacity of the means to be affected, and the nature of the areas with the special regimes. At the IDB ESPS level, "ineligible projects" are considered projects that generate significant negative environmental impacts and social effects associated with profound implications that affect natural resources. These projects are classified in Category "A."

- **Environmental exclusion criteria**

Table 73 presents the environmental exclusions from project financing, which must be part of the Program's Operating Regulations.

Table 73 Environmental exclusions list

ESPS	Project that applies	Impact	Exclusion measures
ESPS3	All worksets	Change of cover use	Ineligibility of subprojects that change land use from forest use to crops
ESPS3	All worksets	Generation of solid and liquid waste	Ineligibility of subprojects that use hazardous substances are not authorized by national legislation or international conventions and generate pollution without adequate control systems.
ESPS3	All worksets	Increased pressure for water services	Ineligibility of subprojects that require high amounts of water for their operation without considering the user's needs or the sustainability of aquatic ecosystems.
ESPS3	All worksets	Soil and water pollution	Ineligibility of subprojects that affect soil and water resources without a Solid and Liquid Waste Management Plan for their proper management
ESPS3	All worksets	Air pollution	Ineligibility of subprojects that affect atmospheric resources without a Plan for the adequate management and control of emissions.
ESPS6	All worksets	Affectation on fauna and connectivity	Ineligibility of subprojects that affect the connectivity of spaces for fauna.
ESPS6	All worksets	Forest fragmentation	Ineligibility of subprojects that affect forest cover or that include invasive species.
ESPS6	All worksets	Decline or deterioration of aquatic systems	Ineligibility of subprojects that affect aquatic systems.
ESPS8	All worksets	Cultural heritage	Ineligibility of subprojects that affect the sustainability of tangible or intangible cultural heritage
ESPS5	All worksets	Involuntary displacement	Ineligibility of subprojects that cause adverse impacts due to physical displacement, takeovers, or moderate or significant effects on access to housing, farms, or businesses.

Source: Own elaboration 2022

- **Social exclusion criteria**

Projects that have one of the following characteristics will not be financed:

- ☞ Due to race, sex, educational level, age, health status, economic status, religion, and politics, projects carry social exclusion.
- ☞ Projects stimulate invasions of state, municipal, communal, or private lands or encourage land speculation.
- ☞ Projects located on land where there are discrepancies in boundaries between land or on land situated in the Adjacency Area between Guatemala and Belize will not be supported.

- ☞ Those projects that do not consider the participation of vulnerable groups such as indigenous peoples, Afro-descendants, migrants, women, and youth, or those that favor the increase of gender inequality gaps, will be excluded.

- ☞ Projects that include illicit agricultural activities and activities not framed in national regulations will not be supported or financed.

8.5 Environmental and Social Management in the stages of the project

Socio-environmental management is directly related to incorporating environmental, social, and occupational safety aspects in the project cycle. The main elements to be considered for control in the pre-execution and execution phases are described below.

a. Environmental and Social Management in the Pre-Execution

Phase In the pre-execution phase, the PEU will be in charge of developing the preliminary Project and the executive Project. Where the activities of the Project will be established and for this, it must:

- Follow and apply the established subprojects' eligibility criteria to carry out an environmental and social screening.
- Integrate and promote the participation of vulnerable groups of the Belizean population in the design phase.
- Disseminate and implement the disclosure Plan and related information of the Project.
- Integrate and promote the participation of the interested parties in the design of the different actions.
- Implement the Grievance redress mechanism
- Hire external consultants to prepare the environmental studies requested by the DOE and verify compliance with the IDB's ESPS.
- Publish the environmental studies and the significant public consultation reports among the interested parties on the PMU website, which will be submitted for the Bank's No Objection before the bidding process for the works.
- The PEU must prepare the Terms of Reference (ToRs) for contracting the designs, execution, and monitoring of small infrastructure works. The environmental, social, and occupational safety clauses required at the national level and by the IDB must be incorporated.
- In their proposal, the purpose of the contractors include in detail the socio-environmental actions to be carried out and the cost calculation of the environmental, social, safety and occupational health mitigation measures required by the subproject. Within the minimum content of the ToRs, the ESMP must be included at the construction level. In addition, it must consist of an execution schedule and control and monitoring mechanisms.
- The PEU must verify all the documentation before sending it to the IDB for the non-objection to the construction. The PEU must obtain the following supporting documentation:

a. The maps and general information of the projects.
b. The Environmental Impact Study and the Environmental Compliance Program (PCA) according to the regulations required by the DOE. The study must be freely accessible on the Ministries of Agriculture and Tourism websites.
c. Environmental, sanitary, construction, and urban permits for the infrastructure works to be carried out.
d. Stakeholder consultation report.

b. Environmental and Social Management in the construction and closure phases

Environmental and social management in the construction phase includes the following responsibilities:

1. Contractor Responsibilities:

- Prepare and implement the Environmental Management Plan for each subproject, including the environmental, occupational health, and safety measures required by the national regulatory framework and the IDB's environmental and social performance regulations.

- Comply with and enforce the operators and subcontractors with all the provisions in the Socio-environmental Management Plan and national legislation and the IDB's environmental and social performance standards (ESPS) during all stages of the execution of works under their responsibility.

- Prepare monthly reports to the PEU detailing each of the actions and results of the implementation actions of the Environmental and Social Management Plan

- Prepare a Final Environmental and Social Report including information on the implementation of the Environmental and Social Management Plan, including the different records obtained during execution and compliance with the other plans and programs established.

2. Responsibilities of the PEU:

- Implement in this construction phase the communication and information plan of the Project.

- Accompany the contractor in the construction phase to execute the ESMF from the environmental, social, and occupational safety points of view. They seek compliance with national regulations and the IDB's environmental and social performance regulations (ESPS).

- Control and monitor the implementation of the ESMS through the designated professional. With the national environmental authority for control and monitoring activities.

- Carry out inspection, review, and control visits of the contractor's different actions in the environmental and social sphere.

- Carry out inspection, review, and control visits of the contractor's different actions in the environmental and social sphere.

Submit the following information to the IDB:

1. Report on the execution of each proposed infrastructure. Incorporating the results of the environmental measures proposed for each work in the respective Environmental Management Program. Develop and integrate environmental follow-up and monitoring for the operation stage.

2. Prepare a six-monthly report on the follow-up of the Project to the IDB. This report incorporates the progress made during the period, indicating the evolution of the monitoring indicators according to the results framework. It must contain the environmental measures implemented according to the management program of each infrastructure.

3. Responsibilities of the IDB

It will appoint a professional responsible for supervising the development of the subprojects and will verify the good environmental and social performance of each subproject and compliance with the provisions of the ESPS and the pertinent national regulations.

8.6. Environmental and social assessment[103]

The identification and socio-environmental evaluation varies according to each project, so the borrower must consult with the IDB on the process to be used, considering the scope, the participation of the interested parties, and the potential environmental and social problems. The environmental and social assessment shall include and consider participation and consultation with affected people and other interested parties, especially in the early stages of projects, to ensure that all environmental risks and impacts are identified and addressed. As methods and tools used by the Borrower to carry out the environmental and social assessment and document its results, including mitigation measures, the following may be used individually or in combination with some of them:

- **Environmental and social impact assessment:** The environmental and social impact assessment (ESIA) is an instrument used to identify and assess the potential environmental and social risks and impacts of a proposed project, evaluate alternatives and design appropriate mitigation, management, and monitoring measures.

- **Environmental and social audit:** The environmental and social audit is an instrument used to determine the nature and extension of all the environmental and social areas that generate concern in a project. Appropriate measures and actions are identified and

[103] Online: https://documents1.worldbank.org/curated/en/762551548346041687/ESFGuidance-Note-1-Assessment-and-Management-of-Environmental-and-Social-Risks-and-Impacts-Spanish.pdf [July 27, 2022]

justified in the audit to mitigate areas of concern, such measures and actions are costed and a timeline for their implementation is recommended.

- **Risk or threat assessment:** Risk or threat assessment is a tool used to identify, analyze, and control threats associated with the presence of hazardous materials and conditions on a project site. The Bank requires a risk or threat assessment for projects involving the use of certain flammable, explosive, reactive, and toxic materials when present in quantities above a specified threshold.

- **Cumulative Impact Assessment:** Cumulative impact assessment is a tool used to consider the cumulative impacts of the project combined with the impacts of other past, present, and reasonably foreseeable events, as well as those of unplanned but predictable activities that are made possible by the project and could occur later. late or at a different location.

- **Social and conflict analysis:** Social and conflict analysis is a tool that assesses the degree to which the project could: a) exacerbate existing tensions and inequality in society (both within communities affected by the project and between these communities and others); b) have a negative effect on stability and human security; c) be negatively affected by existing tensions, conflicts and instability, in particular in circumstances of war, insurrection and civil unrest.

- **Environmental and Social Management Plan:** The Environmental and Social Management Plan (ESMP) is an instrument that details: a) the measures that will be taken during the execution and operation of a project to eliminate or counteract adverse environmental and social impacts or to reduce them to acceptable levels, and b) the actions necessary to implement these measures.

- **Environmental and Social Management Framework:** The Environmental and Social Management Framework (ESMF) is an instrument that examines the risks and impacts when a project is made up of a program or a series of subprojects and those risks and impacts cannot be determined until the details of the program or the subproject.

- **Regional environmental and social impact assessment:** A regional environmental and social impact assessment examines the environmental and social risks, impacts, and issues associated with a particular strategy, policy, plan, program, or series of projects for a specific region.

- **Strategic environmental and social assessment:** Strategic environmental and social assessment (SESA) is a systematic examination of the environmental and social risks and impacts and issues associated with a policy, plan or program, usually at the national level but also in smaller areas. Examination of these risks and impacts will include consideration of all environmental and social risks and impacts incorporated in ESPS 1 through 10.

8.7. Environmental and Social Management Plan

a. Objectives

The Environmental and Social Management Plan aims to guarantee the planned implementation of prevention and mitigation measures to minimize adverse environmental and social effects, as well as to enhance the positive environmental and social impact associated with the development of each of the Program projects under compliance with the socio-environmental requirements of the IDB's ESPS.

b. Scop of application

All projects approved under component I of the program will require an environmental and social management plan for their implementation. At a general level, the ESMP will include the description of the adverse impacts as well as the selected mitigation measures, those responsible for execution and the deadlines to implement these measures.

c. Structure

Table 74 shows the general structure of the plans.

Table 74. Structure of plans

Environmental and Social Management Plan				
Name of the Plan				
Phase	Planning	Execution	Operation	Closure
Responsibles	Implementation			
	Supervision			
Objectives				
Environmental Impacts				
Mitigation Measures	M1.			
	M2.			
	M3….			
Cost/resources				
Time /Duration				
Success Indicators				

d. Management Plans

The plans to be included in the Socio-environmental Management Plan will depend on the results of the SESA, the impacts to be managed and the selected measures. Some of the relevant management plans to include would be:

1. Social Management Plan

a. General objective

The Social Management Plan aims to inform the community promptly and precisely about the different activities, impacts, risks, and socio-environmental mitigation measures of the Program and its projects during the planning, execution, operation, and closure stages. The plan should be designed with the participation of: MAFSE and the Ministry of Tourism in coordination with other institutions linked to the Program.

b. Specific objectives

The formulation and implementation of the Social Management Plan have the following objectives:

- Provide clear and timely information to the community and other stakeholders about the Program and its projects throughout its activities.
- Manage possible conflicts of interest due to false expectations and speculation about the construction works and other activities related to the Program.
- Coordinate actions aimed at making viable the execution of the activities of the environmental and social management programs of the Program.

c. Programs

The Social Management Plan programs will depend to a large extent on the impacts identified in the SESA as well as on the proposed social measures. At a general level, the following are presented as programs to be incorporated:

P1. Information Program

This Program aims to develop communication strategies that allow reporting on the activities, impacts, risks, and measures of the project's Socio-environmental Management Plan. As specific actions in this Program will be developed:

- Establish a formal and documented communication procedure that facilitates communication between the stakeholders, the PEU, the MAFSE, and the Ministry of Tourism.
- Hold meetings with representatives of the villages or districts where the project will be carried out to coordinate actions and receive information about queries and suggestions from neighbors.
- Coordinate actions between the Program and the corresponding entities when it is necessary to carry out interventions that obstruct roads or public places. These interventions correspond to movement transport of materials or debris that may affect the normal functioning of the communities.

P2. Program to strengthen the participation of vulnerable groups

The purpose of this Program is to generate actions that allow the participation of vulnerable groups in the different activities of the projects. This program is working with indigenous people, afrodescendents, migrants, women and youth.

2. Communication plan

a. General objective

The communication plan aims to implement internal and external communication tools of the Program throughout the project to maximize the channels of interaction between the stakeholders and the executing agency of the project.

b. Specific objectives

Specific objectives include:

- Implement External and Internal Communication tools.
- Promote clear, direct, and continuous communication of the project.
- Establish tools that encourage the participation of the beneficiaries of the projects considering the socio-cultural needs of the populations.
- Communicate to stakeholders the progress of the different actions of the Programmer.
- Define the channels that favor transparency and feedback

c. Programs

P1. Online activities

The purpose of this Program is to establish online communications where the different aspects of the Program are evidenced at the level of the actions in the planning, execution, operation, and closing stages. As tools of this Program are: External communications of the different activities of the Program through the MAFSE website, Videos, webinars, photographs, and interviews, among others.

P2. Offline activities

This Program aims to reach stakeholders who do not have access to virtual media to communicate the different aspects of the Program from its stage of planning, execution, operation, and closing. Some tools are Exhibitions on the Program in public and private events, Presentations in the different districts, brochures design, and informative material on the Program's projects.

P3. Social Media

This Program aims to incorporate information from the Program into the different social networks to have communication spaces with virtual feedback. You have Twitter, Facebook, Instagram, and YouTube as social networks.

P4. Grievance and Grievance Mechanism

The purpose of the complaints and grievances mechanism is to receive and manage complaints, claims, and suggestions following the socio-cultural characteristics of the stakeholder groups. This Mechanism should have an efficient tool for collecting, following up, and verifying complaints and claims.

The process will be documented through i) a record of complaints (in a physical file and a database); ii) the filing of the complaint (verbally or in writing) by the complainant; iii) the record of receipt of the complaint; iv) the written response to the attention and response to the complaint, and v) a closing record that records the resolution of both parties.

The Mechanism will have the following guidelines:

- Proportionality will depend on the level of risk and the possible negative impacts of the project.
- Culturally appropriate, considering the socio-cultural context where the project is located.
- Accessible so that clearly and simply, it is understandable for all people.
- Anonymous: The complainant may remain anonymous
- Confidential: The project will respect the confidentiality of the complaint.
- Transparent: The process and operation of the Mechanism is transparent, predictable, and readily available for use by the population.

The MAFSE will implement the Mechanism for complaints and claims will be implemented in two lines of action:

Line 1: Reception of complaints, claims, and suggestions from stakeholders.

Line 2: Reception of complaints, claims, and suggestions from the workers of the Program. In this case, it is essential to take into account the following:

- ☞ The grievance mechanism should be designed to receive, record, investigate and manage workplace-level incidents and incidents of sexual and gender-based violence.

- ☞ Workers should be informed of the progress of any complaints filed under the grievance mechanism and the steps taken to address their concerns.

- ☞ The deadlines specified to address these concerns should be as expeditious as possible.

- ☞ Workers should be able to make claims anonymously and without fear of retaliation or any other form of disadvantage arising from filing a claim.

Some other important programs for the Environmental and Social Management Plan are:

- **Waste Management Plan (WMP)**

This plan incorporates the relevant aspects for the management of waste or hazardous and non-hazardous materials generated by the construction activities of infrastructure works. Likewise, this plan aims to mitigate potential impacts and better guide aspects related to waste management.

- **Pollution Management Plan (PMP)**

This plan seeks to mitigate the impacts related to effects on water and air in projects that have infrastructure construction or agricultural development.

- **Integrated Pest Management Plan (IPM)**

Although the Program is aimed at implementing Climate-Smart Agriculture (CSA) and substituting chemically synthesized fertilizers and pesticides for bio-inputs, it is necessary to guarantee that the projects' agricultural operations integrate the “Integrated Pest Management” (IPM). Likewise, the projects must consider the environmental, health, and safety guidelines for annual and perennial crops established by the World Bank.

- **Soil and erosion control Plan**

This Plan seeks to prevent the deterioration of the soil resource and guarantee the safety of workers and the environment. Its application occurs when stripping, excavation, filling, transportation, and final disposal of excavated materials are carried out in projects with infrastructure development.

- **Biodiversity Management Plan (BMP)**

The purpose of the Biodiversity Action Plan is to minimize any negative impact that may can cause in animals’ activities inherent to the work and avoid possible accidents that can put in endanger the life of wildlife. Likewise, it seeks to channel environmental management decisions towards the preservation and sustainable use of biodiversity and ecosystem services.

- **Community Health and Safety Plan**

This plan seeks to assess and manage the specific risks and impacts for the community or the workers derived from the Project's activities. Likewise, it seeks to establish and maintain the safe site for the community, the response to emergencies and the procedures to document such activities. The objectives of the plan will be in accordance with the IDB's ESPS 2 and good international industry practices such as the World Bank Group's environmental, health and safety guidelines.

- **Emergency Preparedness and Response Plan**

The purpose of the Emergency Preparedness and Response Plan is to respond to contingent events that may arise during the construction of the Project. This plan establishes preventive actions and cares for workers and communities to be prepared to respond to emergencies, thus ensuring the protection of human lives, natural resources, goods, and infrastructure that may be affected.

8.8. Organizational, Capacity and Competency

The Ministry of Agriculture, Food Security and Entrepreneurship, and the Ministry of Tourism and Relations with the Diaspora, must coordinate inter-institutional actions to manage and lead the implementation of this SGAS. Both ministries have Departments that are the areas of contact with the Program and must develop their daily operations, with the addition of temporary and unique tasks that will require a more significant effort during the project's development. With these Departments with which you will have contact, you must have the support of their structure, experience, and resources installed for the Program's benefit.

- **The Ministry of Agriculture, Food Security, and Entrepreneurship (MAFSE)**

This Ministry has a hierarchical organizational structure, with defined functions and responsibilities. It is headed by the minister and followed in order of functional hierarchy by two Departments, one of Agriculture and the other Cooperative.

The Department of Agriculture is managed by a chief and six program directors, with fourteen collaborators. A Registrar directs the Cooperative Department with the help of an assistant collaborator. The Department of Agriculture comprises three executing units, the Public/Private Sector Interface Unit, led by a director and three officers; the Evaluation and Monitoring Unit, led by a director and two collaborators; and the Project Execution Unit, directed by a director and three collaborators.

These Departments and Units have implemented their capacities to develop permanent and systematized operations with the use of their resources and quality criteria. With the development and implementation of the ESMS, the Ministry will advance in the development of its organizational structure and culture.

Likewise, the processes and information systems of the Ministry will require maturity and standardization for the planning, execution, monitoring and control of the ESMS. These permanent capacities must be developed and implemented.
The Ministry has developed dynamic capabilities, such as experience and performance with other projects, leaving a maturity and learning path in its management.

- **The Ministry of Tourism and Relations with the Diaspora,**

The Ministry of Tourism has a hierarchical organizational structure, headed by the minister. The ministry has a Tourism Technical Unit led by a Director of Tourism officer, two Tourism Officers, a Business Development, and Investment Officer, and two Tourism Investment Officers.

It has two statutory boards under its mandate: the Belize National Tourism Board, which is responsible for licensing, revenue collection, marketing, destination planning, and quality assurance of local tourism industries.

The Border Management Agency, responsible for the management and administration of the facilities and operations of Belize's border points, including maintenance, security, emergency services, and facility improvements.

The Technical Unit of Tourism has implemented its capacities to develop permanent and systematized operations using its resources and criteria of the quality management system with ISO 9001 of 2015 regulations. The development of the Programs will require additional and new efforts. Which will allow the Ministry to increase its structural development and organizational culture

a. Creation of a Program Executing Unit (PEU)

Bearing in mind that both the MAFSE and the Ministry of Tourism will have to answer to the IDB for the execution of the program and that the collaborators of both entities have already assigned resources and roles to their competencies, it is necessary to create an Execution Unit of the Program (PEU).

The Executing Unit of the Program will have shared responsibility in socio-environmental terms with the MAFSE and the Ministry of Tourism. This is how it is of vital importance to highlight the need for adequate supervision and compliance with the ESPS, the current environmental regulations, and the rules for the implementation of the environmental measures described in the MGAS.

b. Staff of the Socio-environmental management group for the entire project cycle

The PEU must consider at least the following professionals:

• **One (1) Socio-environmental Coordinator** who is a professional with more than five years of experience in socio-environmental management of projects. This coordinator can be part of the MAFSE or the Ministry of Tourism and will coordinate the support team.

• **One (1) Professional in environmental sciences**, who must have a profile of more than three years of experience in socio-environmental management. This professional will support the socio-environmental coordination for the implementation of the subprojects and will be hired full-time for the duration of the program.

• **One (1) Professional in Social Sciences** (sociology or social work) with a minimum of three (3) years of experience in socio-environmental work. This professional will provide support in the participatory processes required for the implementation of socio-environmental measures and will be hired full-time for the duration of the Program.

• **One (1) Professional in Civil Engineering** with a minimum of three (3) years of experience in the execution of small-scale infrastructure works to carry out the tasks of design, supervision, and monitoring of the measures related to the performance of infrastructure works. This professional can be hired part-time during the implementation of the construction stage.

c. Functions of the socio-environmental team required for the project

☞ Socio-environmental Coordinator

- Direct and implement compliance with the environmental measures contemplated in each of the programs of this Socio-environmental Management Plan.
- Coordinate the meetings and attend the environmental committees scheduled by the PEU.
- Coordinate the implementation of the socio-environmental actions required during the different stages of the projects.
- Approve the timely response (within no more than 5 days) to complaints of a socio-environmental nature presented by the community or the competent entities.
- Keep the PEU informed of all the socio-environmental management activities that will be carried out in the different projects to guarantee compliance with the environmental obligations contained in the Environmental Management Plan.
- Design and implement preventive measures regarding possible socio-environmental incidents and/or accidents not contemplated in the action plans and that can be present in the course of the project phases.

☞ Professional in environmental sciences

- Support the Coordinator in the environmental aspects of the different projects.
- Support the implementation of the Action Plans in the environmental components.
- Compilation and organization of all the necessary information to present the Reports requested by the IDB, the DOE and other national entities that require environmental information.
- Carry out the necessary visits to the projects to implement and monitor the environmental actions in the different stages of the project cycle.
- Inform the coordination about potential risks that have not been included in the Management Plan and that require attention.
- Monitor each of the environmental activities carried out in each project in coordination with the social professional and the engineering professional.
- Receive, classify, and respond to the different notifications of the Complaints and Claims System in coordination with the social professional. All responses must be reviewed by the Socio-environmental Coordinator before being sent to the applicants.

☞ Professional in Social sciences

- Support the PEU in the planning and execution of social actions aimed at the social sustainability of projects during the planning, execution, operation, and closure stages.
- Receive, classify, and respond to the different notifications of the Complaints and Claims System in coordination with the environmental professional and close them in the terms provided in the PMA. All answers must be reviewed by the Socio-environmental Coordinator before being sent to the applicants.
- Socialize the actions that require the implementation of work activities that alter the daily life of the communities in the area of influence of the project.

- Prepare the social reports required for the IDB, the DOE or any other institution that requires them.
- Coordinate with the environmental professional the programming of detailed activities according to the different projects in order to carry out the social management required for each project.
- Prepare and implement preventive measures regarding possible social incidents not contemplated in the Socio-environmental Action Plans and that may occur in the
- course of the project cycle.
- Carry out verification visits to complaints and claims in the company of the required technical personnel.
- Develop and permanently update the databases of the different social actors at the level of people in the community, MSEMs, associations, groups and institutions in the project's Area of Direct Influence.

☞ **Professional in Civil Engineering**

- Support the PEU in the planning and execution of project engineering actions during the planning, execution, operation, and closure stages.
- Implement and develop the mitigation measures of the Environmental Management Plan for all projects that require infrastructure works.
- Review and verify construction permit, designs, structural measurements, technical specifications, siting forms, building schedule and personnel who will carry out the infrastructure works.
- Prepare and implement preventive measures regarding possible risk of work incidents not contemplated in the Socio-environmental Action Plans and that may occur in the course of the project cycle.
- Prepare the engineering reports required for the IDB, the DOE or any other institution that requires them.
- Enforce the requirements demanded by Central Building Authority of Belize.
- Carry out the monitoring and follow-up of each of infrastructure construction according to the project cycle

d. Budgeting and resources

Table 75 presents the summary of the estimated costs for the implementation of the mitigation measures identified in the ESMF.

Table 75. Estimated budget socio-environmental measures

PROGRAM	ID	MEASUREMENT	Cost (US$)
1. TOTAL COST MEDIDIAS SOCIO-ENVIRONMENTAL			
Soil management and conservation	M1	Management and protection of erosive processes.	18,460
	M2	Handling of leftover earthmoving material	18,460
Micro-watershed management	M3	Training and awareness in water resources management	27,689
	M4	Pilot plan for the management of Micro-watersheds.	39,060
	M5	Protection of recharge zones and springs	27,689
	M6	Training in substitution of fertilizers and pesticides by bioinputs-mip	22,915
Protection of forests and biodiversity	M7	Awareness in protection and conservation of strategic ecosystems	15,277
	M8	Environmental education and resilience to climate change	18,460
Good environmental practices	M9	Pollution control of polluting liquid substances	52,302
	M10	Management of emissions, noise and atmospheric effects.	21,642
	M11	Solid waste management	52,302
Strengthening for the participation of vulnerable groups	M12	Strategy for linking vulnerable groups	21,218
	M13	Dialogue of knowledge	10,185
	M14	A level playing field protocol	618
	M15	Indigenous Peoples' Plan*	
	M16	Gender and Diversity Action Plan*	
Environment and Tourism	M17	Raising awareness for good sustainable tourism practices	24,613
	M18	Participatory management of sustainable tourism	24,613
Health and environment	M19	Handling of accidents and occupational hazards.	52,302
SUB TOTAL COST SOCIO-ENVIRONMENTAL MEASURES			447,806
2. TECHNICAL PERSONAL COST FOR PEU			
Description	Pcs	Quantity	Monthly value	Total cost
Environmental Specialist	my	60	1800	108,000
Social Specialist	my	60	1200	72,000
SUBTOTAL COST PEROSNAL TECHNICAL				180,000
ESTIMATED TOTAL COST				**627,806**

* The costs are developed in each of the specific studies

8.8. Preparing for and responding to emergencies

The preparation and responses to emergencies that could arise in the development of the Project, the SGAS establishes the procedures for coordination, alert, mobilization, and response to the occurrence of a particular event having defined scenarios planned for your attention. The SGAS, according to the risk and impact assessment, analyzed, establishes a process that lists the tasks to be carried out according to the evaluation and prioritization of the emergency scenarios that are most likely to occur in the areas of influence of the Project. In accordance with ESPS 2 (Work and working conditions) and ESPS4 (Community Health and Safety).

a. Emergency contingency plan

Contingency Plan are intended to respond to emergency scenarios through actions applied to prevent, control, protect and evacuate people who are in the place where the emergency is generated. These plans include access plans, signage of evacuation routes, external safe areas, equipment, as well as evacuation procedures, drills, records, and their evaluation.

b. Objectives

Contingency plan as a response to defined emergencies seek to:

- Prevent according to the mapping of emergency scenarios defined according to the study of risks and impacts.
- Prepare a specific Contingency Action Plan according to the established scenarios.
- Act in accordance with the established contingency plan.
- Control the events that occur in the emergency before, during and after in a responsible manner and with the knowledge acquired by the simulations and previous evaluations.
- Protect human life, the community and the environment in the face of emergencies that occur.

c. Mapping of emergency scenarios

In the development of the Project, according to the risk and impact assessment study, two types of claims could occur:

1. Accidental is a situation whose origin is fortuitous, unplanned, and caused by a particular event.

2. Intentional: a situation whose origin is intentionally caused or planned by an event resulting from an action.

When mapping the possible emergency scenarios that could occur in the development of the Project, they are presented in Table 76, which is shown below:

Table 76 Mapping of potential Project emergencies

Emergency Mapping	Environmental Performance Standard (ESPS)		Source	
	Number	Designation	Accidental or Natural	Intentional
AFFECTATION	2	Safety at work and working conditions.	Occupational eventualities	Crop theft
			Collapse of structures	Fires
			Chemical spill	Chemical discharge
	4	Community Health and Safety.	Floods	Pandemic
			Earthquakes	Fires
			Sstorms	Civil unrest
			Typhoons	Disproportionate migratory increase

Table 77 presents the emergency scale according to the probability and severity of the risk.

Table 77 Likelihood and severity of the emergency

		PROBABILITY		
		Hight	Medium	Low
SEVERITY	Hight	Critical level risk	Medium Critical risk	Low Critical Risk
	Medium	Medium-high risk	Medium level risk	Low Medium Risk
	Low	High basic level risk	Medium basic level risk	Low Basic Level Risk

According to the previously established scenarios, the Emergency Contingency Action Plans are PC1. Occupational events; PC2. The collapse of structures; PC3. Spill or discharge of Products and Chemical Substances; PC4. Crop Theft; PC5. Fires; PC6. Floods; PC7. Natural Accidents (Earthquakes, Storms, Typhoons); PC8. Pandemic; PC9. Civil commotion; PC10. Disproportionate Migratory Increase.

8.9. Participation of Stakeholders and mechanism for dressing claims and complaints

a. Participation of Stakeholders Plan

The stakeholder engagement process is guided by the IDB's ESPS10, where "Stakeholder engagement provides a vehicle to contribute for the environmental and social assessment of the project, the process of identifying risks and impacts, the design of the project, including the design of environmental and social mitigation measures, and the ongoing management of the project." [104]. The Stakeholders Engagement Plan is presented in Annex 1, which includes: i) Introduction; ii) Objectives; iii) Stage 1: Stakeholders identification; iv) Stage 2: Participation Strategy; v) Stage 3: Public Consultation

[104] Guide to Environmental and Social Performance Standard 10: Stakeholder Engagement and Information Disclosure, September 2021, online https://idbdocs.iadb.org/, retrieved [June 1, 2022]

b. Mechanism for dressing claims and complaints

At the level of the Constitution of Belize in Chapter 118, it is established that: "a complaint under this Act about nuisance may be filed by any person aggrieved by the nuisance or, if the nuisance affects the convenience or safety of the public, or is harmful to the health of any person, by the City, Municipality or Municipal Council of the region in which the building, place or road is located." However, the Sustainable and Inclusive Belize Program must have for its implementation with a grievance mechanism at the operational level of the Program. In this regard, the IDB under ESPS10 requires the Borrower to promptly respond to questions, concerns, and complaints from affected stakeholders about the project's environmental and social performance under the implementation of a grievance procedure mechanism to receive and facilitate the resolution of concerns and grievances. The Program's operational-level grievance mechanism provides a means to address and resolve requests for information, questions, comments, concerns, and suggestions for project improvements as early and expeditiously as possible[105].

1. Key concepts

Below are three critical concepts in the complaint and grievance mechanism:

- ***Request*:** it is the verbal or written communication that aims to ask, pretend or look for something such as:
    a. Request for collaboration when the social actors see a possibility to solve problems or get help in the project.
    b. Request for information when petitioners wish to access some project information.
    c. Request for clarification when social actors seek the attention of the project to a specific situation.
- ***Complaint*:** it is the note or notice by which a situation affecting a person or group is highlighted and is requested that it be solved.
- ***Claim*:** These include communications directly related to the rights that a person or group believes they have and from which they believe they do not obtain the attention or benefit that corresponds to them; or else the quality of what he receives is inferior to what he thinks is his due

2. General objective

The mechanism of attention and management of complaints and claims aims to timely and adequately address the requests, complaints, and claims that are generated as a result of the implementation of the different projects of the Program through an accessible communication system and a reliable and efficient internal management process.

[105] Guidelines for Environmental and Social Performance Standard 10: Stakeholders engagement and information disclosure, Sept 2021, online: https://idbdocs.iadb.org/, recuperate [July 3 of 2022]

3. Specific objectives

The specific objectives of the complaints and claims system include:

- Facilitate the attention of requests, complaints, and claims in a timely and efficient manner by implementing efficient administrative care systems that respond satisfactorily to the problem raised reasonably.
- Raise requests to complaints and claims by the affected and interested population through agile tools.
- Prevent complaints and claims from reaching judicial instances through the prompt response in case of information and the immediate investigation in case of requiring greater detail for their resolution.
- Have an application and a database that facilitates records and allows monitoring of the internal management carried out from the presentation of requests, complaints, and claims.
- Monitor the system of care to implement corrective actions when applicable.

4. Implementation process

The implementation of the complaints and claims mechanism begins with the design of the system, for which it is necessary to consider the following phases (Figure 20):

Figure 20. General procedure for dealing with complaints and claims

Source: Own elaboration, 2022

☞ **Phase 1: Reception of the request**

Considering that the Program has national coverage, the reception of complaints, suggestions, and claims must be implemented at two levels:

1. Reception at the Virtual Level: In this case, the MAFSE must take the necessary actions to have a virtual link on its official website, where anyone can present their complaints, suggestions, or claims about the Program, leaving some essential data for a timely response. This virtual link must be linked to a database that can be accessed by a professional in charge of this topic and who is part of the Program Execution Unit (PEU).

2. Reception at the physical level: In this case, the Borrower must have mailboxes with the name of the Program in both the central facilities and the district facilities of MAFSE. In these mailboxes, he must have ballots and pens so that people can write complaints, suggestions, or claims about the Program. These people will deposit these ballots in each mailbox, and a MAFSE collaborator will collect them. Once these tickets are collected, the same MAFSE collaborator will digitize them and send them virtually through the Borrower's official website link.

The virtual reception and the physical reception of ballots, which with the help of a MAFSE collaborator makes it virtual, will allow for a **"single data entry window,"** which will facilitate the monitoring of the different requests.

☞ **Phase 2: Classification**

The professional in charge of this issue by the PEU must classify the ballots by considering:

1. Determine if it is a complaint, request, or suggestion.
2. Prepare a clear and culturally appropriate response according to the applicant.

☞ **Phase 3: Response to request**

The professional in charge of the PEU will attend to the different requests and issue a response as appropriate. It is important to note that anyone who uses this service deserves respect and expects prompt attention to their request. They are estimated as general response times:

- Information Immediate Response
- Complaint 1 to 3 weeks depending on investigation needed
- Claim 1 to 3 months

4.5. The Independent Consultation and Investigation Mechanism (MICI)[106]

In addition to the project-level grievance redress mechanism, project-affected people and communities can access the IDB's grievance mechanism. The Independent Consultation and Investigation Mechanism (MICI), which has been set up independently of IDB operations and management and which reports directly to the IDB's Executive Board, will consider grievances from individuals and communities affected by projects financed by the IDB Group. MICI manages two mechanisms through which it assesses claims made by claimants: (i) The Consultation Phase, which is a voluntary and flexible space for dispute resolution, under the impartial mediation of the MICI. Through this mechanism, the claimant(s), the Borrower and/ or the executing agency and the IDB have an opportunity to resolve their differences and reach an agreement that resolves the complaint; (ii) The Compliance Verification Phase, which consists of an investigation of facts by MICI to determine whether the IDB met its obligations with regards to the requirements of its Environmental and Social Policy Framework (ESPF).

[106] Guidelines for Environmental and Social Performance Standard 10: Stakeholders engagement and information disclosure, Sept 2021, online: https://idbdocs.iadb.org/, recuperate [July 12 of 2022]

8.10. Monitoring and follow-up Plan

The follow-up and monitoring seek to analyze the progress, efficiency, and effectiveness of the projects managed by the ESMS. Its implementation must be adjusted to each project considering its context and the different conditions of its development.

a. Objective

The objective of the Monitoring and Follow-up Plan is to carry out an integrated and permanent periodic evaluation of environmental variables to provide for the taking of those related to environmental management during the stages of execution and operation of the different projects that make up the Program.

b. Indicators

The collection of information will vary according to the indicators adopted based on the need for accuracy and the availability of resources to carry out the monitoring activities. The frequency of measurement will be determined by the period in which variations can be appreciated, the availability of information sources, and the validation of the collection method. To generate a systematic evaluation and follow-up of the proposed environmental and social advances, Table 78 presents the socio-environmental indicators according to the proposed measures.

c. Environmental management reports

For compliance with environmental management, PEU professionals will prepare monthly reports with updated information on the environmental performance of project actions. Management reports should generally contain at least:

- Summary of construction work performed in the month
- Evolution of environmental management indicators
- Control sheet of the planned actions
- Contingencies occurred in the month
- Training provided
- Identification of unforeseen environmental difficulties or problems
- Corrective measures are applied, and preventive measures are to be used.
- Registration of meetings, workshops, or meetings with neighbors
- Reports associated with monitoring

At the end of the execution stage, the project implementers must submit a final environmental report, signed by the Environmental Manager of the PEU, where they make a synthesis of the monthly reports and an evaluation of the project's environmental management. This report shall include at least:

- Compliance with mitigation and environmental management measures.
- Identification and resolution of unforeseen environmental difficulties or problems
- Complaints received corresponding to the environmental area
- Communications made to neighbors and institutions
- Monthly evolution of all environmental management indicators
- Results of the Grievance Redress Mechanism for complaints and claims

Table 78. socio-environmental indicators

MEASUREMENT					
Designation	**Indicator name**	**Data**	**Formula**	**Measure**	**Dimension**
PROGRAM 1: SOIL MANAGEMENT AND CONSERVATION					
IND1P1M1	% People trained in erosion prevention	Npc = people trained in the prevention of soil erosion Ntp = total number of people to be trained according to goal.	(∑ Npc * 100) / ∑ Ntp	Percentage	Compliance
IND2P1M1	% Districts with erosion prevention training	Ndc = Districts where training in soil erosion prevention has been conducted Ndt = Total Districts	(∑ Ndc * 100) / ∑ Ndt	Percentage	Compliance
IND1P1M2	% People trained in the management of unnecessary material due to earthmoving.	Pca = people trained in the management of unnecessary material due to earthmoving Ptg = total number of people to be trained according to goal	(∑ Pca * 100) / ∑ Ptg	Percentage	Compliance
IND2P1M2	% Districts with training campaigns	Ddc = Districts where training campaigns have been conducted Ddt = Total Districts	(∑ Ddc * 100) / ∑ Ddt	Percentage	Compliance
PROGRAM 2: MANAGEMENT OF MICRO-BASINS					
IND1P2M3	% People trained and sensitized in the management of water resources	Arc = people trained and sensitized in the management of water resources Atp = total number of people to be trained and sensitized in the management of water resources according to goal	(∑ Arc * 100) / ∑ Atp	Percentage	Compliance
IND2P2M3	% Districts with training and awareness campaigns in water resources management.	Adc = Districts where training and awareness has been carried out in water resources management Adt = Total Districts to train and raise awareness in water resources management.	(∑ Adc * 100) / ∑ Adt	Percentage	Compliance
IND1P2M4	% Progress of the Pilot Plan for the management of the micro-watershed.	Ude = last data of actions executed of the pilot plan of management of hydrographic basins. Atg = total number of actions to be carried out in the pilot watershed management plan.	(∑ Ude * 100) / ∑ Atg	Percentage	Flow Compliance
IND2P2M4	% People participating in the implementation of the pilot plan.	Wpt = number of workshop participants Wtg = total number of people to participate in the target workshop	(∑ Wpt * 100) / ∑ Wtg	Percentage	Compliance

IND1P2M5	% People trained in the care and protection of water recharge areas	Rzc = people trained in care and protection of water recharge areas Rzt = total number of people to be trained in the care and protection of water recharge zones according to goal	(∑ Rzc * 100) / ∑ Rzt	Percentage	Compliance
IND2P2M5	% Progress of actions for the care of water recharge zones	Uda = last data of actions carried out to protect water recharge zones Atg = total number of actions to be carried out to protect water recharge zones	(∑ Uda * 100) / ∑ Atg	Percentage	Flow Compliance
IND1P2M6	% Farms with use of polluting substances	Fca = number of farms applying polluting substances Ftc = total number of farms in the project	(∑ Fca * 100) / ∑ Ftc	Percentage	Compliance
IND2P2M6	% People trained in the control and management of pesticides and fertilizers	Cap = number of people trained in the control and management of pesticides and fertilizers. Cat = total number of people targeted for training	(∑ Head * 100) / ∑ Cat	Percentage	Compliance
PROGRAM 3: PROTECTION OF FORESTS AND BIOVIDERSITY					
IND1P3M7	% Producers with fenced areas	Adc = number of producers with fenced areas. Am = total number of target producers of areas to be fenced.	(∑ Adc * 100) / ∑ Acg	Percentage	Compliance
IND1P3M8	% Participants in climate change adaptation education	Ecp = number of participants in climate change adaptation teaching. Ecg = total number of participants in climate change adaptation teaching according to goal.	(∑ Ecp * 100) / ∑ Ecg	Percentage	Compliance
IND2P3M8	% Productive Units with climate change adaptation measures.	Ucc = number of productive units with climate change adaptation measures. Ucg = total number of productive units with climate change adaptation measures according to goal.	(∑ Ucc * 100) / ∑ Ucg	Percentage	Compliance
PROGRAM 4: GOOD ENVIRONMENTAL PRACTICES					
IND1P6M16	% Production units reviewed with their wastewater control plan	Src = number of production units reviewed with wastewater control plan. Srg = total number of production units to review wastewater control plan according to goal.	(∑ Src * 100) / ∑ Srg	Percentage	Compliance

IND1P6M17	% People who attended the talks on noise management and air emissions.	Ai = number of people who attended the talks on noise management and air emissions. Ag = total number of people invited to the noise management and air emissions talks according to goal.	(∑ Si * 100) / ∑ Sg	Percentage	Compliance
IND2P6M17	% Productive Units with noise management and air emissions.	Ei = number of production units with noise management and air emissions. Eg = total number of target production units.	(∑ His * 100) / ∑ Eg	Percentage	Compliance
IND1P6M18	% People who attended the awareness plan on solid waste management.	Ssi = number of people attending the Solid Waste Management Awareness Plan. Ssg = total number of people invited to the Solid Waste Management Awareness Plan.	(∑ Ssi * 100) / ∑ Ssg	Percentage	Compliance
IND2P6M18	% Productive Units with awareness of solid waste management.	Usi = number of production units with awareness of solid waste management. Usg = total number of production units for awareness of solid waste management according to goal.	(∑ Usi * 100) / ∑ Usg	Percentage	Compliance
PROGRAM 5: SOCIAL MANAGEMENT					
IND1P4M9	% Actions taken to link vulnerable groups	Vpa = last action taken of the strategy for linking vulnerable groups. Vpg= total number of actions to be carried out in the strategy of linking vulnerable groups.	(∑ Vpa * 100) / ∑ Vpg	Percentage	Flow Compliance
IND1P4M10	% Participation in dialogues of knowledge.	Dkp = number of people who participated in the knowledge dialogue. Dkg = total number of people invited to the dialogue of knowledge according to goal.	(∑ Dkp * 100) / ∑ Dkg	Percentage	Compliance
IND2P4M10	% Actions of the agreements to be implemented of the dialogue of knowledge.	Pka = number of actions performed in the knowledge agreement. Pkg = total number of actions established by the knowledge agreement.	(∑ Pka * 100) / ∑ Pkg	Percentage	Flow Compliance
IND1P4M11	% Actions carried out under the Equal Working Conditions Protocol.	Arp = Number of actions carried out under the Equal Working Conditions Protocol. ATP = total number of actions of the equal working conditions protocol.	(∑ Arp * 100) / ∑ Atp	Percentage	Flow Compliance

IND2P4M11	Migrants hired by district	Mcd = total number of migrants hired	∑ Mcd	Number	Compliance
PROGRAM 6: ENVIRONMENT AND TOURISM					
IND1P5M14	% People who participated in the sustainable tourism occupancy workshop.	Pop = number of participants in the sustainable tourism occupancy management workshop. Ptg = total number of invited participants.	(∑ Pop * 100) / ∑ Ptg	Percentage	Compliance
IND1P5M15	% People who participated in the sustainable tourism management workshop.	Ptp = number of participants in the sustainable tourism management workshop. Ptg = total number of invited participants.	(∑ Ptp * 100) / ∑ Ptg	Percentage	Compliance
IND2P5M15	% Actions implemented for the management of sustainable tourism.	Utb = number of actions implemented for sustainable tourism management. Utg = total number of actions to be implemented for sustainable tourism management.	(∑ Utb * 100) / utg ∑ ∑	Percentage	Flow Compliance
PROGRAM 7: HEALTH AND ENVIRONMENT					
IND1P7M19	% People trained in industrial safety and occupational hazards.	Li = number of people attending training in industrial safety and occupational hazards. Lg = total number of people invited to train in industrial safety and occupational hazards.	(∑ Li * 100) / ∑ Lg	Percentage	Compliance
IND2P7M19	% People trained in handling equipment and machinery.	Cei = number of people who attended the training on the handling of equipment and machinery. Ceg = total number of people invited to the training on the handling of equipment and machinery.	(∑ Quay * 100) / ∑ Ceg	Percentage	Compliance

Annexes

9.0 Annex 1: Stakeholders Engagement Plan

Works cited

Adaptation Fund, 2021. Enhancing the Resilience of Belize's Coastal Communities to Climate Change Impacts

AECA,2020. La resolución de conflictos territoriales. El caso del Proceso de Conciliación Belice-Guatemala (2000-2020)

Beardall, Antonio. 2021. Public Archaeology and cultural heritage management in Belize. Arizona University.

BM (Banco Mundial). 2016.Gestión integrada en cuencas transfronterizas y rol de las Entidades de Cuenca Transfronterizas ante el estrés hídrico

BM, 2021. Belize Climate Resilient and Sustainable Agriculture Project. Environmental and Social Management Framework

Bravo V, et al., 2015. Importación de plaguicidas peligrosos en salud en America Central durante el periodo 2005-2009.

BTB, 2013-2019. Tourism´s Economy. Impact indicators.

BTB, 2020. National Sustainable Tourism Master plan for Belize 2030

BTB, 2021. "National Sustainable Tourism Master Plan for Belize 2030"

Carrie R & K. Elma,2014. Diversidad, Conservación y Uso de los microinvertebrados dulceacuícolas de México, Centroamerica, Cuba y Colombia.

CATHALAC-SIMEPAR, 2011. Mapa Centroamericano de Cobertura y Uso de la Tierra Cambios de Cobertura y Uso de la Tierra.

CCAD, (Comisión Centroamericana de Ambiente y Desarrollo). 2016. Marco de Manejo Ambiental y Social para Manejo Integrado Transfronterizo con Enfoque de la Cuenca al Arrecife para el Sistema Arrecifal Mesoamericano.

CCSI, 2014. (Climate Change Solutions International), 2014. Enhancing Belize's Resilience to Adapt to the Effects of Climate Change

CEPAL, 2005. Migration in the Caribbean- What do we know?

CIAT; World Bank. 2018. Climate-Smart Agriculture in Belize. CSA Country Profiles for Latin America and the Caribbean Series. International Center for Tropical Agriculture (CIAT); World Bank, Washington, D.C. 24 p

CIAT; World Bank. 2018. Climate-Smart Agriculture in Belize. CSA Country Profiles for Latin America and the Caribbean Series. International Center for Tropical Agriculture (CIAT); World Bank, Washington, D.C. 24 p

Costa C, Tombesi C., 2022. Los mapas que muestran las disputas territoriales en países de América Latina

Daly J; Fernandez K. 2018. Duke Global Value Chains Center, Duke University. Belize in the shrimp GVC

ECLAC, 2013. Belize Effects of Climate Change on Agriculture

CEPF, 2014. Critical Ecosistem Partnership Fund. Hotspot de Biodiversidad de Mesoamérica.

FAO 2014, Atlas de suelos de America Latina y el Caribe.

FAO, 2011. Country Programming Framewprk for Belize: 2011-2015

FAO, 2011. Plan of Action for Disaster Risk Reduction

FAOSTAT. 2018. Available at: www.fao.org/faostat/en/#data/RL

GEF CReW 2015. Baseline Assessment Study on Wastewater Management Belize

GEF, 2051. Baseline Assessment study.

GEF, et a., 2016. National Biodiversity Strategy and Action Plan

GEF, et al., 2017. Belize Technology needs assessment mitigation

GEF, et al., 2020. Belize´s First biennial update report to the United Nations framework convention on Climate Change.

GEF, Ministry of Agriculture, 2017. Identification and Prioritization of Adaptation Technologies for Belize

Germanwatch 2017 is available at: https://germanwatch.org/de/download/16411.pdf

Green Climate Fund, 2019. Consideration of funding proposals - Addendum III.

GIZ, 2014. Mecanismo de Inversión Ambiental de Belice

GWP, (Global Water Partnership) et al., 2011. Situación de los recursos hídricos en centroamerica.

GWP, (Global Water Partnership) et al., 2020. Entendiendo los desafíos. Planificando para la acción regional y transfronteriza.

Halcrow / NAT, 2010. Belize Country Poverty Assessment, Final Report.

Huggis T. 2016. Caribbean Development Bank. Country Gender Assessment (CGA) Belize.

Hulse Christa, 2019. Ministry of Human Development, Social Transformation, and Poverty Alleviation

Husaini D, Enriquez A, Arzu T, Miranda K, Mossiah D, Cardinez C, 2020. Nitrate Levels in Rural Drinking Water in Belize

IDB Group_2020. Developing a Sustainable, Resilient, and Inclusive Belize

IDB, 2017. Analysis of agricultural policies IN BELIZE, pag.10.

IDB, 2021. Support Consultancy to Evaluate and Propose Improvements in the Execution of Projects in Belize

IDB,2020. Belize's Development Challenges.

IFAD, 2017. Country Technical Note on Indigenous Peoples' Issues

IIICA, et al.2017. A Strategic Plan for the pesticides control board 2017-2021

International Journal of Occupational and Environmental Health, 2001. Consideraciones sobre plaguicidas peligrosos en América Central

IOM, et al., 2012. Research Report Intraregional Labour Migration Flows. Country Report Belize.

Irrigation by country - Water Resources - Progressive Gardening

Kauffer E.; Mejia L. 2003. De la descolonización a la Gestión Integrada de Recursos Hídricos (GIRH)

Kongsager, R. 2017. Barriers to the adaptation of Alley Cropping as Climate-Smart Agriculture. University College Copenhagen

LDN, et al., 2020. Land Degradation Neutrality Target Setting Programme. Final Report.

LFS, 2021. Belize Labour Force Survey.

Miller, Thomas E.2015. Geologic and Hydrologic Controls on Karst and Cave Development in Belize.

Ministerio de Desarrollo Económico, Comercio e Industria y Protección del consumidor, 2010. Evaluaciones de la pobreza del país 2009.

Ministry of Agriculture, 2015. National Agriculture and Food Policy 2015-2030.

Ministry of Agriculture, 2015. National Agriculture and Food Policy of Belize 2015-2030.

Ministry of Agriculture, 2018. Belize Agriculture Census 2018. Retrieved from https://www.agriculture.gov.bz/2018-belize-national-agriculture-census/
Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, Belize, et al., 2018. National Biodiversity Strategy and Action Plan 2016-2020.

Ministry of Health Belize, 2014. Sector Strategic Plan 2014-2024

Ministry of Health, 2014. Belize Health Sector Strategic Plan

Ministry of Human Development, 2019. Community Action for Public Safety II

Muñoz & Gibson, 2015. IC2 Institute, The University of Texas at Austin. Decoding the Census.

NBSAP, et al., 2018. National Biodiversity Strategy and Action Plan 2016-2020.

NCCO, 2016. Belize´s third National Communication to the United Nations Framework Convention on Climate Change.

NMS, 2020. Precipitation and Temperature Forecast

NPAS, 2005. Protected Area System Assessment

NPAS, 2015. National Protected Areas System Plan.

NPAS, Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development, Belize, et al., 2015. National Protected Areas System Plan.

ONU, Consejo de Derechos Humanos, Mecanismo de Expertos de las Naciones Unidas sobre los Derechos de los Pueblos Indígenas (MEDPI), Declaración: COVID-19 un desafío más para los Pueblos Indígenas, 6 de abril de 2020.

OPS, 2004. Los plaguicidas y su efecto sobre la salud y el medio ambiente. Un reto constante.

PAHO, 2016. Plan de acción para la reducción de la contaminación del aire en las Américas

Palacio, J. (1990). Socioeconomic integration of Central American immigrants in Belize.

Partidario, M. (2011). Conceptos, evolución y perspectivas de la evaluación ambiental estratégica. Curso sobre evaluación ambiental estratégica (EAE)

PNUD, 2020. COVID-19 Socioeconomic Impact Assessment Belize

RRB, 2021. The Baseline Study for the Resilient Rural Belize Programme.

Statistical Institute of Belize (2011). 2010 Population Census

The Belize Institute of Statistics, 2021. Poverty Study 2018/19.

UNCSD, 2012. Belize National Sustainable Development Report.

UNCTAD, n.i. Evidence-based and policy coherent Oceans Economy and Trade Strategies. Sector data factsheet: Belize

UNDP-GEF, 2010. A Manual of Soil Conservation and Slope Cultivation.

UNFAP, 2010. Belize Population and housing Census country report

UNICEF, 2021.Consejo Económico y Social. Fondo de las Naciones Unidas para la Infancia Documento del Programa para el País.

USAID, 2012. Analisis de la vulnerabilidad al Cambio Climático del Caribe de Belice, Guatemala y Honduras.

Vega, L. 2005. Hacia la sostenibilidad ambiental del desarrollo. Construcción de pensamiento ambiental práctico a través de una política y gestión ambiental sistémica. Ecoe ediciones

World Bank, 2017. Management and Protection of the key area in Belize

World Bank. 2018. Financing Strategies for Climate-smart Agriculture Investments in Belize