

## Annex 26. Description of selected municipalities

### Costa Rica

#### 1. Demographic and socioeconomic dimension

##### I.1 Demographics

##### a) Population and gender structure

	Liberia	Nicoya	Santa Cruz	Bagaces, C.	Carrillo
Total population	62.987	50.825	55.104	19.536	37.122
Rural population	11.351	28.426	28.621	10.416	13.983
Extension of the municipality	1443,635818	1325,57494	1319,64966	1272,07520	599,062968
Poverty Rate (IPH)	16,720	22,628	19,331	23,505	20,096
Education level - men (rural)	4.314	10.270	10.551	3.649	4.995
Education level - women (rural)	3.763	10.412	10.522	3.456	4.964
Maternal mortality rate (general)	Not available	5,6	Not available	Not available	Not available
Infant mortality rate	12,8	7,8	Not available	Not available	11,3
Life expectancy men (in general)	67,50	77,30	77,87	78,2	77,99
Life expectancy women	Not available	Not available	Not available	Not available	Not available
State of food security	Not available	Not available	Not available	Not available	Not available
Femicide rate	Slope	Slope	Slope	Slope	Slope
Percentage of gender-based violence (survival at violent events, etc.)	Slope	Slope	Slope	Slope	Slope
Child dropout rate	13,72%	12,89%	10,29%	10,29%	10,29%
School dropout rate girls					
Are there women without an identity card in the municipalities? (yes/no), approximate percentage (if possible)	Slope	Slope	Slope	Slope	Slope

##### b) Population focus

- Where are the population hotspots?

The main population centers are concentrated the municipalities of Santa Cruz, Nicoya and Liberia, their towns and villages.

These 3 municipalities represent almost 78% of the total population of the 5 municipalities under study. The most dispersed population is located in the canton of Carrillo.

##### c) Ethnic groups

- Are there ethnic groups and indigenous territories?

There are groups of indigenous territories. According to the National Commission on Indigenous Affairs (CONAI)<sup>1</sup> (s/f), in the Chorotega Region, the indigenous territory of Matambú is located. It is located in part in the municipality of Nicoya (of interest to this project) and in the municipality of Hojanca.

##### I.2 Health and nutrition

- What is the state of food security in the area?

While it is true, although there is availability of food throughout Costa Rica' territory, it is of the technical knowledge that the Chorotega Region and, in particular the municipalities of interest (Liberia, Nicoya, Santa Cruz, Bagaces and Carrillo), it is region known as the Dry Corridor, where there is a high vulnerability to the adverse effects of drought. Several studies have highlighted the impacts that drought has had on the region (Ordaz, Ramirez, Mora, Acosta and Serna, 2010; Calvo-Solano, Quesada-Hernández, Hidalgo and Gotlieb, 2018; Gotlieb, Pérez-Briceño, Hidalgo and Alfaro, 2019) such as loss of crops (basic grains), decrease in yields

<sup>1</sup> <http://www.conai.go.cr/nosotros.html>

and death of livestock. This has influenced a decrease in the availability of food, a decrease in the purchasing power of the population in this region and as drought in these territories is recurrent, the availability of water resources has decreased considerably both for activities related to agriculture and livestock, as well as for human consumption.

Thus, the convergence of these factors has resulted in food insecurity in the population and even beyond levels that have endangered the health of the population in the region. This scourge has affected the child population more strongly because, being in a period of development, they need the supply of basic nutrients for their proper growth. So, in short, the area has been affected in terms of food safety due to the criteria previously set out.

### I.3 Safety

- What is the level of safety? What are the characteristics of violence in the area?

In a first approximation, it can be mentioned that safety in the study area is variable. Considering the generality of crimes, by 2012 Liberia was the tenth municipality nationwide with the highest number of crimes in terms of vehicle theft, assault by person, homicide and house-to-room assault (DIGEPAZ, 2012). While, Santa Cruz was within the municipalities with less presence of these crimes. It is important to mention that, by 2012, Liberia was also among the first municipalities nationwide in terms of home robbery and building and theft in person (op.cit). However, according to a Conglomerate Analysis carried out by DIGEPAZ (2012), in the municipalities of Santa Cruz, Bagaces and Carrillo, despite having a higher open unemployment rate at the time, they were among those with the lowest crime rates, except for the theft of house and building. On the other hand, Liberia, which by 2012 was among the municipalities with the highest crime rates and the highest unemployment, stands out. However, it stands out that at the same time, it was part of the municipalities in which there was a greater desertion in terms of committing crimes. Finally, it should be noted that Nicoya in 2012 was within the conglomerate of safer municipalities due to its high score on social indicators.

- Is there a presence of armed groups or gangs?

Yes, there is. There are gangs and organized crime groups that dispute the territories mainly over issues related to the drug and narcotics trade.

### I.4 Economy

	Liberia	Nicoya	Santa Cruz	Bagaces, C.	Carrillo
Main productive activities	Rice, cotton, sugar cane, corn, sorgo, beans, vegetables, coffee and fruits, melon, beekeeping. Livestock for meat, milk	Rice, cotton, sugar cane, corn, sorgo, beans, vegetables, coffee and fruits, melon, beekeeping. Livestock for meat, milk  Collection of bivalve molluscs, crustaceans, polychaetes and mangrove fishing	Rice, cotton, sugar cane, corn, sorgo, beans, vegetables, coffee and fruits, melon, beekeeping. Livestock for meat, milk  Collection of bivalve molluscs, crustaceans, polychaetes and mangrove fishing	Rice, cotton, sugar cane, corn, sorgo, beans, vegetables, coffee and fruits, melon, beekeeping. Livestock for meat, milk  Collection of bivalve molluscs, crustaceans, polychaetes and mangrove fishing	Rice, cotton, sugar cane, corn, sorgo, beans, vegetables, coffee and fruits, melon, beekeeping. Livestock for meat, milk  Collection of bivalve molluscs, crustaceans, polychaetes and mangrove fishing
Main national agricultural enterprises (name and type)	Grupo san Jerónimo (agropecuaria)  Novelteak Ltda. (comercialización de maderas)  CATSA (agropecuaria)	Pura Vida Melons (Producción melones)	Centro Agrícola Guanagro	Hacienda Ciruelas  Grupo Pelón S.A. (manufactur a arroz)	Ingenio El Viejo (producción azúcar)

Major international agricultural companies (name and type)	In consultation	In consultation	In consultation	In consultation	In consultation
Unemployment rate - Men	4,8%	3,6%	4,4%	4,4%	5,6%
Unemployment rate - Women				2,2%	
Participation in male workforce (economically active population)	13.991	10.834	12.162	4.596	8.044
Participation in women's labour force (economically active population)	8.588	5.441	6.750	1.599	3.888
Proportion of large producers	Not available	Not available	Not available	Not available	Not available
Proportion of medium-sized producers	Not available	Not available	Not available	Not available	Not available
Production of small producers	Not available	Not available	Not available	Not available	Not available
Women's Jobs (Listed, including informal work)	Agriculture, livestock and fisheries; Mines and quarries; Manufacturing Industries; Provision of Public Services; Construction; Vehicle trade and repair; Transportation and storage; Accommodation and food services; Information and communication; Financial and insurance services; Real Estate Activities; Scientific and technical professionals; Administrative staff and support services; Public Administration; Teaching; Human Health; Artistic and Recreational Activities; Homes; Extra-territorial organizations (INEC, 2011)				

- What is the prevalence of the informal economy?

The informal economy is present throughout the national territory and in both the Chorotega Region and the municipalities of interest is also quite common. This is largely due to immigration from Nicaragua, which, in most cases does not have regulated immigration status, resort to informality to cover their own expenses. As the Chorotega Region is a gateway for this town, there is a high presence of informal economic activities. On the other hand, because there is a marked presence of poverty and sometimes limited access to education, many inhabitants of both municipalities and others who arrive in the different municipalities, resort to informal temporary work, within highlights include street sales, informal transport, occasional domestic work and seasonal agricultural work.

It is important to point out that part of this situation has been diminishing with the hotel industry, which has contributed to the generation of certain jobs that has allowed a certain number of people to get out of informality. Also, the Chorotega Market initiative raises the generation of new jobs to prevent informal economic activities; however, it is still necessary to wait a reasonable amount of time for this to begin to bear fruit.

## I.5 Municipal development

### a) Municipal development plans

- What are the main axes of action in municipal development plans?

Liberia: Local Economic Development, Environment, Local Social Policy, Infrastructure, Equipment and Services, Territorial Ordering and Administrative Reform of the Municipality.

Carrillo: Sustainable Economic Development, Social Development, Citizen Security, Education, Public Services, Environmental Management and Territorial Management.

Nicoya: Sustainable economic development, social development, environmental management and territorial planning, human security: citizen and socio-environmental, Education, Infrastructure, Public Services and Culture.

Bagaces: Development and institutional management, Planning, citizen participation and accountability, Environmental development management, economic services management and social services management.

Santa Cruz: Sustainable Economic Development, Social Development, Environmental Management and Territorial Planning, Human Security: Citizen and Socio-Environmental, Education, Infrastructure, Public Services Culture.

- Are there water management plans?

Currently there are both the National Plan for Integrated Water Resource Management (PNGIRH) and the National Strategy for Integrated Water Resources Management (ENGIRH). At the level of the Chorotega Region in general, the Comprehensive Water Supply Program for Guanacaste – North Pacific (PIAAG) and the Tempisque River Media basin Supply And Coastal Communities (PAACUME) Project include, both of which seek mainly providing supply to the region.

According to Water Management Plans in the municipalities of interest, no relevant information has been found to date indicating that such plans are being developed in the municipalities. However, it points out that in Carrillo, in the district of Sardinal, the guidelines for carrying out a Water Management Plan were provided. However, as of 2015, only guidelines were available. To date, the existence of Water Management Plans in the municipalities of interest is not known.

b) Community and political participation, women's participation

	Liberia	Nicoya	Santa Cruz	Bagaces, C.	Carrillo
Key players in the municipality (including cooperatives, NGOs, communal associations, etc.) (list)	District councils Municipal Union of Liberia Municipal encounters CEN CINAI de Cañas Dulces CEN CINAI from Liberia CEN CINAI de San Roque CEN CINAI de Nazareth Association of Sabaneros and Cooks Cultural Rescue Pro Children and Adolescents Association	Nicoya Municipal encounters District councils Nicoya Integral Development Association (ADI) Salvation Army Association Rotary Club of Nicoya Active Club 20-30 International Lions Club Pan American Ladies FEDEAGUA Nursing Home Catholic Church La Paz Central American Church El Tucán Ecological Group New Acropolis humanistic group NICOYAGUA	COOMUDECAT Farmers' Association Association of Banks Farmers Sports Committee Pro Tamarindo Committee CEN Villareal ASADA Cartagena Junquillal Security Committee Tutoring Committee ADI Socorro ADI Cartagena ADI Tempate ADI El Llanito ADI Brasilito ADI Portegolpe ADI Guapote ADI Marbella ADI Tulita ADI Buenos Aires ADI San Juan District councils CCCI Santa Cruz Board of Education Health Board Health Committee Cemetery Committee Emergency Committee	CECUDI Bagaces Sports Committee CCCI Bagaces Road Committees Education Committees Young Person Committee Neighborhood Committees Community organizations Friends of Guayabo Foundation Scout Association Lions Club ADI Bagaces ADI Mogote ADI Luck ADI Naranjo River	ADIs in general COOPE GTE Private Company (Arenera Industry) ONG SINA UN Habitat GTZ
Women's organizations (environmental workers, productive organizations, cooperatives) (list)	Agenda Women Guanacaste	Agenda Women Guanacaste  Gulf of Nicoya Women's Federation	Agenda Women Guanacaste	Agenda Women Guanacaste	Agenda Women Guanacaste
Percentage of women who own land ownership	17,84%	19,33%	22,51%	9,60%	16,36%
Representation of women in local	52 % Owners:	42,30% Owners:	53,13 % Owners:	50% Owners:	44,44% Owners:

governments (number, or percentage), type of position if possible	Juan Eduardo Flores Cerdas (President). Alejandra Larios Trejos. Felix Zuñiga Garcia. Mariela Vasquez Espinoza. Miguel A. Morice Marengo. Pamela Melissa Bello Castillo. Eladio Cortés Reyes 1. Alternate Regidores: Maria M. Espinoza Obando. Franklin Alfaro Orias. Byron Campos Umaña. Laura Flores Flores. Andrea M. Gutierrez Baltodano. Gerardo Fuentes De La O. Margie M. Martínez Bustos. 2. Trustees Owners: Ana C. Díaz Rodríguez. Mayli Morales Martínez. Roger Marín Marín. Ana V. Cordero Espinoza. Maximiliano Zúñiga Rodríguez. 3. Substitut e Sindics: Roger F. Carranza Sotela. Silvia P. Rivas Vargas. Miguel A. Lara Castañeda. Karina M. Sánchez Serrano Julio Viales Padilla Ana Julia Chavarria López	Saúl Gerardo Cárdenas Vásquez (President) Karen Melissa Arrieta Gutierrez Marvin Vargas Zúñiga Carlos Medina Fernandez Luis Ademar Fonseca Orias Ana Griselda Pérez Ruiz José Luis Castillo Obando 4. SUBSTITUT E REGIDORES Jhonny William Gutierrez Molina Gloria María Medina Cárdenas Mario Vargas Delgado Raymer Loaiciga Gomez María Amada Macotelo Díaz Cristina Baltodano Baltodano William Alberto Allen Morales OWNERS Ronny Guevara Sequeira Santo Gutierrez Enriquez Daysi Oliva Gómez Galagarza Bonifacio Díaz Zúñiga Marco Tulio Avila Alvarado Danilo Jiménez Villalobos Norma Obando Guevara SURITING SYNDICATES María del Carmen Castro Sequeira Karla Vanessa Jirón Lopez María Elena Matamoros Ruiz Victoria Vasquez Espinoza Melvin Moraga Jiménez	Omar Cruz Jimenez  María Eugenia Alfaro Durán  Disnarda Cubillo Vargas  Anayansi Contreras Bustos  Jorge Antonio Leal Obando  Macdonal Espinoza Ruiz  Rolando Antonio Pizarro Pizarro a. Substitute Regidores:  Ivannia Rodriguez Lopez  Isabel Gutierrez Angulo  Anabelle Gutierrez Cisneros  Miguel Alfredo Hernández Juárez  Mario André Madrigal Alfaro  Dixabet Matarrita Matarrita  Katerin Pizarro Matarrita  Trustees owners:  Arcadio Elisseo Carrera Gutierrez  Carolina Fonseca Ortega  Sergio Juarez Gutiérrez  Warner Rodríguez Angulo  Virginia Gomez Gomez  Obed Vinicius Sweeping Pigs  Edgar Campos	Olga Vargas Keys  José Alfredo Jiménez Sánchez  Carla Fiorella Vincenzi Zúñiga  Milton Antonio Ledezma Rojas  Edgardo Alfredo Aragón Solera i. Alternate Regidores: Natalia Salazar Alvarado  Mayra Murillo Quesada  Jorge Mauricio Carranza Arias  Luis Enoc Barrantes Cubero  María Cristina Solórzano Rodríguez i. Trustees Owners: Lucia Mendoza Ruíz  Wence Esmith Hidalgo Lopez  Ivannia Rosa Vallejos Barahona  Xinia Treminio Pérez y. Alternate Trustees: Pedro González Lopez  Marianita Arce Gutierrez	Roberto Canales Canales  Carlos Alberto Chanto Canales  Enriqueta Abarca Abarca  Sigifredo Rodríguez Mendez  Mario Enrique Mendez Ortiz y. Alternate Regidores:  Hellen Patricia Mata Ríos  Robert Ant. Miranda Amateur  Freddy Gómez Alvarado  Sonia Iris Ondoy Santana  Luisa Diaz Viales i. Trustees Owners:  Rita Maria Chaves Picón  Manuel Rodrigo Victor Victor  Liliana Rojas Marín  Carlos Luis Quesada García i. Alternate Trustees:  Jeffry Fernandez Peña  Daisy Vials Matarrita
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c) Previous projects

- What adaptation-related projects have been developed in the municipality area?

Among the projects related to adaptation in the municipalities of interest, the following stand out:

- The **Water Supply Program for Guanacaste (PAACUME)** is developed mainly by the National Underground Water, Irrigation and Irrigation Service (SENARA), in conjunction with other instances.
- The Project **"METHODOLOGY FOR THE EVALUATION OF THE POLICY, SOCIO-ECONOMIC AND ENVIRONMENTAL ENVIRONMENT FOR A GREEN AND INCLUSIVE GROWTH PROGRAM: CASE STUDY IN COSTA RICA'S PRODUCTIVE COUNTRIES"** developed by CATIE, INCAE and the World Bank, which included the municipality of Bagaces and the Bebedero River basin that are of interest to this project.
- The **Integrated Program of the Central American Dry Corridor (PICSC)**, which in conjunction with the University of Costa Rica (UCR), has sought to develop projects with a view to developing actions that contribute to the adaptive capacity of populations in Chorotega Region.

- What were the community participation schemes in these projects?

Among the most outstanding community participation schemes currently, both in projects and at the level of generation of public policies, the figure of the Associations of Integral Development (ADIs) stand out in all the municipalities of interest. These, consist of organized groups of people within a community, who seek to carry out all kinds of actions to improve<sup>2</sup> social, economic, cultural and environmental conditions in the area in which they live.

Other spaces for Community participation in municipalities of interest at the time of project development are the Cantonal Councils for Institutional Coordination (CCCI) created by Law 8801, in which the institutions responsible for the projects converge with the population of the municipalities and can even bring proposals to this space. Also excelling in the different municipalities the different boards such as Health, Water, Education, among others that, from their reason for its creation, give their position and recommendations regarding the formulation of new projects. It should be noted that a similar role is played by the various Cantonal Committees, among which stand out those of Youth, Sports, Natural Resources Surveillance and Health.

<sup>2</sup> <http://www.dinadeco.go.cr/pf.html>

It is important to emphasize that a project is currently being developed taking into account community participation processes, which is called the Costa Rican Fisheries and Aquaculture Sector Sustainable Development Project, which is supported by the Costa Rican Institute of Fisheries and Aquaculture (INCOPESCA) and is currently developed taking into account the municipalities of Liberia and Nicoya.

- Are there previous local consultation processes?

In the process of gathering information carried out, it was found that in the municipalities of interest of this project, the previous local consultation processes have been as follows:

- Municipal encounters.
- Citizen participation workshops.
- Training to population groups.
- Establishment of Promoter Networks.
- Promotion of Communal Volunteering.

It should be noted that these mechanisms promote the exchange of information between the community and the teams that have facilitated previous projects.

#### d) Land ownership

- What is the general structure of land ownership in the area?

According to the IV Agricultural Census (INEC, 2015), the property characteristics of the Earth is both simple and mixed. So, there are both large owners and small producers. Also, within this diversity, there are producers with both own land and tenants. It is therefore important to take this information from the Agricultural Census as a baseline and go to the municipalities to perform farm diagnostics and analysis, in order to know the detail of land tenure.

## 2. Biophysical dimension

### 2.1 Agroclimatic conditions

- What is the geography of the area and its climatic characteristics?

At the level of the selected municipalities, Liberia has a warm climate in first place where the average temperature ranges between 26o-28oC. In addition, two seasons can be differentiated, where the rainy season is characterized by flooding and, in the dry season, drought predominates (UNDP-FOMUDE, 2009a). It is important to mention that this marked climate performance has left countless losses on agriculture and livestock (UNDP-FOMUDE, 2009a; Calvo-Solano *et al.*, 2018). At the geographical level it emphasizes that this municipality is located above an average height of 144 m above sea level.

With regard to the municipality of Carrillo, UNDP-FOMUDE (2009b) indicates that its geographical coordinates are approximately between 10° north latitude and 85° west longitude. This program refers that the maximum width of the canton is forty-nine kilometers from Zapotal tip to the Pass of the Jobo over the Tempisque River; it is worth mentioning that its orientation is from northwest to southeast. On the other hand, Pérez-Briceño (2017) indicates that within its geography the Beaches of Coco stand out, which is located within a semi-closed bay bounded by rocky promontory. On a hydrometeorological level it emphasizes that, much of its climatology is influenced by the rivers and ravines that the municipality has where, due to hydrological mechanisms (such as transporting moisture from the Pacific and marked long dry seasons rainy), these bodies of water represent a focal point for threats of extreme events in the canton.

Nicoya has a location similar to the municipality of Carrillo. It has a maximum width of sixty kilometers, from Puerto Humo to Punta Guiones (UNDP-FOMUDE, 2013a). It should be noted that its orientation is from northeast to southwest, whose predominant geography is based on valleys and plains suitable for agriculture and livestock, in which the crops of basic grains (rice and maize) and melon (op.cit.) stand out. With regard to its climatology, it presents the typical characteristics of the area with two marked seasons (dry and rainy) and is very prone to the development of droughts favoring negative hydrometeorological impacts in agriculture and livestock (Calvo-Solano *et al.*, 2018).

With respect to Santa Cruz, it has a maximum width of fifty-nine kilometers from Punta Zapotal to Punta División. This canton borders the canton of Carrillo to the north, the municipalities of Nicoya and Bagaces to the north, Nicoya to the south and the Pacific Ocean to the west (UNDP-FOMUDE, 2013b). Limiting the coast, in this canton stand out Playa Potrero (3.73 km extension) and Playa Conchal (2.53 km extension) (Pérez-Briceño, 2017). Both belong to the district of Cabo Velas and the first is also part of the district of Tempate. It is necessary to emphasize that both are part of a semi-enclosed bay (op.cit.). It is important to note that there is a presence of erosion in the soils of the municipal, due to the growth of buildings that invade the coastal land (Pérez-Briceño, 2017). It emphasizes that in the same way this municipality has a high vulnerability to drought, with activities that have adverse effects on the agricultural sector; Likewise, it has a very marked and durable dry season and a short rainy season (Calvo-Solano *et al.*, 2018).

Finally, in relation to the municipality of Bagaces, this account within its geography, with the Miravalles Volcano (2028 m). It emphasizes that it has a presence of secondary volcanic activity and in its foothills the Costa Rican Institute of Electricity (ICE) has the Miravalles Geothermal Project. Its soils are suitable for agriculture (basic grains and vegetables) and livestock production (milk) (Municipality of Bagaces and Ministry of National Planning and Economic Policy, s/f). In addition, it is important to mention that it adjoins the municipalities of Upala, Liberia, Carrillo, Cañas, Nicoya and Santa Cruz (op.cit.) and that it has no exit to the coast. Its climate is warm in general, with moisture inputs from the Pacific, which favors the development of agricultural activities; however, Calvo-Solano, Quesada-Hernández, Hidalgo and Gotlieb (2018) refer that the marked dry season and its long duration favor the presence of droughts which has adverse consequences on livestock activity.

- What is the level of soil erosion?

With regard to soil erosion, a recent reference is that of Pérez-Briceño (2017), which indicates that in the coastal areas of the municipality of Santa Cruz there are high levels of erosion due to human intervention. This intervention manifests itself in a pullback of the coastline due to the construction of infrastructure (hotels) close to the coasts of this municipality. It is also important to mention that erosion is favored by high slopes, sediment accumulation, mangrove deforestation, reef death, exploitation of channels (op.cit).

It should therefore be mentioned that, adequate intervention by the basins of interest of the project may have a benefit in reducing the erosion of the territories of interest (Pérez-Briceño et al., 2017).

#### a) Land use

- What are the main land uses in the municipality?

	Liberia	Nicoya	Santa Cruz	Bagaces, C.	Carrillo
Classification (use)	<p>Forest conservation</p> <p>Using sustainable wood</p> <p>Cultivation and production of rice, cotton, sugar cane, maize, sorgo, beans, vegetables, coffee and fruits, mainly melon, beekeeping.</p> <p>Livestock for meat, milk</p>	<p>Forest conservation</p> <p>Using sustainable wood</p> <p>Collection of bivalve molluscs, crustaceans, polychaetes and mangrove fishing</p> <p>Cultivation and production of rice, cotton, sugar cane, maize, sorgo, beans, vegetables, coffee and fruits, mainly melon, beekeeping.</p> <p>Livestock for meat, milk</p>	<p>Forest conservation</p> <p>Using sustainable wood</p> <p>Collection of bivalve molluscs, crustaceans, polychaetes and mangrove fishing</p> <p>Cultivation and production of rice, cotton, sugar cane, corn, sorgo, beans, vegetables, coffee and fruits, mainly melon.</p> <p>Livestock for meat, milk</p>	<p>Forest conservation</p> <p>Using sustainable wood</p> <p>Collection of bivalve molluscs, crustaceans, polychaetes and mangrove fishing</p> <p>Cultivation and production of rice, cotton, sugar cane, corn, sorgo, beans, vegetables, coffee and fruits, mainly melon.</p> <p>Livestock for meat, milk</p>	<p>Forest conservation</p> <p>Using sustainable wood</p> <p>Collection of bivalve molluscs, crustaceans, polychaetes and mangrove fishing</p> <p>Cultivation and production of rice, cotton, sugar cane, corn, sorgo, beans, vegetables, coffee and fruits, mainly melon.</p> <p>Livestock for meat, milk</p>
Extension	Slope	Slope	Slope	Slope	Slope
Observations	Slope	Slope	Slope	Slope	Slope

- What is the state of degradation of existing ecosystems or agro-ecosystems?

You could say that in the final balance, the state is zero. On the one hand, productive and over-exploitation practices of soils continue to be carried out and improvements in fire control, tabbed livestock, agroforestry systems among others can be seen.

- What has been the trend in the change in land use?
  - Increased incidence of wildfires.
  - Agriculture (e.g. extensive cane and rice crops).
  - Urbanization (e.g. tourist developments).



- Deforestation (e.g. illegal logging).
- Development of hydroelectric plants.
- Large-scale geothermal energy production.
- Cane and rice crops.
- Extensive livestock.
- Pressure for spaces for aquaculture.
- Residential and commercial development.

b) Agriculture

	Liberia		Nicoya	Santa Cruz	Bagaces, C.	Carrillo
% population dependent on agriculture	8,4%		16,9%	12,2%	29,2%	13,3%
Top players in agriculture	Like SENARA Farmers' Chambers Private company Municipal Agricultural Center National Underground Water, Irrigation and Veneabout Service (Senara), the Institute for Rural Development (Inder), the Costa Rican Institute of Fisheries and Aquaculture (Incopesca), the Integral Agricultural Marketing Program (PIMA) and the National Production Council ( CNP)		Like SENARA Farmers' Chambers Private company Municipal Agricultural Center National Underground Water, Irrigation and Drainage Service (Senara), the Institute for Rural Development (Inder), the Costa Rican Institute of Fisheries and Aquaculture (Incopesca), the Integral Agricultural Marketing Program (PIMA) and the National Production Council ( CNP)	Like SENARA Farmers' Chambers Private company Municipal Agricultural Center National Underground Water, Irrigation and Drainage Service (Senara), the Institute for Rural Development (Inder), the Costa Rican Institute of Fisheries and Aquaculture (Incopesca), the Integral Agricultural Marketing Program (PIMA) and the National Production Council ( CNP)	Like SENARA Farmers' Chambers Private company Municipal Agricultural Center National Underground Water, Irrigation and Drainage Service (Senara), the Institute for Rural Development (Inder), the Costa Rican Institute of Fisheries and Aquaculture (Incopesca), the Integral Agricultural Marketing Program (PIMA) and the National Production Council ( CNP)	Like SENARA Farmers' Chambers Private company Municipal Agricultural Center National Underground Water, Irrigation and Drainage Service (Senara), the Institute for Rural Development (Inder), the Costa Rican Institute of Fisheries and Aquaculture (Incopesca), the Integral Agricultural Marketing Program (PIMA) and the National Production Council ( CNP)
Women's roles in the agricultural sector	In the case of families its role is typical of the agricultural peasant sector: house care, meals, children, shopping, hauling water and firewood. In the case of heads of households, in addition to previous roles they also carry out work of planting, maintenance and harvesting crops. In addition, in some cases they also serve in roles of participation in community women's groups.					
Main crops by municipality (REGATTA data)	Cane and rice		Dry rice and corn	Cane and dry rice	Cane and rice irrigation	Cane and melon
Crop area (data available in REGATTA)	20.717		3.493	3.329	11.886	13.814
	Rice	4.8%	1.7%	-35%	-16.3%	7.9%

Productivity of major crops (trends, if available)	Bean	- 87,1 %	0,0%	0,0%	0,0%	0,0%
	White Corn	0,0%	0,0%	0,0%	0,0%	0,0%
	Coffee	0,0%	97,3%	0,0%	0,0%	0,0%
Existence of crops linked to agroforestry systems (yes, no, which ones)	Agroforestry systems associated with grains (corn, beans) and sylvopasture		Agroforestry systems associated with grains (corn, beans) and sylvopasture	Agroforestry systems associated with grains (corn, beans) and sylvopasture	Agroforestry systems associated with grains (corn, beans) and sylvopasture	Agroforestry systems associated with grains (corn, beans) and sylvopasture
Prelated to agriculture from Nationally Appropriate Mitigation Actions (NAMA)	Currently at the level of the Ministerio de Agricultura y Ganadería (MAG) there is the NAMA Café, however it does not take into account at the moment the municipalities of interest of the project.					

- What is the production and profitability of the main crops per ha?  
As shown in the table above, the greatest amount of information available is found for rice cultivation, where in the municipalities of Liberia, Nicoya and Carrillo there has been an increase in production, although this has not exceeded 8% of positive variation. Also noteworthy are the municipalities of Santa Cruz and Bagaces that, for the cultivation of rice, have significantly reduced their production, reaching up to 35% less than the previous agricultural year (2016-17).  
Bean and coffee crops also stand out, which for example the former had a decrease in production of up to 87% in the municipality of Liberia and, for the case of coffee, it began to be a profitable crop, since for the agricultural year 2017-18, had a variation in its production of up to more than 97%, compared to the 2016-17 agricultural year, being a promising crop for this territory.

c) Forest resource

	Liberia	Nicoya	Santa Cruz	Bagaces, C.	Carrillo
Current forest coverage (%)	In consultation	In consultation	In consultation	In consultation	In consultation
Types of forest	Dry Forest Rainforest Mangroves Gallery Forest Mangroves	Dry forest Very humid premontane forest Mangroves	Dry forest Very humid forest Very humid premontane forest Mangroves	Dry forest Very humid forest Very humid premontane forest Mangroves	Dry forest Very humid forest Very humid premontane forest Mangroves
Types of natural ecosystems	Mangroves Wetlands Forests Marine-Coastal	Mangroves Wetlands Forests Marine-Coastal	Mangroves Wetlands Forests Marine-Coastal	Mangroves Wetlands Forests Marine-Coastal	Mangroves Wetlands Forests Marine-Coastal
Deforestation rate	In consultation	In consultation	In consultation	In consultation	In consultation
Actors in the forestry sector (list)	Minae-SINAC FONAFIFO CODEFORSA Municipality	Minae-SINAC FONAFIFO CODEFORSA Municipality	Minae-SINAC FONAFIFO CODEFORSA Municipality	Minae-SINAC FONAFIFO CODEFORSA Municipality	Minae-SINAC FONAFIFO CODEFORSA Municipality
Type of roles of women in the forestry sector (list)	Very similar to the roles of the agricultural peasant sector: house care, food, children, shopping, hauling water and firewood, in cases where they live with their partner.				

	In the case of heads of households alone, they also carry out planting, pruning, thinning, nursery work.				
% of the population that uses firewood	Slope	Slope	Slope	Slope	Slope
Volume of wood consumption	Slope	Slope	Slope	Slope	Slope
Sources of firewood	Slope	Slope	Slope	Slope	Slope
Species used as firewood	Slope	Slope	Slope	Slope	Slope
Type of forest from which firewood comes	Dry forest	Dry forest	Dry forest	Dry forest	Dry forest

- How has forest cover changed over the years?

There has been a slight but positive change from forest coverage at the guanacaste province level. Forest cover in 2005 was 51% (518,249 ha) and a measurement for 2015 showed an increase of 60% (606 305 ha). The largest recovery in forest cover is concentrated in the districts La Cruz, Quebrada Grande and south of Bagaces. (Andrea Tapia, 2016)

Several associated factors can be mentioned that have contributed to this increase. These include falling meat prices, forest incentives for conservation and reforestation, landscape restoration initiatives, generally processes of conversion of pastures to forests. In addition, greater control of forest fires has also contributed to the recovery of forest cover. It is important to value improvements in livestock activity, where less area is used than in the past.

One of the important actions that drives the conservation of forests and their restoration is the Payment for Environmental Services (PSA). For the province this program has 55 464 has been in force in 2015 under one of its modalities (reforestation, conservation, agroforestry systems).

d) Livestock

	Liberia	Nicoya	Santa Cruz	Bagaces, C.	Carrillo
% livestock-dependent population	8,4%	16,9%	12,2%	29,2%	13,3%
Type of livestock prevailing	Sheep	Goats, Sheep and Beekeeping	Goats	Sheep	Beekeeping
Main livestock species, and what is produced	Sheep, Caprine, Pig, Poultry, Beekeeping	Goats, Sheep, Beekeeping, Birds of Corral and Porcine	Beekeeping, Poultry, Pork, Sheep and Cattle	Sheep, Pig, Birds of Corral and Cow	Cattle
Profitability	Not available	Not available	Not available	Not available	Not available-
Main livestock players	Race Associations, Auctions, Genetic Material Suppliers, Input and Equipment Stores, Industries, Financing Entities, Associations and Livestock Chambers, Universities, Public Entities, Non-Governmental Organizations, Organizations Leaders, Cooperatives and International Cooperation, CORFOGA, MAG, INTA, SENASA, CNP, INDER (Chacón, Reyes y Segura, 2015)				
Roles played by women in livestock (descriptive or list)	In consultation	In consultation	In consultation	In consultation	In consultation
There are livestock projects of Nationally Appropriate Mitigation Actions (NAMA) (yes, no)	Yes, there is the NAMA-Ganadería programme in which municipalities of interest are part of the actions in the Pacific region. This program is promoted by the Ministry of Environment and Energy (MINEE) and the Ministry of Agriculture and Livestock (MAG)				

e) Protected areas

- Are there protected areas in the area?

Yes, the protected areas in the area are:

- Wetland Riberino Zapandí.
- Stone Corral Wetland.
- Barra Honda National Park.
- Diríá National Park.
- Mata Redonda Wildlife Refuge.

- Iguanita Wildlife Refuge.
- Cipanci Wildlife Refuge.
- Nicoya Peninsula Protective Zone.
- Monte Alto Protective Zone.
- Cerro La Cruz Protective Zone.

- Are there endemic species (which)?

Endemic species: two hummingbirds, the capirota emerald (*Elvira cupreiceps*) that inhabits the Guanacaste and Tilarán mountain ranges; and the amazilia mangler (*Amazilia boucardi*), endangered and the carpenter of Hoffmann (*Melanerpes hoffmannii*), among others.

Threatened species: Congo Monkey (*Alouatta Palliataes*), Soterrey Sabanero (*Cistothorus platensis*), green stick (*Araambiguus*), Mangrove amazilia (*mazilia boucardi*)

Forestry level: Guanacaste blanco (*Albizia niopoides* (Spruce ex Benth.) Burkart), espavel (*Anacardium excelsum* (Bert. & Bald.) Skeels.), ron ron (*Astronium graveolens* Jacquin), cedro amargo (*Cedrela odorata* L.), ceiba (*Ceiba pentandra* (L.) Gaertn.), cocobolo (*Dalbergia retusa* Helmsl.), guapinol (*Hymenaea courbaril* L.) y tempisque (*Sideroxylon capiri* (A.DC.) Pittier).

- What are the main wild species in the area (flora and fauna)?

As for the fauna, there are about 300, among them the pava, the jilguero, the oropéndola de Montezuma, the tucancillo, the king of zopilots, the oropopo or owl of glasses, the bird, the parasol bird, the magpie and the bone load, among others. Some of the most representative mammals are the tepezcuinte, the jaguar, the cariblanco, the cougar, the danta, the armadillo, the toluco and the two-toed sloth. According to estimates about the number of day and night butterfly species, there are about 5,000 species. Also the mountain pig (*Tayassu pecari*) Venado Blanca Tail (*Odocoileus virginianus*), Mono Congo (*Alouatta palliata*) and Mono Cara Blanca (*Cebus capucinus*), the same as Pizotes (*Nasua narica*). There are around 250 species of birds, among which predominate the Magpie (*Calocitta formosa*). There are also 100 species of amphibians and reptiles being the most representative the Lora Turtle (*Lepidochelys olivacea*) and the rattlesnake (*Crotalus durissus*), in addition to more than 30,000 species of insects that inhabit these dry forests of Santa Pink.

As for flora, forest species such as Guanacaste (*Enterolobium cyclocarpum*), Pochote (*Bombacopsis quinata*), Guapinol (*Hymenaea courbaril*), Indian Naked or Jiñocuave (*Bursera simaruba*) and Caoba (*Swietenia macrophylla*).

In the coastal sector predominates the Red Mangle (*Rhizophora mangle*), as well as other species of mangrove vegetation in Costa Rica.

- Are there biological corridors?

Yes: Rincón Cacao (2850 Has), Rincón Rain Forest (32580 Has), Arenal-Tenorio (33860 Has).

## 2.2 Water resources

	Liberia	Nicoya	Santa Cruz	Bagaces, C.	Carrillo
Water sources (supply systems, where the water resource comes from)	Broken wells and aqueducts	Wells and aqueducts	Well and Aqueducts	Aqueduct	Aqueducts
Main actors for water resource management (names of institutions, associations, irrigator organizations, etc.)	A and A SENARA Municipalities Roasted	FEDEAGUA NICOYAGUA A and A SENARA Municipalities Roasted	ASADA de Santa Cruz A and A SENARA Municipalities	A and A SENARA Municipalities Roasted	Rural Aqueduct Offices (Paso Tempisque, Los Jocotes) ASADA Palestine A and A SENARA Municipalities
% Agricultural water use	Slope	Slope	Slope	Slope	Slope
% domestic water use	100%	88,1%	100%	88,2%	100%
Used water treatment systems	Chlorination	Chlorination	Chlorination	Chlorination	Chlorination
Top irrigation technologies used	Slope	Slope	Slope	Slope	Slope

Water demand	Slope	Slope	Slope	Slope	Slope
There is a drought early warning system (yes, no)	Slope	Slope	Slope	No	Slope
Is there water management infrastructure? (dams, community reservoirs, irrigation and atration, other traditional infrastructure)	Slope	Slope	Slope	Slope	Yes
Population with access to sanitation infrastructure (REGATTA data)	0,79	0,77	0,72	0,81	0,77
Type of sanitation services available (septic tanks, sewage treatment plants, others, none)	Slope	Slope	Slope	Slope	Slope

- Description of water scarcity

Since the beginning of this decade, water deficits have been presented not only in the Chorotega Region, but also in the municipalities of interest. Apart from the low moisture supply of the Dry Corridor region, also atmospheric phenomena such as the El Niño (2015-2016; 20189-2019, recently) have contributed to the development of drought and thus to the scarcity of water resources.

This has brought consequences to the local population, such as adverse health conditions (due to variation in hygiene conditions related to animal deaths and lack of water resources), malnutrition (due to crop loss and cattle), water rationing, the need to migrate, the use of credits and financing to save their crops, among others (Calvo-Solano *et al.* , 2018). So not only at a base level these territories present situations of water scarcity but, in the presence of other transient phenomena, it is enhanced, causing significant havoc on the local population.

### 3. Financial component

Name and address of financial institutions in municipalities	Type of financial institution (savings bank, bank, cooperative, others, etc.)	Contact Information: Name, Phone and Mail	Type of used financial products and average amounts	Number of customers and total acquisitions	Number of staff at the agency	Other relevant agencies (even if they are not in the municipality)
BAC	Bank	2670-2218 (Carrillo-El Coco Branch); 2653-1617 (Santa Cruz-Tamarindo Branch); 2665-6518 (LiberiaN Branch); 2696-0027 (Auxiliary Box Liberia); 2295-9000 (Nicoya and Liberia Auxiliary Boxes)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available Not available  Not available	Abangares Auxiliary Box
National Bank	Bank	2681-4900 (Santa Cruz Branch); 2212-2000 (Nicoya and Liberia)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars)	Not available/ Pending	Not available Not available Not available	Branch Cañas, Tilarán Agencies, Abangares Agencies,

		Branches; Carrillo, Santa Cruz and Nicoya Agencies); 2671-1755; 2673-1262 (Agencies in Bagaces); 2670-0644; 2654-5950 (Agencies in Carrillo)	Paying for services Bank transfers		Not available	La Cruz Agency, Nandayure Agency, Leaf Agency
Bank of Costa Rica	Bank	2670-0191 (Regional Directorate Liberia); 2651-2120; 2750-0707 (Liberia Offices); 2656-2112; 2661-0440 (Nicoya Offices); 2671-2522; 2654-4984 (Bagaces Offices); 2688-7272, 2680-3253 (Santa Cruz Offices); 2591-7343 (Carrillo Office), 2553-5143 (Auxiliary Box Liberia)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	Office Canes, Office La Cruz, Caja Auxiliary La Cruz
					Not available	
					Not available	
					Not available	
					Not available	
					Not available	
Banco Popular	Bank	2666-0158 (LiberiaN Branch); 2685-5167 (Nicoya Branch); 2680-1395 (Santa Cruz Branch); 2665-3282 (Liberia NSI); 2542-3792 (Agencia Carrillo); 2682-0267 (Nicoya Auxiliary Box); 2653-6835 (Agency Santa Cruz)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	Branch Cañas, Tilarán Agency, La Cruz Agency, Abangares Agency

BCT	Bank	2667-1012 (Carrillo Branch)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	No more branches, agencies, auxiliary boxes or offices
ANDE	Savings cash	2523-4949 (Offices Liberia and Santa Cruz)	Credit and savings to educators	Not available/ Pending	Not available	No more branches, agencies, auxiliary boxes or offices
COOCIQUE	Cooperative	2401-5581 (Nicoya Branch)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	Tilarán Branch
COOPEANDE No.1	Cooperative	2243-0340 (Liberia Branch); 2243-0350 (Nicoya Branch); 2243-0755 (Santa Cruz Branch)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	Cañas Agency
COOPECAJA	Cooperative	2542-1260 (Liberia Branch)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	No more branches, agencies, auxiliary boxes or offices
COOPEALIANZA	Cooperative	2686-9980;2686-9980 (Nicoya Branches); 2680-1174 (Agencia Santa Cruz); 2666-9285 (LiberiaN Agency); 2680-1174 (Carrillo Office); 4201-3575 (Holy Cross Office); 2785-2027 (Liberian Office);	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	Office Reeds, La Cruz Office, Leaf Office

		2685-4691 (Nicoya Box Extension)				
COOPEMEP	Cooperative	2665-3111 (Liberian Branch); 2686-9034 (Nicoya Branch)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	Reeds Branch
COOPENAE	Cooperative	2257-9060 (Liberia and Nicoya Branches); 2680-3232 (Santa Cruz Branch)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	Reeds Branch
COOPESERVIDORES	Cooperative	2666-4861 (LiberiaN Agency); 2686-7191 (Nicoya Agency); 2680-2202 (Agency Santa Cruz)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	Cañas Agency
DAVIVIENDA	Bank	2287-1661 (Liberia Branch)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	No more branches, agencies, auxiliary boxes or offices
Desyfin	Bank	2667-1020 (Carrillo Branch)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	No more branches, agencies, auxiliary boxes or offices
Global Exchange	Exchange house and transfers	2431-0670 (LiberiaN Office)	Currency exchange  Receipt and sending money	Not available/ Pending	Not available	No more branches, agencies, auxiliary boxes or offices
Mutual Group Alajuela La Vivienda	Cooperative	2666-5878 (Liberia NSI); 2680-4476 (Agency Santa Cruz)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services	Not available/ Pending	Not available	Cañas Agency



			Bank transfers			
Improsa	Bank	2284-4272 (Liberia Branch)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	No more branches, agencies, auxiliary boxes or offices
Lafise	Bank	2246-2000 (LiberiaN Office)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	No more branches, agencies, auxiliary boxes or offices
Promerica	Bank	2505-7000 (Liberia Auxiliary Box)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	No more branches, agencies, auxiliary boxes or offices
Scotiabank	Bank	2665-0067 (LiberiaN Branch); 2666-2957 (Auxiliary Box Liberia)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	No more branches, agencies, auxiliary boxes or offices
Servicoop	Cooperative	2666-0821 (Liberia Agency)	Credits (mortgage, principal, trustees) Savings and credit accounts (in colons and dollars) Paying for services Bank transfers	Not available/ Pending	Not available	No more branches, agencies, auxiliary boxes or offices

## El Salvador

### 1. Demographic and socioeconomic dimension

#### I.1 Demographics

##### a. Population and gender structure

	Concepción Batres	Jucuarán	El Carmen	El Tránsito	San Miguel
<b>Total population</b>	12,507 Ha	13,424 Ha	12,324 Ha	18,363 Ha	218,410 Ha
<b>Rural population</b>	9,255 Ha (74%)	12,350 Ha (92%)	10,537 Ha (86%)	10,751 Ha (59%)	60,274 Ha (28%)
<b>Extension of the municipality</b>	119.05 Km <sup>2</sup>	269.96 Km <sup>2</sup>	105.40 Km <sup>2</sup>	74.58 Km <sup>2</sup>	594 Km <sup>2</sup>
<b>Poverty rate</b>	30.9%	31.40%	20.1%  Low poverty		9.6 (maps of subregions by conditions of extreme poverty)
<b>Education level - men</b>	4.4 years	Men high illiteracy rate: 40% throughout the municipality	Illiteracy rate 26.80% (men and women)		Average of 3.94 years.
<b>Education level - women</b>	4.3 years	High rate of illiteracy: 40% across the municipality.			
<b>Life expectancy men</b>				70-74 years old	
<b>Life expectancy women</b>				80-84 years old	
<b>School dropout rate boys</b>	Rate of desertion for the male population is 5.9% (versus 4.6% nationally) (and Characterization Report and Intervention Proposal, Fomilenio).			12%	
<b>School dropout rate girls</b>	Girls are 3.7% (versus 4.2% nationally). (Characterization report and intervention proposal, Fomilenio).				

## b. Population hotspots

**CONCEPCIÓN BATRES<sup>3</sup>:** The current municipal human settlement system is structured around the city of Concepción Batres, which exercises a centrality function for the population of the municipality, for the provision of services and because it is the municipal head. There are 32 settlements, equivalent to 86.5%, have fewer than 500 inhabitants and 1 settlement with more than 2500 inhabitants (urban area).

**JUCUARÁN<sup>4</sup>:** Jucuarán exercises a centrality function for the population of the municipality due to the provision of services and the fact that it is the municipal head. There are 38 settlements, equivalent to 79.2%, have fewer than 500 inhabitants.

**EL CARMEN:** Urban Area is divided into 5 neighborhoods, which are: El Centro, Nuevo, El Calvario, Las Flores, Los Almendros ( <https://www.elsalvadormipais.com/ciudad-el-carmen-la-union>). Rural area of El Carmen is comprised of Alto El Roble, Caulotillo, El Gavilán, El Piche, El tejár, El Zapotal, La Cañada, Los conejos and Olomega.

**EL TRANSITO<sup>5</sup>:** Based on the Usulután Region City System, the municipality El Tránsito is located on the Second Hierarchical Level with settlements of between 24,000 and 40,000 inhabitants.

**SAN MIGUEL:** San Miguel has a territorial extension of 2,077.10 Km<sup>2</sup> corresponding to the rural area 2,049.99 Km<sup>2</sup> and the urban area 27.11 Km<sup>2</sup>. It has a population of 480,276 inhabitants (men: 237,323 – women: 242,953)

## c. Ethnic groups

- **Are there ethnic groups and indigenous territories?**

According to the last Census of Population and Housing (2007) in the country 13,310 people were defined as indigenous (0.02% of the total population of the country) belonging mainly to three ethnic groups: Lencas (15.1%), kakawira (31.3%) Nahua-Pipil (26.6%). In the Eastern Region there is 49% of the indigenous population of El Salvador, as shown in the graph below, the department of Morazán concentrates the largest amount of indigenous population mostly Kakawira or Cacaopera.

**CONCEPCIÓN BATRES:** Concepción Batres presents the national trend. Mestizo predominates in its population (86%). Ethnic groups account for 0.04% and are made up of a very small part of the population.

**JUCUARÁN:** In Jucuarán the mestizo predominates in its population (76%). Ethnic groups account for 0.007% and are made up of a very small part of the population.

- **Have they been part of previous projects and/or consultations?**

Project: "Strengthening family farming by applying sustainable technologies to climate change in El Salvador" in CONCEPCIÓN BATRES.

## 1.2 Health and nutrition

**CONCEPCIÓN BATRES:** Concepción Batres has a total of 3 ECOSF to serve the entire municipal population, 1 Mini Clinic and 1 Health Unit. According to data from the Concepción Batres PEP, the main diseases are caused by an environment polluted by cane burning and solid waste, the contamination of aquifer mantle by the use of agrochemicals in agriculture, from cotton to now with the cane.

Children are also malnourished, with 3 out of 10 children suffering from the disease.

**JUCUARÁN:** Data of SIBASI, Jucuarán has a total of 4 Community and Family Health Units to serve the entire municipal population.

## 1.3 Safety

- **What is the level of safety?**

**CONCEPCIÓN BATRES:** Concepción Batres is not a very violent municipality, however, there is presence of gangs and maras, which perform extortions and thefts, mainly in the small businesses of the rural area and in the transport system that goes from Hacienda Nueva to El Tránsito. There was a 22% increase in crime in 2013 compared to 2012.

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<sup>3</sup> Formulation of the urban planning plans of municipalities of the Bay of Jiquilisco basin, Sectoral diagnosis urban planning and infrastructures Concepción Batres, Chapter II, IDB - INYPSA. Page 19.

<sup>4</sup> Formulation of the urban planning plans of municipalities of the Bay of Jiquilisco basin, Jucuarán Integrated Diagnostics, Chapter II, IDB - INYPSA. Page 45.

<sup>5</sup> Formulation of the urban planning plans of municipalities of the Bay of Jiquilisco basin, Sectoral diagnosis urban planning and infrastructures Concepción Batres, Chapter II, IDB - INYPSA. Page 19.

**JUCUARÁN:** Jucuarán presents low indicators in socio-economic aspects, and the safety problem linked to the maras in the south is growing and seriously compromises the development of the municipality.

#### **EL CARMEN AND CONCEPCIÓN BATRES<sup>6</sup>**

They are municipalities with high homicide rates that lack safety plans. The insecurity in the country is due to the global economic crisis of 2009. However, the data show that homicides in El Salvador have grown dramatically since 2013.

- **Is there a presence of armed groups or gangs?**

**CONCEPCIÓN BATRES:** Concepción Batres currently presents an increase in citizen insecurity due to the presence of gangs and gangs in its territory.

**JUCUARÁN:** Jucuarán has 3% of the total homicides in the Usulután Department.

Previously classified as a municipality without security problems, it now has problems of gangs that are mainly located in the Municipal Capital, in the canton El Almendro and El Espino.

## **I.4 Economy**

- **What is the prevalence of the informal economy?**

According to DIGESTYC (EHPM 2014) data, the employment situation in the Eastern Region with the main statistical data of the Working-age Population (PET) (16 years and older), the Economically Active Population (PEA) and Inactive Population (PEI), the Occupational Life rate and the Unemployment are as follows:

**Table: Main Statistics of the Labour Situation of the Country and the Eastern Region by Departments.**

	National		Eastern		Usulután		San Miguel		Morazán		La Union	
	Value	%	Value	%	Value	%	Value	%	Value	%	Value	%
<b>Total people</b>	6,401,415	100	1,306,764	20.4	364,536	5.7	484,479	7.6	196,866	3.1	260,883	4.1
<b>Men</b>	3,026,910	47.3	610,440	46.7	170,507	46.8	224,572	46.4	92,186	46.8	123,175	47.2
<b>Women</b>	3,374,505	52.7	696,324	53.3	194,029	53.2	259,907	53.6	104,680	53.2	137,708	52.8
<b>PET</b>	4,527,736	71.0	892,406	68.3	255,192	70.0	334,069	69.0	129,325	66.0	173,820	66.6
<b>Men</b>	2,062,955	45.6	400,372	44.9	115,972	45.4	146,551	43.9	58,842	45.5	79,007	45.5
<b>Women</b>	2,464,781	54.4	492,034	55.1	139,220	54.6	187,518	56.1	70,483	54.5	94,813	54.5
<b>PEA</b>	2,842,997	62.8	521,584	58.4	146,939	57.6	201,706	60.4	73,600	56.9	99,339	57.2
<b>Men</b>	1,664,497	58.5	322,742	61.9	92,653	63.1	117,389	58.2	47,604	64.7	65,096	65.5
<b>Women</b>	1,178,500	41.5	198,842	38.1	54,286	36.9	84,317	41.8	25,996	35.3	34,243	34.5
<b>PEI</b>	1,684,739	37.2	370,822	41.6	108,253	42.4	132,363	43.1	55,725	43.1	74,481	42.8
<b>Total Busy</b>	2,644,082	93.0	483,551	92.7	134,965	91.9	189,811	92.6	68,148	92.6	90,627	91.2
<b>Total de-ocupados</b>	198,915	7.0	150,562	7.3	11,974	8.15	11,895	7.41	5,452	7.41	8,712	8.77

Source: **Own elaboration based on DIGESTYC data (2015)** (Draft Document of the Master Plan for the Eastern Region, STTP/ JICA)

## **I.5 Municipal development**

### **a. Municipal development plans**

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<sup>6</sup> Arevalo, K. (December 11, 2017). More homicides in the municipalities ignored by the El Salvador Seguro plan. Today's Diary. Recovered from: <https://historico.eldiariodehoy.com/historico-edh/66375/mas-homicidios-en-los-municipios-ignorados-por-el-plan-el-salvador-seguro.html>

- **What are the main axes of action in municipal development plans?**

In Jucuaran, the FISDL Sustainable Family Program working with 60 entrepreneurs (37 women and 23 men).

- **Are there water management plans?**

The municipality of Jucuarán has a deficiency in access to drinking water (there are 45.3% of homes without such service), there is 25% of the total homes without access to electricity and 30% without latrines. These data are higher for rural areas and smaller for the urban area. For that reason, water and sewage issues are important for Jucuaran.

## **b. Previous projects**

- **What related projects have been developed in the area of the municipality**

### **EL CARMEN:**

- Health control for the handling of milk and its derivatives by the Mayor's Office and the Ministry of Health. → Proper handling of milk.
  - o Plan and control of livestock deworming → Cattle vaccination control campaigns.
- Supplies, fodder for the ranchers. → Provide fodder and other food and supplies for livestock.
- Reservoirs to capture rainwater for livestock. → Build each farmer a reservoir.
- Supplies and seed capital to launch an agro-service in the Municipality that facilitates the purchase of supplies from farmers. → Sale of medicine and forage for livestock.

## **c. Land ownership**

- **What is the general structure of land ownership in the area?**

**EL TRANSITO:** 80% Owners (Large) and 20% Tenants (Small Producers).

## **2. Biophysical dimension**

### **2.1 Agroclimatic conditions**

- **What is the geography of the area and its climatic characteristics?**

The average annual maximum temperatures in Jucuaran range from 31C on the coastal coast, to 35 or 36C to the north of the municipality. In the case of the average annual minimum temperatures, they decrease inland, varying from 23C in the marine-coastal boundary to 21C north of the territory. The hottest months are March and April (up to 34.6C) and the months with the lowest temperatures are December and January (up to 20.1C) The average annual rainfall in the territory ranges from 1500 mm on the coastal coast, rising northwards to 1700 mm. During the year the rainy season of May to October is defined, the remaining months correspond to the dry season (Urban planning plan of the municipality of Jucuarán).

- **What is the level of soil erosion?**

**CONCEPCIÓN BATRES:** The territory has a varied soil and suitable for various types of agriculture, highlights the cantons of La Anchila, El Cañal, Hacienda Nueva, El Porvenir and El Paraíso which have the most productive types of soils, this being one of the reasons for the concentration of the rural population in them.

**EL TRANSITO:** Soil type: Most of the soil is of the type Latosoles or reddish clay and Litosoles or in shallow stony terrain, from undulating to very rugged mountaineering. Despite this, it is used for agricultural use (sugar cane, beans, sesame corn among other vegetable crops) and housing.

**SAN MIGUEL:** The soils are classified in 69% as Reddish Clay Latosoles, 22% as Grumosoles, and Aluviales, Andisoles and Litosoles (3%, 3% and 2%, respectively.)

### **a) Land Use**

- **What are the main land uses in the municipality?**

**Land use in Jucuaran:**

Description	Area m2	%
Forests	149156,500.73	66.67
Mangle	11389,863.61	5.09
Sugar cane	2078,342.87	0.93

Annual/permanent crops	3124,265.79	1.40
Basic grains	23343,073.73	10.43
Lagoons, seas, coasts and estuaries	6921,010.93	3.09
Pastures	16744,845.73	7.49
Sandy dune beaches	2022,273.00	0.90
Aquaculture Perimeter	80,140.53	0.04
Salineras	205,931.82	0.09
Urban fabric	1961,800.93	0.88
Herbaceous vegetation	4942,083.90	2.21
Ecotonal Zones	1737,075.12	0.78
Total	223707,208.70	100.00

(Urban planning plan of the municipality of Jucuarán)

- **What is the state of degradation of existing ecosystems or agro-ecosystems?**

**CONCEPCIÓN BATRES:** Sewage and solid waste from the city of El Transito and San Rafael located north of Concepción Batres, due to lack of a suitable treatment plant and landfill are one of the critical points of pollution in the municipality, because while waste is collected in the urban area, in the rural area of the municipality there is no coverage of the service, so they are deposited in the rivers, burnt out and some bury them. The pollution that is generated in the rural area by the lack of latrines or health services is high.

Also, the air pollutants are the burnings at the harvest time which is very considerable and there is also the dispersion of dangerous substances by the application of agrochemicals.

Species of mollusks, crustaceans and edible and marketable fish are also threatened by the contamination of solid waste and black and grey water received by the bay, mainly by the mouth of the Rio Grande de San Miguel.

- **What has been the trend in the change in land use?**

**CONCEPCIÓN BATRES:** The inhabitants of the rural area of the municipality are usually engaged in agricultural activities, because of the potential and resources of water and soil type. 19% of the land is dedicated to mixed crops where vegetables such as green chili and pipian are planted on small family plots. They are also engaged in annual crops such as basic grains: corn, corn; but sugar cane and cotton are also grown mainly in the canton of El Cañal.

**JUCUARÁN:** Coffee plantations have been exchanged for subsistence crops such as corn, beans, sorgo, etc.

#### b) Agriculture

	Concepción Batres	Jucuarán	El Carmen	El Tránsito	San Miguel
% population dependent on agriculture		42.4 %	93% of producers grow grains (DEC.2017)  57% of the municipality's producers report receiving support for the production of	60%	

			<p>basic grains for consumption.</p> <p>46% of the families of the municipality that grows basic grains, has areas for cultivation equal or less than one apple, 15% of families between 1 to 2 apples, 10% of families between 2 and 5, and 5% have areas greater than 5 apples and 2 (DEC , 2017)</p>		
Main actors in agriculture		Men 56.9 %	<p>The Cooperative Society of Marañón Producers (SCPM) located in La Unión, has in recent years been the main production company at the national level, grouping 7 cooperative organizations that have a total of 1,534 Mz with plantations between the ages of 16 and 25 years, of which 695 Mzs are in production and by 2008/2009, they collected 6350 qq of walnut" (MAG &amp; IICA [2012], 37). (PMRO)</p>	COAGRI, (sugar cane ingenuity)	<p>Ingenuity for the cane</p> <p>Coffee growers</p>
Women's roles in the agricultural sector		Marketing of basic grains.		Small homemade orchards	

Main crops by municipality	Coffee, cane, other agro-industries, bean, corn, sorgo, Frut cali, hort. Calid, hort, temporal, cassava and other agro.	Coffee, cane, other agribusiness, bean, corn, sorgo, Frut calid, hort. Calid hort, temp.	Bean, corn, sorgo, frut cali, hort, temporary.	Cane basic grains.	Coffee, cane, other agro-industries Bean, corn, sorgo, Frut cali, hort. Calid, hort, temporal, sweet potato, cassava and other agro.
Crop area	3,684	2,164	1,744		13,119
Productivity of major crops	Corn 2, 127 Cane 872 Sorgo 177 Frut. Calid 149 Hoard. Calid.142	Corn 1,384 Sorgo 294 Bean 1,229 Cane 148 Coffee 58	Corn 1,278 Sorgo 420 Frut. Cal 30		Corn 6,543 Sorgo 3,239 Cane 1,003 Coffee 870 Bean 433
Existence of crops in agroforestry partner		Agroforestry and permanent crops. Forestry and forestry		Agroforestry in New Street	
Projects related to agriculture of Nationally Appropriate Mitigation Actions (NAMA)	Program FORT (FUSADES)		The main cultivation practices that are carried out in the municipality of El Carmen	Silvopastoril	

- **What are the methods of cultivation and harvesting of the main crops?**

**CONCEPCIÓN BATRES:** Traditional methods, burning, agrochemicals and the small producer is producing, but by tradition not as a source of income.

**EL TRANSITO:** Traditional methods, burning, agrochemicals and the small producer is producing, but by tradition not as a source of income.

- **What agricultural techniques to improve the efficient use of water are used?**

**EL TRANSITO:** Very few reservoirs.

- **What is the production and profitability of the main crops per ha?**

Challenges were identified in the Eastern Region: weak economic structure due to low crop productivity, low livestock competitiveness, underdeveloped local industries, inadequate use of marine, coastal and tourism resources and weak connection with other regions 2) expansion of poverty and unemployment along with migration and 3) quality degrades the environment particularly of water and related soil regime (JICA & CND, 2004, pp. 3-12 and 3-13).

Challenges identified in the eastern region are challenges that the sector also faces at the national level with an additional element today, which is climate change where the dry corridor affects this region the most. Even with these challenges, the eastern region has a number of potentials, including those expressed in consultation exercises with governmental and non-governmental actors, international co-operators, universities and foundations, including the basis productive, livestock, coffee, honey, sugar cane, fishing, aquaculture and basic grains; in addition to tourism potential and road infrastructure such as the By-pass and port such as the Port of La Unión. (master plan of the eastern region 2015).

### c) Forest resource



	Concepción Batres	Jucuarán	El Carmen	El Tránsito	San Miguel
Current forest coverage (%)	According to data from the Ministry of Agriculture and Livestock 38% of the lands of Concepción Batres, they have productive forest potential.				
Types of forest	The mangrove species present in the municipality are Istaten, Cincahuite, Botoncillo and Madre Sal.			Jocotal (Pimental Vegetation)	
Types of natural ecosystems	Salty forest.  Gallery forest.			El Jocotal	
Actors in the forestry sector	The inhabitants of the rural area of the municipality are usually engaged in agricultural activities, because of the potential and resources of water and soil type.			Ega. MARN Municipal Environmental Management Team	
Type of roles of women in the forestry sector (list)			Most people in the household depend on the head of household and all support productive activities that take place at home. It is highlighted that 18% of families are run by women, who serve as heads of household and engage in agricultural and livestock activities. (Diagnosis of El Carmen).	He has traditionally occupied it like firewood.	
Sources of firewood				Rural area	
Species used as firewood				Madrecacao, quebracho, tiguilote, laurel, etc.	
Type of forest from which firewood comes				Terenos skirts, skirts of the	

				Chaparrastique volcano.	
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• **How has forest cover changed over the years?**

**CONCEPCIÓN BATRES:** Cane cultivation has expanded rapidly and unsustainably, cutting down small forests and getting closer and closer to mangrove or protected natural resources, the supplies for this type of crop are highly harmful to the environment and health reducing soil productivity rates and affecting neighboring crops mainly with the maturing chemicals used to accelerate the cane growth.

**EL CARMEN:** Fires has destroyed forests.

**EL TRANSITO:** Fires are a concern, in the El Jocotal lake, the El PIMENTAL forest hasn't been affected yet.

• **Are there forest nurseries in the area?**

**JUCUARÁN:** There aren't forest nurseries, but there is a coffee plants nursery, managed by a group of people who are forming a coffee cooperative.

**EL TRANSITO:** No nursery. This year, 2000 trees of different species have been distributed in the municipality, acquired from different nurseries in the eastern area. According to José Armando Cisneros Cruz, Head of the Environmental Unit of the Mayor of El Transito, a mega nursery is needed. So far they have planted 100 cocoa trees, 30 mango Panades, 30 of marañón, cedars, mahogany.

d) **Livestock**

	Concepción Batres	Jucuarán	El Carmen	El Tránsito	San Miguel
% livestock-dependent population			The mainly exploited livestock items are the minor species, with hens and chickens representing significant percentages, 59% and 19% respectively, which add up to 78% of the farm systems of Carmen producers, an average of 10 units per family. (DEC,2017)	25%	
Type of livestock prevailing			Cattle are an important item within farm systems, with 27% of producers rearing and farming cattle, mostly a Creole breed. (DEC,2017)	Cattle and pigs	
Main livestock species, and what is produced			Breed Creole.	Establishment of the tianguis (market) there are many breeds of cattle	
Main livestock actors				Medium-sized company	
Roles played by women in livestock				A low percentage help in shepherd.	

e) **Protected areas**

• **Are there protected areas in the area?**

Yes, there are, for example, Tecapa Conservation Area - San Miguel and The Xirualtique – Jiquilisco Biosphere Reserve.

- **Are there endemic species (which)?**

According to what has been investigated, there are no endemic species in the place, however, freshwater mangroves are threatened. These are endangered in other Central American countries, so special attention must be paid to its formations. The expansion of the agricultural frontier, and the creation of new paddocks are the highest threats that this formation has, which plays a very important role as a mechanical filter during the episodes of avenue.

- **What are the main wild species in the area (flora and fauna)?**

The wild communities found contribute about 100 species, among which are the mountain moor flora, which is found in the Chaparrastique volcano, and the aquatic flora, which is the one that presents the greatest diversity. The most representative flora of this area are the floating plants. The species that make up the mangrove of Jiquilisco are the "red mangle", "madresal", "botoncillo" and "istatén" (Quezada, 1998).

The fauna is quite varied with 14 species identified for the area, among which some species of fish are noted, because they are classified as endangered in El Salvador, eight species of ducks have been identified; being in different years, the main wintering place of migratory and native birds with high potential for use by the inhabitants.

- **Are there biological corridors?**

No, there may only be connectors that are sites that guarantee the flow of biodiversity and its ecological viability.

## 2.2 Water resources

	Concepción Batres	Jucuarán	El Carmen	El Tránsito	San Miguel
Water sources (supply systems, where the water resource comes from)	<p>Access to the liquid vital for human consumption is a critical issue in this municipality, by 2007 36.32% of households had access to drinking water service by pipe, the rest are supplied with water as permitted by the very particular circumstances of each, according to the community of residence.</p> <p>Just over half of the families are exclusively supplied with 51.25% home wells, the water mantle in the territory is shallow and historically loaded with chemical pollutants by non-environmentally friendly agricultural production. To this problem is added the fact of feces contamination.</p>			Drilled wells and natural source	
Main actors for water resource management (names of institutions, associations, irrigator organizations, etc.)				<p>COAGRI</p> <p>SPRING ASSOCIATION, SUSUAGUA</p> <p>ADESCOS AND ANDA</p>	



Agricultural Bank of El Salvador  Final Av Guandique y 4 Cl Pte  Usulután - Usulután	Bank	<a href="http://bancoagricola.com.sv">http://bancoagricola.com.sv</a>  (+503) 2210 0000	Credits  Savings in sight and debit card  Term savings  Credit card  Online banking	\$ 19,210,200.00  According to the Consolidated Balance Sheet of the year 2018.		
Banco De Los Trabajadores De San Miguel S.C. From R.L De C.V.  Bo. Conception Street to Berlin Main  Mercedes Umaña - Usulután  Col. Panamericana Pan American Highway Nr 3 Km 140 Contiguous Hardware Lonchito	Bank	(+503) 2680 2933  (+503) 2680 2933	Credits  Savings	\$10,007,400.00  According to Balance Sheet of the year 2018.		
Cooperative association of savings and credit and agricultural production the savior forward, limited liability ceases, of R. L.  7a. Street East House #2, Neighborhood El Calvario, Usulután	Cooperative	(503) 26621190 26132950; 26621190	Savings  Credits			
Credimás  First Level, 28 Grimaldi Street, Usulután	Bank	(503) 2535 5900	We lend garments.			
INPEP Usulután Cooperative Pensions Association, limited liability Association ACACPIU, DE R.L.	Cooperative	(503) 26245866	Savings  Credits			

2nd AVENUE NORTH No. 21-C, BARRIO LA PARROQUIA, USULUTAN USULUTAN			INPEP pensions			
Agricultural Development Bank.	Bank	www.bfa.gob.sv  (+503) 2662 0433	Credits  Savings  Technical assistance  Savings service to other banks	\$301,380,4 00.o  According to Balance General 2018. (According to Note No. 7. There are both state and other banks that have savings in this entity)		
Scotia Bank. El Salvador.		(+503) 2624 0766  <a href="https://www.scotiabank.com.sv">https://www.scotiabank.com.sv</a>		6th Av South Usulután, Usulután.		
Davivienda Bank  Ci Grimaldi and Av Napoleon Flores Huezo	Bank	<a href="https://www.davivienda.com.sv">https://www.davivienda.com.sv</a>  (+503) 2626 6509	Multi-target credits  Savings in sight  Scheduled savings  Term savings  Online banking.	\$15,317,30 0.oo  According to Balance Sheet Consolidate d Year 2018		
SAN MIGUEL						
Agricultural Bank of El Salvador  3 Av Nte No 101. San Miguel, San Miguel.  4 Av Sur y Ci Sirama C.C. San Miguel Loc 56 and 57	Bank	(+503) 2210 0000  <a href="http://bancoagricola.com.sv">http://bancoagricola.com.sv</a>  (+503) 2210 0000  Av Roosevelt South No 303	Credits   Savings in sight and debit card  Term savings  Credit card  Online banking	\$ 19,210,200. 00  According to the Consolidate d Balance Sheet of the year 2018.		

		(+503) 2210 0000				
<p>Banco De Los Trabajadores De San Miguel S.C. From R.L De C.V.</p> <p>Col. Panamericana Pan American Highway Nr 3 Km 140 Contiguous Ferreteria Lonchito</p> <p>San Miguel - San Miguel</p>	Bank	<p>(+503) 2680 2933</p> <p>(+503) 2680 2933</p>	<p>Credits</p> <p>Savings</p>	<p>\$10,007,400.00</p> <p>According to Balance Sheet of the year 2018.</p>		
<p>CREDICAMPO</p> <p>14 Calle Poniente No.20-21, Colonia Hirleman, San Miguel, El Salvador CA.</p> <p>2 blocks to the Westeros of Hotel China House.</p>	cooperative savings and credit society	<p>info@credicampo.com.sv</p> <p>(503) 2609-6650</p> <p>San Miguel</p> <p>Dr. Federico Penado Street, 8,</p> <p>La Merced Neighborhood, Usulután.</p> <p>Phone: (503) 2609-6653</p> <p>San Francisco Neighborhood, Delgado #8 Street, El El Transito</p> <p>Phone: (503) 2609-6660</p>	<p>Credits</p> <p>Commercial micro-enterprise</p> <p>Agricultural credits</p> <p>Livestock credits</p> <p>Credimujer</p> <p>Housing improvement credits</p> <p>Consumer credit</p> <p>Multi-target credit</p> <p>Credirural</p> <p>Savings</p> <p>Remittances</p>	<p>375 communities at the eastern and paracentral level of the country</p> <p>\$10,441,11.64</p> <p>According to Balance of General Situation Year 2017.</p>		

		<p>Av. Rubén Torres Córdova.</p> <p>Bo. The Center Adjacent to Catholic Church. Jiquilisco, Usulután.</p> <p>Phone: (503) 2609-666</p>				
<p>Credit Fund</p> <p>1 Calle Ote No 102</p> <p>San Miguel</p> <p>Bo El Centro 4 Av Nte No 1-6, Department of The Union.</p>	Federatio n of Credit Boxes	<p><a href="https://www.cajasanmiguel.com.sv">https://www.cajasanmiguel.com.sv</a></p> <p>(+503) 2665-6400</p> <p><a href="http://www.cajadecreditolaunion.com">www.cajadecreditolaunion.com</a></p> <p>(503)2665-4100</p>	<p>Personal credit</p> <p>Popular credit</p> <p>Savings</p> <p>Debit and credit card</p> <p>Credits:</p> <p>Credit for small and medium-sized enterprises</p> <p>Housing credit</p> <p>Agricultural credit</p> <p>Safe life, health, financial security.</p>	<p>\$28,707,400.00</p> <p>According to the Balance Sheet for 2018 of FEDECRÉDITO</p>		
<p>Cooperative Association of Savings and Credit Migueleña De R.L.</p> <p>Bo San Felipe 4 Calle Pte No 501</p> <p>San Miguel - San Miguel</p>	Cooperat ive	(+503) 2645 9100	<p>Savings</p> <p>Credits</p>			
<p>Promerica Bank</p> <p>2nd CI Oriente and Av Gerardo Barrios Barrio Santa Lucia,</p>	Bank	<p><a href="http://www.promerica.com.sv">www.promerica.com.sv</a></p>	<p>Mobile banking</p> <p>Credit cards</p>	<p>\$875,884,900.00</p> <p>According to balance</p>	Banco Promerica El	



Chapeltique, San Miguel		(+503) 2618 2287	Savings Loans Accounts to third parties. Payments for services of electricity, water, university, telephony, housing. Remittances.	sheet year 2018.	Salvador now has 55 points of attention and has been one of the banks with the highest growth in recent years.	
R.L Coops. Alam Roosevelt Sur Plaza Chaparrastique Loc 20, San Miguel	Cooperative	www.coopas.com.sv  (+503) 2661 7112	Savings and credit services for professionals			
Cocredit De R.L.  Bo San Carlos Cl 14 De Diciembre C C San Antonio  El El Transito San Miguel Township	Cooperative	(+503) 2616 0565	Financial Services.  Credits			
BANCOVI.  6Th STREET PONIENTE #212 BARRIO SAN FRANCISCO. San Miguel	Bank	<a href="https://www.bancovi.com.sv/">https://www.bancovi.com.sv/</a>  (503) 2316-5125	Saving Credits Remittances	.\$145,702,500.00. According to Balance Overview 2018	13 agencies nationwide and their representatives assured that it is planning to open its Financial Center in San Salvador	
Credimás	Bank	(503) 2535 5900	We lend garments.			

Barrio San Felipe, 2A Calle Poniente 304, San Miguel						
Ingenio "Chaparrastique" S.A de C.V  Al Cuco Road Km 144 1.2 in El Jute		(503) 2667- 4800  <a href="http://www.grupo-cassa.com/grupo-cassa/ingenio-chaparrastique/">http://www.grupo-cassa.com/grupo-cassa/ingenio-chaparrastique/</a>				
ACOSETVI, DE R.L.  COOPERATIVE ASSOCIATION OF SAVINGS, CREDIT AND TECHNICAL SERVICES OF THE ORIENTE, OF LIMITED LIABILITY  AVENIDA WILL SALGADO, POLIGONO 16, URBANIZACION VILLA MONTECARLOS #6 and 7 San Miguel.		(503) 26695857 26391286				
ACOCAYCO, DE R.L.  COOPERATIVE ASSOCIATION OF SAVING, CREDIT AND CONSUMPTION OUR LORD OF PEACE, OF LIMITED LIABILITY  STREET LA PAZ AND FINAL 9th AVENUE SUR BARRIO LA MERCED,  BEHIND HOTEL TROPICO INN, SAN MIGUEL SAN MIGUEL		(503) 26610001 26608440				
ACODEZO, DE R.L.  COOPERATIVE ASSOCIATION OF SAVING, CREDITING AND CONSUMPTION  EMPLOYEES OF EAST AREA		(503)  26615031;2261 5026				

EDUCATION, LIMITED LIABILITY  8TH STREET PONIENTE 205, BARRIO SAN FRANCISCO SAN MIGUEL SAN MIGUEL MIGUEL						
COMÉDICA of RL.  Chaparrastique Square, Loc 18 and 19 Av Roosevelt and Cl Chaparrastique. San Miguel, San Miguel.		(+503) 2661 3171  <a href="http://www.comedica.com.sv">www.comedica.com.sv</a>				
LA UNION						
Agricultural Bank of El Salvador  . 1 Cl Pte Bo El Ctro  Av Fernando Benitez and 1 Cl Pte Sta Rosa de Lima  (+503) 2210 0000  Bo El Ctro 2 Cl Pte Itipuca  (+503) 2210 0000	Bank	<a href="http://bancoagricola.com.sv">http://bancoagricola.com.sv</a>  (+503) 2210 0000	Credits  Savings in sight and debit card  Term savings  Credit card  Online banking	\$ 19,210,200.00  According to the Consolidated Balance Sheet of the year 2018.		
Credit Fund  Bo El Centro 4 Av Nte No 1-6, Department of The Union.	Federation of Credit Boxes	<a href="https://www.cajasanmiguel.com.sv">https://www.cajasanmiguel.com.sv</a>  (+503) 2665-6400  <a href="http://www.cajadecreditolaunion.com">www.cajadecreditolaunion.com</a>  (503)2665-4100	Personal credit  Popular credit   Savings  Debit and credit card  Credits:  Credit for small and medium-sized enterprises  Housing credit  Agricultural credit	\$28,707,400.00  According to the Balance Sheet for 2018 of FEDECRÉDITO		

			Safe life, health, financial security.			
<p>AMAPALITA'S COOPERATIVE SAVINGS AND CREDIT ASSOCIATION, LIMITED LIABILITY ACACMA, R.L.</p> <p>CANTON AMAPALITA, MAIN STREET MEDIA CUADRA BEFORE THE SCHOOL CENTER, GREGORIO ALVAREZ NUEZ, LA UNION LA UNION.</p>		(503) 26060429				
<p>COOPERATIVE ASSOCIATION OF SAVINGS, CREDIT AND APROVISION SANTIAGO DE CONCHAGUA, OF LIMITED LIABILITY ACOCONCHAGUA, OF R.L.</p> <p>AVENUE THE TOBOGAN AND WENCESLAO STREET, BARRIO EL CENTRO CONCHAGUA, THE UNION CONCHAGUA</p>		<p>(503)</p> <p>26803409</p> <p>26803409</p> <p>26803412</p>				
<p>Banco De Los Trabajadores Bo Las Flores 3 Av Sur No 4-1 The Union, The Union</p>	Bank	<p>(+503) 2604 2579</p>	<p>Credits</p> <p>Savings</p>	<p>\$10,007,400.00</p> <p>According to Balance Sheet of the year 2018.</p>		
<p>Azteca Bank</p> <p>1 Av Nte No 2-4</p> <p>Department of the Union</p>	Bank	<p>www.bancoazteca.com.sv</p> <p>(+503) 2631 0348</p>	<p>Saving</p> <p>Credits</p> <p>Remittances</p> <p>Electronic Banking.</p>	<p>Aztec Bank. \$52,153,200.00.</p> <p>According to Balance Overview 2018</p>		

## Guatemala

### 1. Demographic and socioeconomic dimension

#### I.1 Demographics

##### a) Population and gender structure

	Municipality 1 <b>Zacualpa</b>	Municipality 2 <b>San Andrés Sajcabajá</b>	Municipality 3 <b>Uspantán</b>	Municipality 4 <b>Canillá</b>	Municipality 5 <b>Chicamán</b>
Total Population Census 2002 Census 2018	22,846 32,750	19,035 24,981	41,892 65,872	9,073 12,172	25,280 39,731
Rural Population Census 2002 Census 2018	16,231 27,747	17,160 22,165	37,694, 59,208	7,575 9,683	23,387 36,811
Population by sex (Census 2018) Men Women	15,499 17,251	11,762 13,219	32,548 333,324	5,802 6,370	19,403 20,328
Area (km <sup>2</sup> )	336.0	446.0	865.0	123.0	516.0
Poverty rate (2002) - Extreme poverty rate (2002)	84.4 34.0	88.6 37.7	87.7 36.6	79.0 87.7	33.9 38.4
Maternal mortality rate (2009)	0	0	50.44	0	4 cases
Infant mortality rate Children 1 year (2009) Under 5 years (2009)	11.89 3.42	8.17 6.20	13.46 5.45	6.43 0.0	25.33 9.80
life expectancy men	Five-year data 2015-2020 (men), national level = 69.1				
Women's life expectancy	Five-year data 2015-2020 (women), national level= 76.1 Five-year data 2015-2020 (department) = 75.20				
State of food security	47.0 High vulnerability	37.8 High vulnerability	55.9 Very high vulnerability	29.3 Moderate vulnerability	57.4 Very high vulnerability
Femicide	Rate: 172 (Source: CEPALSTAT) <a href="https://oig.cepal.org/es/indicadores/feminicidio">https://oig.cepal.org/es/indicadores/feminicidio</a>				
Femicide and other forms of violence against women	During 2017, on average 135 women were victims of femicide and other forms of violence against women. Rate of 57.5 per 10,000 women				
Rate of school dropout (2018)	4.59% preschool 6.02% primary	6.84% preschool 6.33% primary	2.80% preschool 3.36% primary	2.30% preschool 4.57% primary	3.47% preschool 4.70% primary
Rate of drop-out for girls	The Ministry of Education (MINEDUC) does not disaggregate the information by sex. <a href="http://estadistica.mineduc.gob.gt/Anuario/home.html#">http://estadistica.mineduc.gob.gt/Anuario/home.html#</a>				
Are there women without an identity card in the municipalities?	In ENCOVI 2014, the population is reported with an identity document by sex (nationwide) = total: 96.4, men: 96.3 and women: 96.5 By area of residence = total: 96.4, urban: 97.2 and women: 95.6				

#### Education level by sex by department 2014

	Population aged 15 years and over			Young people aged 15 to 24 years		
	Total	Men	Women	Total	Men	Women
Total (country)	6.0	5.3	5.6	7.3	7.1	7.2
Quiché	5.0	4.0	4.4	6.6	6.2	6.4

Source: [www.desarrollohumano.org.gt/estadisticas/estadisticas-genero/escolaridad-promedio-por-sexo-according-to-department/](http://www.desarrollohumano.org.gt/estadisticas/estadisticas-genero/escolaridad-promedio-por-sexo-according-to-department/)

## b) Population hotspots

The highest concentration of inhabitants in the five prioritized municipalities is located in the rural area with an average of 87.1%. The municipality with the largest number of inhabitants in the rural area is Chicamán, with 92.7%; they are followed in order of importance San Miguel Uspantán with a 89.9% rural population; San Andrés Sajcabajá with 88.7%; Zacualpa has a rural presence of 84.7% and Canillá with 79.6%.

As of December 2018, the distribution of the population in the 5 prioritized municipalities is predominantly rural and dispersed, representing the total of villages and hamlets 30.8% of populated places in the department of Quiché and 3.3% with respect to the total populated places in the country. According to the Information System of the Register of Populated Places the situation as of December 2018 by municipality was as:

Municipality	Villages 2018	Hamlets 2018	Total of villages and hamlets
<b>National</b>			<b>13,126</b>
<b>Department. Quiché</b>			<b>1,426</b>
Zacualpa	48	1	49
San Andrés Sajcabajá	115	3	118
Uspantán	70	98	168
Canillá	0	24	24
Chicamán	64	16	80
<b>total</b>	<b>297</b>	<b>142</b>	<b>439</b>

## c) Ethnic groups

- Are there ethnic groups and indigenous territories?

On average, the 5 prioritized municipalities have a 77% indigenous population (Zacualpa with 94.2%, San Andrés Sajcabajá 89.1%, Uspantán with 80.4%, Canillá with a 44.7% and Chicamán with 76.6%). (2002 census).

In the five prioritized municipalities, the average of Mayan villages is 78.2% and only the municipality of Canillá is mostly Ladino, with 53.8%.

Municipality	Total population	Belonging population					
		Maya	Garífuna	Xinca	Afro descent / Creole	Ladino (a)	Foreigner (a)
Zacualpa	32,750	31,264	21	2	32	1,422	9
San Andrés Sajcabajá	24,981	22,251	7	0	11	2,712	0
San Miguel Uspantán	62,872	54,380	40	7	634	10,804	7
Canillá	12,172	5,560	19	2	19	6,553	19
Chicamán	39,731	31,162	21	0	11	8,536	1

Source: INE, XII National Population Census and VII Housing - 2018.

In Guatemala the Maya people have 22 linguistic / ethnic communities. In the area of the 5 prioritized municipalities all of them are presented, varying in the number of inhabitants for each linguistic community, predominantly the Maya-K'iche 'people with 61%; following in order of importance the Ladino people with 21%; 12% of the Maya-Poqomchi people and 3% of the Maya-Uspanteko people.

Municipio	Total de población pueblo maya	Comunidad lingüística Maya																					
		Achi	Akateka	Awakateka	Ch'orti'	Chalchiteka	Chuj	Itza'	Ixil	Jakalteko /Popti'	K'iche'	Kaqchikel	Mam	Mopan	Poqomam	Poqomchi'	Q'anjob'al	Q'eqchi'	Sakapulteka	Sipakapense	Tektiteka	Tz'utujil	Uspanteka
Zacualpa	31 264	77	26	-	-	5	2	-	-	-	31 040	57	7	-	6	5	21	2	7	1	4	3	1
San Andrés Sajcabajá	22 251	33	14	-	1	1	-	-	3	-	22 081	38	5	4	10	-	47	3	1	-	9	1	-
San Miguel Uspantán	54 380	122	55	1	1	23	-	10	1 954	2	21 625	36	46	5	44	981	13	25 878	20	4	15	9	3 536
Canillá	5 560	173	1	-	-	12	-	-	2	-	5 332	18	-	-	1	10	10	-	-	-	1	-	-
Chicamán	31 162	1 633	13	2	-	13	1	-	16	-	8 041	64	30	5	10	16 284	10	4 881	18	6	45	1	89
total de población por comunidad lingüística	144 617	2 038	109	3	2	54	3	10	1 975	2	88 119	213	88	14	71	17 280	101	30 764	46	11	74	14	3 626

Source: INE, XII National Population Census and VII Housing - 2018.

Main indigenous organizations in **Uspantán** are<sup>7</sup>:

No	Name of the group	No. Members	Name Responsible Group / Coord	Telephone	Main activities carried out by the group
1	COFRADIA	12	Roberto Tajín Pacheco	3039- 9383	<b>May 8:</b> Celebration of the spring fair <b>September 28:</b> Celebration of the fair in honor of San Miguel Arcángel <b>October 18:</b> Celebration of St. Luke's Day <b>New Year:</b> Renewal of indigenous authorities
2	CONADIGUA	25	Simeona Sarat Pacheco	5738 1096	Ensure the rights of Indigenous producers
3	ASPREMKI		Dionicio Camaján		Training in Mayan Quiche writing.
4	Midwives Association (Midwives Grandmothers)	35	Luis Sic		Attention to women Pregnant, births Massages
5	Waxaq'ip Tijax (Mayan Priests)	5	Max Aguilar		Mayan ceremonies Mayan doctors Mayan cures
6	Mayan Peoples Council		Hilario Aguiare		Mother Nature Advocacy

Main indigenous organizations in **Chicamán**:

<sup>7</sup> Information provided by the Municipal Planning Directors: Alfredo Itzep (Uspantán), Javier Gamarro (Chicamán) and Carlos Ixcuná (San Andrés Sajcabajá).

No	Name of the group	No. Members	Name Responsible Group / Coord	Telephone	Main activities carried out by the group
1	Indigenous Community La Campana	8	Benito Morán Morán		Ensure community rights
2	Indigenous Community San Pablo II El Senzontle	7	Sponsorship Chávez Ramírez		Respect ancestral laws

Main indigenous organizations in San Andrés Sajcabajá:

No	Name of the group	No. Members	Name Responsible Group / Coord	Telephone	Main activities carried out by the group
1	Indigenous City Hall	20	Cirilo de León		Ensure ownership of the entire municipality

- Have they been part of previous projects and / or consultations?  
There is a project called *Canje de Deuda para Adaptación al Cambio Climático* in 6 municipalities of Quiché, Zacualpa, San Pedro Jocopilas, San Andrés Sajcabajá, Sacapulas, San Bartolomé Jocotenango and Canillá (funded by the Government of Germany).

## I.2 Health and nutrition

- What is the state of food security in the area?  
Height for age, expressed as the prevalence of delayed height or chronic malnutrition, is a useful indicator to identify population groups at risk of health, nutrition and socio-economic problems, so it is related to quality of life, the level of human development and the food and nutritional security of the population.  
According to the historical data collected by a Census in school children from 1986 to 2015, there has been a slight improvement in the indicator of chronic malnutrition in the five prioritized municipalities. The municipalities that have presented better results are San Andrés Sajcabajá and Zacualpa, with a decrease of 25.1 and 15.5 percentage points from 1986 to 2015, respectively.

Municipality	1986 % OF STUDENTS WITH CHRONIC MALNUTRITION	2001 % OF STUDENTS WITH CHRONIC MALNUTRITION	2008% OF STUDENTS WITH CHRONIC MALNUTRITION	2015% OF STUDENTS WITH CHRONIC MALNUTRITION	2015 CATEGOR Y
Zacualpa	64.5	58.8	57.4	47	HIGH
San Andrés Sajcabajá	62.9	52.6	50.3	37.8	HIGH
Uspantán	60.4	62	65.4	55.9	VERY HIGH
QUILL	59.3	47.9	39.6	29.3	MODERAT E
Chicamán	61	67	66.9	57.4	VERY HIGH

In general terms, the administrative region of the north-west (Huehuetenango and Quiché) has the highest prevalence of chronic malnutrition in the country (54.9%), categorized as Very High nutritional vulnerability. At the departmental level, Quiché ranks third in nutritional vulnerability with 55.3%.  
Of the prioritized municipalities, Chicamán and Uspantán have the highest values of chronic malnutrition, 57.4% and 55.9% respectively, under the category of Very High Nutritional Vulnerability. It is followed in order of importance by Zacualpa and San Andrés Sajcabajá, with 47% and 37.8%, with a category of High nutritional vulnerability and finally, Canillá is presented with 29.3%, classified as of moderate nutritional vulnerability and is the only one It is below the national average of 37.6%.



### I.3 Safety

- What is the level of safety? What are the characteristics of violence in the area?

	Zacualpa	San Andrés Sajcabajá	Uspantán	Canillá	Chicamán
Crime rate (2013)	30.1	31.2	19.4	24.1	11.1
Homicide rate (2013)	12.9	7.8	3.0	8.0	-
Rate of domestic violence complaints (2013)	0.8	1.9	0.8	-	0.6
Number of PNC agents	1 per 9748 inhabitants	1 per 67 inhabitants	NDA	1 per 1272 inhabitants	NDA
Cases in Justice of the Peace (2009)	30	25		25	
Places with problems of gangs (organized gangs) and / or assaults	Urban area, Tunajá I and Tunajá II	There is no report	Cholá, Saj Rakan Chituj and Tierra Blanca (place of assault on travelers)	No homicides are reported, nor organized crime	Belejú, Chixoy, Soch, Zona Reyna and La Cruz (assault and robbery)
Crimes against life (2009)	X	x	3	0	3

In the 5 municipalities there are 41 cases of land conflict registered with the Ministry of Agrarian Affairs (SAA), the following table shows the information and although the municipality of Canillá does not appear, one of the conflicts of Territorial boundaries of San Andrés Sajcabajá is precisely with the municipality of Canillá as a counterpart. These types of cases are highly likely to escalate the conflict.

Municipality	Number of cases by type				
	Disputes for ownership rights	Occupation	Regularization	Territorial borders	Total municipality
Chicamán	10	2	1		13
San Andrés Sajcabajá	3			4	7
San Miguel Uspantán	10	7		1	18
Zacualpa	3				3
	26	9	1	5	41

- Is there a presence of armed groups or gangs?

Only reported in the municipality of Zacualpa. To counteract the crime generated by the maras, the population of the villages was organized in Security Boards to protect the integrity of the inhabitants.

### I.4 Economy

	Zacualpa	San Andrés Sajcabajá	Uspantán	Canillá	Chicamán
Main productive activities					
- Agricultural	66%		79%		74.34 %
- Livestock	3%				6.9%
- Artisan	6%		3%	NDA	12.4%
- Commerce	10%		12%		1.38%
- Services	8%				4.71%
- Salaried	25%				-
- Others			2%		0.27%
Income per activity					
- Q 1.00 - 500.00	19%		13%	NDA	
- Q 501.00 - 1,500.00	46%	NDA	64%		66%

	<b>Zacualpa</b>	<b>San Andrés Sajcabajá</b>	<b>Uspantán</b>	<b>Canillá</b>	<b>Chicamán</b>
- Q 1,501.00 - 2,000.00 - Q 2,001.00 - 3,000.00 - Q 3,000.00 plus	17% 9%		10% 10% 3%		25% 4%
Main national agricultural companies	According to data from the National Directorate of Companies and its Premises (DINEL 2013) of the Banco de Guatemala in Quiché there were 2,009 companies, of which 51 are in the branch of economic activity: "Agriculture, livestock, forestry and Fishing".				
Unemployment rate men	Open unemployment rate (Population 15 years and over, by sex) Total = 2.0 / Men: 1.6				
Unemployment rate women	Open unemployment rate (Population 15 years and over, by sex) Total = 2.0 / Women: 2.7				
Participation in labor force (EAP 2009) *	84%	80%	83%	88%	88.9%
Participation of women in labor force (EAP 2009)	16%	20%	17%	12%	11.1%
Proportion of producers	Number of companies by size and branch of economic activity (Agriculture, livestock, hunting and forestry) ** Micro: 24,679 / Small: 1,201 Medium: 170 / Large: 62 General total: 26,112 (3.12% of the total)				
Jobs that women perform		Family gardens, napkin embroidery, forest nurseries, foot and waist looms and bakeries		Harvest and storage of production	

\* Population projection to 2009, from the Population Census 2002.

- What is the prevalence of the informal economy?  
According to the data provided by the ENEI, of every 10 Guatemalans seven work in the informal economy, a situation that increases in the rural area where 8 out of 10 do.  
Informal work affects women more (74.0) than men (69.0), more indigenous people (84.0) than non-indigenous people (63.0) and more those who live in rural areas (83.0) than those who do live in urban areas (58.).

## **I.5 Municipal development**

### **a) Municipal development plans**

- What are the main axes of action in municipal development plans?

<b>Zacualpa</b>	<b>San Andrés Sajcabajá</b>	<b>Uspantán</b>	<b>Canillá</b>	<b>Chicamán</b>
1. Human development with gender equity	1. Social development from the worldview of the different villages that interact in the municipality	1. Social and Human Capital	1. Social development and improvement of educational quality	1. Sustainable productivity
2. Urban development and territorial planning	2. Protection and recovery of NRN	2. Governance and democratic culture	2. Development and improvement of health services with	2. Competitiveness social and human capital

<b>Zacualpa</b>	<b>San Andrés Sajcabajá</b>	<b>Uspantán</b>	<b>Canillá</b>	<b>Chicamán</b>
			cultural relevance development	
3. Sustainable management of NRNs, with emphasis on forest and water resources	3. Promotion of economic development	3. Productive economic	3. Sustainable environmental development and risk management	3. NRN and environment
4. Economic development sustainable local	4. Urban development and territorial planning	4. Sustainable management of NRNs	4. Of citizen development and participation with gender equity and ethnicity	4. Citizen participation and municipal government
				5. Public infrastructure

- Are there water management plans?  
There is a Municipal Water and Sanitation Plan prepared in 2005 for the municipalities of Zacualpa and San Andrés Sajcabajá.

**b) Community and political participation / Participation of women**

	<b>Municipality 1 Zacualpa</b>	<b>Municipality 2 San Andrés Sajcabajá</b>	<b>Municipality 3 Uspantán</b>	<b>Municipality 4 Canillá</b>	<b>Municipality 5 Chicamán</b>
Key actors in the municipality (including cooperatives, NGOs, community associations, etc.) (list)	- 41 COCODES * - Indigenous Mayor's Office is dedicated to conflict resolution and advice. - Mercy Corps (supports legalization of property) in San José Sinaché and San Antonio Sinaché villages.	- 69 COCODES with representation of all communities - Local Integral Development Association - Nueva Vida Social and Productive Integral Development Association - Kak'Aw'iem Integral Development Association (Nueva Esperanza) - Improvement Committees - Church Organization - Brotherhoods	- 160 COCODES - 15 COCODES of 2nd level	- 36 COCODES - 5 COCODES of 2nd level - Association of Livestock AGACAN - Save the Children - Institute of Social Cooperation (provides health services under the coverage extension program) - Guardians and Promoters of la Salud - Friends of Canillá Association - Land Legalization Committees of Chimul and Chicaj - Users Association of the Irrigation Unit in Sajcap, Punta del Llano, urban area, Chimistan and Rincon.	- 74 COCODES - 146 community organizations: + 5 women + 6 producers + 35 school committees + 61 development committees + 14 sports committees + 7 land committees + 15 church groups + 3 health guards - Auxiliary mayors
Women's organizations (environmental advocates, Productive organizations,	41 women Committees	10 groups that are up to 320 women organized by the Municipal Office of WMO women		Municipal Coordinator of	

	Municipality 1 <b>Zacualpa</b>	Municipality 2 <b>San Andrés Sajcabajá</b>	Municipality 3 <b>Uspantán</b>	Municipality 4 <b>Canillá</b>	Municipality 5 <b>Chicamán</b>
cooperatives (list)		- womenProgram of Micro credit			
% of women who have owned land	According to information from the 2003 Agricultural Census in the country, only 7.7% of women own land, in contrast to the remaining 92.3% for men,				
Representation of women in local governments (number, or percentage), type of position if it is possible	21.92% (64 women participate in 41 COCODES		- COCODES have a 15% of women representation - 6% municipal public employees	40% of women participation (in managerial spaces it is limited)	5% in positions of community representation Of 518 members, 94 are women (18.5%) of participation

\* Community Development Council.

### c) Previous projects

- What projects related to adaptation are? Have they developed in the area of the municipality?
  - Debt Exchange Project for Adaptation to Climate Change in 6 municipalities of Quiché (Government of Germany), Zacualpa, San Pedro Jocopilas, San Andrés Sajcabajá, Sacapulas, San Bartolomé Jocotenango and Canillá.
  - Local Nexos Project. Strategic Plan for Municipal Investment to improve the provision of water service at the urban level. Zacualpa, Quiche.
  - Local Nexos Project. Strategic Plan for Municipal Investment to improve the provision of water service at the urban level. San Miguel Uspantán, Quiché.
  - Local Nexos Project. Diagnosis of Local Economic Development and Adaptation to Climate Change and Municipal Plan of Local Economic Development and adaptation to climate change. San Andrés Sajcabajá.

### d) Land ownership

- What is the general structure of land ownership in the area?

Size of the farm	Number of farms	Number of farms in%	Area in Apples	Area in%	Classification of producers
Under 1 block	375,708	45.23	172,413	3.24	Infra-subsistence
1 to less than 2 blocks	185.196	22.29	242.313	4.56	Subsistence
2 to less than 5 blocks	157.681	18.98	449.439	8.45	
5 to less than 10 blocks	46.099	5.55	298.039	5.61	
of 10 to less than 32 blocks	39.599	4.77	674.601	12.69	Surplus
of 32 unless 64 blocks	10,929	1.32	470,717	8.85	
From 1 Caballeria (Cab) to less than 10	14,593	1.76	1,841,283	34.64	Commercial
From 10 Cab to less than 20	610	0.07	513,014	9.65	
From 20 Cab. less than 50	222	0.03	403.606	7.59	
Of 50 Cab. and more	47	0.01	250.412	4.71	
Total	830.684	100	5,315,838	100	

1 Caballeria = 134200 m2 / 1 block = 0.7 ha

In 4 of the prioritized municipalities<sup>8</sup>, the smallholding<sup>9</sup> (92.96%) of the total farms identified are microfincas (39.92) and subfamilies (53.04). According to the classification of producers, these farms correspond to producers in undersubsistence and subsistence.

<sup>8</sup> En el Censo 2003 no hay información disponible a nivel de municipio para el municipio de San Andrés Sajcabajá.

<sup>9</sup> Se considera minifundio a extensiones de 1 a 5 manzanas (equivale a 0.7 – 3.49 ha).

Regarding land tenure, the modalities vary between communal, municipal or private tenure. Most farms reported in the agricultural census of 2003 (99% for Zacualpa, 94% for San Miguel Uspantán, 77% Canilla and 89% for Chicamán). They report being the owners. Although in the country we must consider the serious problem of lack of legal certainty that exists.

## 2. Biophysical dimension

### 2.1 Agroclimatic conditions

- **What is the geography of the area and its climatic characteristic**

In the five prioritized municipalities, two physiographic regions predominate, the region of "Crystalline Highlands" that have resistant rocky materials and whose border to the north is a first order fault that culminates in the Cuico River; and the region of "High Sedimentary Lands" constituted by limestone hills of karst relief, that is sedimentary rocks originated by the deposit of marine organisms rich in calcium carbonate.

With respect to the topography, the north of the region is very mountainous (Huehuetenango and Quiché) where the steep slopes predominate. More than 60% of the area of the western region has slopes greater than 25% where the highlands and hillsides are located, the flats corresponding to plains (slopes less than 12%) are 22.63% of the area of the entire region.

In the area of influence of the 5 prioritized municipalities there are at least four precipitation ranges, from areas with low rainfall that form semi-arid areas (20% of the territory with rainfall less than 500 mm per year), with predominance of the range that fluctuates between 500 to 1000 mm per year, with portions of municipalities with rainfall of 1000-2000 mm.

- **What is the level of soil erosion?**

Zacualpa has eroded soils with low fertility, with moderate groundwater potential and low water density, high frost threat and very high drought threat.

In San Andrés Sajcabajá the soils are highly eroded, shallow and with sloping topography, 97% of the municipal territory has very low to moderate groundwater potential and medium density of the water network. It presents threats to frosts and droughts in the very high category.

San Miguel Uspantán has eroded soils with sloping topography, little forest cover and little protection of water sources. It presents threats to frost in the high category.

Canillá has eroded soils with very sloped topography, with medium threat to frost, low threat from flooding and very high threat of droughts.

Chicaman has eroded soils with sloping topography, high frost threat and medium drought threat.

- **What are the main land uses in the municipality?**

	<b>Zacualpa</b>	<b>San Andrés Sajcabajá</b>	<b>Uspantan</b>	<b>Canillá</b>	<b>Chicamán</b>
Classify- tion (use)	<b>0.1%</b> (42.45 ha) are <u>artificialized territories</u> : urbanized, industrial or commercial areas and artificial non-agricultural green areas <b>23.9%</b> (5,933.03 ha) are <u>agricultural territories</u> with crops such as basic grains (maize and beans), vegetables (papa, onion, cabbage, carrot, lettuce), permanent tree	<b>0.16%</b> (28.08 ha) are <u>artificialized territories</u> : urban fabric, cemetery, runway, green areas and recreation. <b>42.38%</b> (7,173.54 ha) are <u>agricultural territories</u> with crops of maize and beans, vegetables and pastures. <b>57.29%</b> (9,697.06 ha) of <u>forests and semi-natural means</u> , is mostly mixed-type forests,	<b>0.48%</b> (403.19 ha) are <u>artificialized territories</u> : urban fabric, cemetery, runway, green areas and recreation. <b>37.72%</b> (31,553.71 ha) are <u>agricultural territories</u> with crops of maize, beans, vegetables, coffee, cardamom, pastures and agroforestry systems. <b>61.61%</b> (51,541.95 ha) of <u>forests and semi-natural means</u> .	<b>0.45%</b> (45.98 ha) are <u>artificialized territories</u> : urbanized, industrial or commercial areas and communication networks, mines, debris and artificial non-agricultural green areas. <b>38.81%</b> (31,553.71 ha) are <u>agricultural territories</u> with annual crops (maize and beans), vegetables (papa, onion, cabbage, carrot	<b>0.33%</b> (186.93 ha) are <u>artificialized territories</u> : urbanized, industrial or commercial areas and communication networks, mines, debris and artificial non-agricultural green areas. <b>26.69%</b> (15,112.52 ha) are <u>annual crop agricultural territories</u> (maize and beans), vegetables (papa, onion, cabbage, carrot and lettuce) and

	Zacualpa	San Andrés Sajcabajá	Uspantan	Canillá	Chicamán
	crops and natural pasture. <b>75.8%</b> (18,773.85 ha) of <u>forests and semi-natural means</u> , is mostly mixed-type forests, followed by conifers. There are also scattered trees, low shrub vegetation and open spaces, without or little vegetation. <b>0.01%</b> (2.53 ha) are <u>bodies of water</u> like rivers.	followed by conifers and broadleaf. There are also conifer forest plantations; low shrub vegetation, beaches, dunes or sands and rocks or lavas. <b>0.16%</b> (26.98 ha) are <u>bodies of water</u> like rivers.	mainly has broadleaf type forests. Followed by mixed and conifers. There are also forest plantations of conifers and broadleaf; low shrub vegetation and beaches, dunes or sandy beaches. <b>0.19%</b> (156.96 ha) are <u>bodies of water</u> like rivers.	and lettuce) and other crops that adapt to the semi-warm and temperate climate. <b>60.54%</b> (6,178.53 ha) of <u>forests and semi-natural means</u> , mainly with mixed forests (22.96%), conifers (0.88%) and scattered trees, scrub and/or guamil with 36.7%. <b>0.20%</b> (20.07 ha) are <u>bodies of water</u> like rivers.	other crops that adapt to the warm, semi-warm and temperate climate. <b>72.30%</b> (40,926.66 ha) of <u>forests and semi-natural means</u> mainly mixed forests (19.20%) and broadleaf (16.10%). Scattered trees, shrubs and guamil (34%). <b>0.67%</b> (377.38 ha) are <u>bodies of water</u> like rivers.
Extensive	<b>0.1%</b> (42.45 ha) <b>23.9%</b> (5,933.03 ha) <b>75.8%</b> (18,773.85 ha) <b>0.01%</b> (2.53 ha)	<b>0.16%</b> (28.08 ha) <b>42.38%</b> (7,173.54 ha) <b>57.29%</b> (9,697.06 ha) <b>0.16%</b> (26.98 ha)	<b>0.48%</b> (403.19 ha) <b>37.72%</b> (31,553.71 ha) <b>61.61%</b> (51,541.95 ha) <b>0.19%</b> (156.96 ha)	<b>0.45%</b> (45.98 ha) <b>38.81%</b> (31,553.71 ha) <b>60.54%</b> (6,178.53 ha) <b>0.20%</b> (20.07 ha)	<b>0.33%</b> (186.93 ha) <b>26.69%</b> (15,112.52 ha) <b>72.30%</b> (40,926.66 ha) <b>0.67%</b> (377.38 ha)

- What is the state of degradation of existing ecosystems or agro-ecosystems?
  - Increase of municipalities with high levels of degradation with respect to land use from 129 municipalities, in 2000, to 218 in 2006, and to 230 in 2008.
  - 65.9% of the country's municipalities have land degradation problems.
  - The impact of climate variability and environmental social vulnerability is reflected in the damages caused by rains and in the loss of soils in more than 80 million metric tons per year at the national level. (MARN, 2016: 209)

- What has been the trend in the change in land use
 

Forest loss: it is estimated that 42% of all deforestation is linked to the expansion of land for extensive livestock, expansion of monocultures such as African palm, human settlements, forest fires and narcoactivity (MARN, 2016: 208).

**a) Agriculture**

	Zacualpa	San Andrés Sajcabajá	Uspantan	Canillá	Chicamán
REGATTA: rural population (proportion)	0.7105	0.9015	0.8998	0.8349	0.9241
% population dependent on agriculture	National: 87% of the rural poor depend on agriculture Agricultural GDP: 13.3 Rural agricultural employment: 65.1% GDP/employment:0.3				

	Zacualpa	San Andrés Sajcabajá	Uspantan	Canillá	Chicamán
Women's roles in the agricultural sector		Family gardens and crafts		There is no record of this information	1. Planting of basic grains. 2. Planting of family gardens in some communities. 3. Harvest of basic grains and vegetables. 4. Development and care of community nurseries in some communities.
Main crops by municipality	- Corn - Bean - Agro-industrial crops - Other crops for sale	sd	- Corn - Agro-industrial crops - Bean - Other crops for sale - Rice - Other grains	- Corn - Bean - Agro-industrial crops - Other crops for sale	- Corn - Bean - Agro-industrial crops - Other crops for sale - Sorgo - Rice - Other grains
Crop area Corn (ha) Bean (ha) Rice (ha) Sorgo (ha) Other grains (ha) Agro-industrial crops (ha) Other crops for sale (ha)	1,224 353 0 0 0 38 82	sd	3,357 1,563 1 0 1 2,072 57	1,232 732 0 0 0 3 1	2,445 971 1 13 1 658 34
Productivity of major crops (trends, if available)	See in MEGA: Agro and Rurality Profile, Guatemala, 2014. On page 137: Planted area, volumes produced and average yields, of the main crops.				
Existence of crops linked to agroforestry systems (yes, no, which)		Approx. 20 people have incentives with SAF		Yes, corn, beans and conifers	None

- What are the methods of cultivation and harvesting of the main crops?  
The most widespread crop is corn and beans in small units, combined with cucurbits. In general, soil preparation is manual, almost the entire population continues to use slash / burn. The use of agrochemicals occurs in crops of tomato, French beans and other crops for commercial and export purposes by 75%.
- What agricultural techniques to improve the efficient use of water are used?  
Approximately 20% of the population uses some type of mini irrigation system (mostly by sprinkling).
- What is the production and profitability of the main crops per ha?  
According to data provided by the ENA 2017-2018, corn and bean crops are those that occupy the largest area of the area with potential agricultural use. For that year it was estimated that corn was grown in 1,074,058 ha

and beans were grown in 149,575 ha. The production for that same year in corn was 52,111,029 quintals (qq) and beans of 2,512,512 qq.

It is important to relate that the production of corn and beans has gradually decreased, partly due to a decrease in cultivated area and the impact of climate change in recent years, with prolonged droughts, distribution of rains with short and intense periods, which have caused an increase in production costs and partial or total crop losses.

The yield (in metric tons per hectare) for 2013 in corn was 2.03 and for beans 0.91.

In the municipalities the information on the profitability of the main crops is not handled.

#### b) Forest resource

	Zacualpa	San Andrés Sajcabajá	Uspantan	Canillá	Chicamán
Current forest coverage (%)	Cob 2010 (ha) Cob 2010 (%) = 0.49453086 Cob 2016 (ha) Cob 2016 (%) = 0.49703766 Net change 10-16 (ha) - 62.1 Annual change (ha/year)- 11.08205 Annual exchange rate (%) - 0.0009046	Cob 2010 (ha) : 2,539.53 Cob 2010 (%) = 0.14992739 Cob 2016 (ha) Cob 2016 (%) = 0.1651927 Net change 10-16 (ha) - 258.57 Annual change (ha/year) - 46,1431 Annual exchange rate (%) - 0.01816994	Cob 2010 (ha) : 28,556.64 Cob 2010 (%) = 0.34104374 Cob 2016 (ha) Cob 2016 (%) = 0.39834261 Net change 10-16 (ha) - 4,797.81 Annual change (ha/year) - 972.8892 Annual exchange rate (%) - 0.03406876	Cob 2010 (ha) Cob 2010 (%) = 0.16702906 Cob 2016 (ha) Cob 2016 (%) = 0.16082616 Net change 10-16 (ha) -63.36 Annual change (ha/year) - 12,848 Annual exchange rate (%) - 0.00	Cob 2010 (ha) : 21,514.14 Cob 2010 (%) = 0.37965588 Cob 2016 (ha) Cob 2016 (%) = 0.40954921 Net change 10-16 (ha) - 1,693.98 Annual change (ha/year) - 343.5015 Annual exchange rate (%) - 0.1596631
Coverage 2016 (typology) *	Forest: 40% Non-forest: 41% Loss: 10% Gain: 10% Water: 0%	Forest: 11% Non-forest: 79% Loss: 4% Gain: 6% Water: 0%	Forest: 28% Non-forest: 54% Loss: 6% Gain: 12% Water: 0%	Forest: 11% Non-forest: 78% Loss: 5% Gain: 5% Water: 0%	Forest: 32% Non-forest: 52% Loss: 6% Gain: 9% Water: 1%
Deforestation rate	1.63% (2010) Quiché department				
% of the population that uses firewood	65% of the population requires firewood for cooking food and heating (national data)				
Volume of wood consumption	Total country consumption: 15,771,186.97 t Quiche consumption: 1,601,302.53 t Quiché Offer: 788,739.07 t Quiché Deficit: -817,651.93				
Sources of firewood	National data: (for more information see study Supply and demand of firewood in Guatemala, 2012) uploaded to the MEGA. - natural forest harvesting (49%) - forestry (44%) - Industry Waste (4) - coffee (2%) - construction (1%)				
Species used as firewood		Pine tree	Encino, pine and alder		Alder, oak and pine
Type of forest from which firewood comes	Natural forest				



\* Maps of Dynamics of forest cover 2010-2016 by municipality, available in MEGA / Guatemala / Biophysical information by municipality

- **Are there forest nurseries in the area?**

- San Andrés Sajcabajá has a municipal nursery in which it produces 20,000 annual pine, cedar, ceiba and fruit plants. Chicamán has 4 municipal nurseries with an approximate production of 50,000 plants per nursery. The main species are pine, alder, cedar, cypress, liquidambar, casuarina, Roman cypress, coffee, willow and others. In Uspantán there are 7 temporary nurseries - owned by the municipality - with a production of 5,000 to 10,000 plants per nursery

- **Type of roles of women in the forestry sector**

In San Andrés Sajcabajá, women participate in soil preparation when planting trees.  
In Chicamán, women plant forest species in reforestation days in the communities.  
In Uspantán, women do not work in the forestry area.

**c) Livestock**

	<b>Zacualpa</b>	<b>San Andrés Sajcabajá</b>	<b>Uspantan</b>	<b>Canillá</b>	<b>Chicamán</b>
% livestock-dependent population	23.6%	sd	10.2%	38.3%	4.8%
Type of livestock prevailing	31.6% pig 20.4% sheep 3.1% bovine	53.09% sheep 36.50% bovine 12.81% pork	60.5% bovine 39.5% sheep	75.5% bovine 24.5% sheep	79.53% bovine 6.99% pork 2.07% goat 1.30% sheep
Main livestock species, and what is produced	Creole species of cattle and pigs (for their strength and adaptability). Cattle are joint holdings for the production of milk and its derivatives and meat production	Cattle, sheep, goats and pigs Bovine	Bovine. Sheep, pig and goat.		Dairy products, meats and skins are produced.
Main livestock players				AGACAN Cattlemen's Association	
Roles played by women in livestock (descriptive or list)		Care, sale of milk and cheese making	Few people in some communities have a dairy cow for the production of cheese and milk, work done by women		Breeding of goats and sheep, in some% cows. Cheese making.

**d) Protected areas**

- **Are there protected areas in the area?**

San Miguel Uspantán has several declared nature reserves and others in process that add up to the amount of 4,262 ha (equivalent to 42.62 km<sup>2</sup>) representing 4.93% of the municipal territory.

- Chimele Private Nature Reserve, has an area of 2,076 ha of mixed forest.
- La Gloria Private Nature Reserve, with an area of 220 ha of mixed forest.
- In the process of registration:
- The Cerro Los Morales community reserve.
- El Palmar, with an extension of 540 ha.
- Sicaché Community Reserve, 100.2 ha.
- Reserva La Parroquia, with 13.9 ha.

- In the process of being expanded, the La Gloria Private Nature Reserve with an extension of 347.81 ha.

In Chicaman:

- El Amay Reserve, officially as El Amay Regional Park, forest area with an extension of 100 km<sup>2</sup>.
- El Recuerdo private nature reserve. With an area of 23 ha of which 19 ha have mixed forest.
- El Soch Community Nature Reserve, with an extension of 251.15 ha.

- Are there endemic species (which)?

In Guatemala there are at least 6,159 species of wildlife and more than 10,317 of wild flora, however, according to the red list of threatened species published by IUCN 3,009 animals and 540 plants are threatened.

- Are there biological corridors

No. There has been an initiative of the Mesoamerican Biological Corridor for many years, but it has not been effective.

## 2.2 Water resources

	<b>Zacualpa</b>	<b>San Andrés Sajcabajá</b>	<b>Uspantan</b>	<b>Canillá</b>	<b>Chicamán</b>
Water sources (supply systems, where the water resource comes from)	Urban area: 2 supply systems, 1 of the Chiché River (covers 1,165 services). The other supply comes from a river in Chimatzat village, Zacualpa and covers 430 services.	53 communities have a predial water system	Nacimiento de Cotozac, Chamac y Chijam are the main sources of supply for the urban population of the municipality. Nacimiento de Chola caters through pipes. In the upper zone the communities use wells and rainwater.	-15 births - Various rivers: Agua Caliente, Chixoy or Negro, Cacuj, Lilillá, Pasabaquiej, Saquim, Vega del muerto and Xolotobal - 3 streams: Chimistán, Chicoj and the Rincon -Broken: Libalabaj, Chitraj, Pacachu, Las Canoas, Pasuch, Chimul, Chatuj and the Picaché Encounters	- Water tubing 77% dwellings - Well water  See below of the chart for details of which communities are supplied with each type.
% Households per main source of water for consumption (2018 census)					
Pipe in the house	50	62	35	49	29
Pipe outside the home	16	20	33	3	26
Public jet	1	4	4	6	1
Well drilled	9	4	4	8	3
Rainwater	0	0	10	0	30
River or lake	8	3	4	5	1
Spring or birth					
Truck or ton	14	4	6	28	8
Other	0	0	1	0	1
	2	2	2	2	2

	<b>Zacualpa</b>	<b>San Andrés Sajcabajá</b>	<b>Uspantan</b>	<b>Canillá</b>	<b>Chicamán</b>
Main actors for water resource management (names of institutions, associations, irrigator organizations, etc.)	In supply Chiché participates the Association Desarrollo de Zacualpa (ASODEZA). Zacualpa Health District.		Health and Community Development Association (ASDENA)	Association Users of the Irrigation Unit, who are entrusted with the maintenance of the channel for the boost of irrigation systems in Sajcap, Punta del Llano, urban area, Chimistán and El Rincón.	Manuel Madrazo Foundation (environmental sanitation projects)
% Agricultural water use (agricultural units with access to irrigation)	0.07	sd	0.06	0.11	0.03
% domestic water use	82%	70%	56.16%	58%	77% urban area
Used water treatment systems	ASODEZA treats water with chlorine. Please note that the other Chimatatz service does not have any treatment.	Only at the municipal seat			In the urban area there is a treatment of chlorination, which operates through a drip system.
Main irrigation technologies used		The traditional ones in gravity irrigation: intakes, water transfer in the earth	In the communities where they produce vegetables they use mini sprinkler irrigation and in some drip irrigation		Water transport by hose and sprinklers
Water demand		25%			17,687 users who use springs distributed in 35 communities, including the urban area; The rest gets the water from wells and rainwater.
There is a drought early warning system (yes, no)			Only COMRED y MAGA		None
Is there water management infrastructure? (dams, community reservoirs, irrigation and atration, other traditional infrastructure)		Dam	For the Water distribution in the municipality is implementing collection tanks and distribution tanks.		Mini irrigation units exist in the communities: Cumbre de las Flores, Cumbre del Rosario and Puente Seco

	Zacualpa	San Andrés Sajcabajá	Uspantan	Canillá	Chicamán
Population with access to sanitation infrastructure (REGATTA data)	2,384	2,806	4,977	817	2,476
Type of sanitation services available (septic tanks, sewage treatment plants, others, none)	61% of rural dwellings have septic tanks or latrines 95% of urban homes have washable toilet or latrine connected to municipal drainage network. The municipal drainage network is discharged into the Rio Grande without any treatment.	44% have washable sanitary (1,470 homes) and 56% (1,838) have latrines or blind wells. The municipality does not have infrastructure for the treatment of sewage (drainage system towards the Tiloj River without treatment).	77% have a latrine 11.59% has a sewerage system (urban). The municipality does not have infrastructure for the treatment of sewage. 100% drainage and sewerage network in the urban area. Take the debris out of the river El Calvario directly. The municipality does not have a wastewater treatment plant or wastewater. It also does not have a solid waste management system. Currently under construction sewage treatment plant in the community of Xejul.	41% have a health service The municipality has 1 treatment plant that it does not use for the cost of its maintenance.	10% homes have sewer service in urban area. There is no waste treatment plant (there are already 2 studies, but the cost is high). Septic tanks and blind wells are used.
What is the municipal investment in sanitation?		Q500,000.00	- Investment in Xejul Q31500,000.00 sewage treatment plant -Investment in municipal toilet train Q 41128,212.00 - Sewer investment Q 410,966.00 - Investment in stormwater Q774,339.00		Q.2,275,000.00 in the construction of two wastewater treatment plants for the municipal capital and surrounding communities.

- Description of the cost of water

San Andrés Sajcabajá: in each community a monthly payment of Q10.00 is made in the rural area. In the urban area the cost is Q350.00 per month.

In Uspantán, families in the urban area have a potable water service at a cost of Q.120.00 per year for ½ inch water straw. To the families that for different reasons the water does not reach them, the municipality distributes

them by means of pipes, as long as they are solvent of payment. The investment made by the municipality to distribute water in pipes is Q.850,500.00.

In Chicamán, the municipality collects water at an urban level (Q10.00 / month per user). In addition, water delivery in a tank or pipe truck, at a cost of Q20.00 / month.

- Description of water scarcity

Changes in precipitation have been observed, it no longer rains normally between May and October (first, little water began to fall and instead of starting in May, the first rainfalls ran until July).

Extension of the canicula (before it was thought of a 15-day canicula, now it is like a small summer of 2 or 3 months).

Rainfall reduction: Sudden changes in temperature (hotter and colder). The changes have been observed for 3 years in Chicamán and Uspantán, and for 7 years in San Andrés Sajcabajá.

### 3. Financial component

Name and address of financial institutions in municipalities	Type of financial institution (savings bank, bank, cooperative, others, etc.)	Contact Information: Name, Phone and Mail	Type of used financial products and average amounts	Number of customers and total acquisitions	Number of staff at the agency	Other relevant agencies (even if they are not in the municipality)
Rural Development Bank, SA - Zacualpa Agency - San Andrés Sajcabajá Agency - Canillá Agency	Bank	Francisco Herrera (Regional Manager) Tel. (502) 4499-0290 <a href="mailto:francisco.herrera@banrural.com.gt">francisco.herrera@banrural.com.gt</a>  Agency of Chicamán, Quiché Jesús Mizraim Pu Castillo Tel. (502) 3004-5450 <a href="mailto:mizraim2@gmail.com">mizraim2@gmail.com</a>	In Agencia Canillá has a livestock production credit line			
Zacualpa Integral Development Association, ASODINZA	Gives farmer credit					
Quick Express, Zacualpa	Remittances					
Chapin Express, Zacualpa	Remittances					
Western Union, Zacualpa	Remittances					
IBC Polaris Charge, Zacualpa	Remittances					
CIACUS, R.L. San Andrés Sajcabajá	Cooperativa	Mariel Mejía Tel. (502) 3184-4261				
COOPER, RL	Cooperative					
Génesis Empresarial, provides services in Zacualpa, San Andrés Sajcabajá	Provides agricultural loans and small business investment					
Banrural, Chicaman	Bank	Jesus Mizraim Pu Castillo (502) 30045450				

		mizraim2@gmail.com				
Grameen Chicaman	(Banrural), Micro Financial	The representative is unknown				
Genesis Chicaman	Emresarial, microfinances	Rubén Antonio Cardoza Leal Tel. (502) 5980-4883 <a href="mailto:gerenteuspantan@genesismpresarial.com">gerenteuspantan@genesismpresarial.com</a>				
Azteca, Chicaman	Micro Enterprise	José Guzmán Tel. (502) 3019-2935 <a href="mailto:diosxjose@hotmail.com">diosxjose@hotmail.com</a>				
Fondesol	Microfinances	Agency of Chicamán				
Finca	Microfinances	Agency of Chicamán				
Credi Chapín	Microfinances	Agency of Chicamán				
Banrural	Bank					
CIACUS	Cooperative	Mariel Mejía (502) 3184-4261				
COOPER	Cooperative					
PROCREDIT	Cooperative					

## Honduras

### 1. Demographic and socioeconomic dimension

#### I.1 Demographics

##### a) Population structure and gender

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
Total population INE projection to 2018	MEN 77,976 WOMEN 86,475 TOTAL 164,451	MEN 23,313 WOMEN 24,197 TOTAL: 47,510	MEN: 2,725 WOMEN: 2,292 total: 5,017	MEN 4,659 WOMEN 4,443 TOTAL 9,102	MEN 9418 WOMEN 9356 TOTL 18,775	MEN 1835 WOMEN 1,712 TOTAL 3,547
Rural population inE projection to 2018	MEN 28,393 WOMEN 27,383 TOTAL 55,776	MEN 13,033 WOMEN 12,720 TOTAL 25,753	MEN: 2,725 WOMEN: 2,292 TOTAL: 5,017	MEN 4,659 WOMEN 4,443 TOTAL 9,102	MEN 8275 WOMEN 8023 TOTL 16,298	MEN 970 WOMEN 772 TOTAL:1,742
Extension of the municipality	4,360 km <sup>2</sup>	482,3 km <sup>2</sup>	281,3 km <sup>2</sup>	213,1 km <sup>2</sup>	124,6 km <sup>2</sup>	105,5 km <sup>2</sup>
Poverty rate (taken from inE, last population and housing census of 2013. For basic needs unmet.	NBI 58% Population and housing census 2013	NBI 60% Population and housing census 2013	NBI 75% Population and housing census 2013	NBI 79% Population and housing census 2013	NBI 71% Population and housing census 2013	62% NBI Population and Housing Census 2013
Illiteracy Population and housing census 2013	12%	16%	9% (Desarrollo Municipal Plan - MDP-2019)	23%	24%	16%
Education level – Men			68% (PDM, 2019)			
Education level - Women			70% (PDM, 2019)			
Literacy (Regatta)	0.71	0.72	0.60	0.67	0.67	0.69
Maternal mortality rate		1 case in 2018. The death was at the Hospital del Sur, in the city of Choluteca. (Interview with Head of Municipal Women's Office)				
Infant mortality rate National Demographic and Health Survey (ENDESA 2011-2012)	19 for every thousand live births	19 for every thousand live births	19 for every thousand live births	19 for every thousand live births	19 for every thousand live births	19 for every thousand live births
State of food security	Very weakened, due to the loss of crops (first 2019)	Very weakened, due to the loss of crops (first 2019) of the main basic	Very weakened, due to the loss of crops (first 2019) of	Very weakened, due to the loss of crops (first	Very weakened, due to the loss of crops	Very weakened, due to the loss of crops (first 2019)

	of the main basic grains (basic diet sustenance) due to drought	grains (basic diet sustenance) due to drought	the main basic grains (basic diet sustenance) due to drought	2019) of the main basic grains (basic diet sustenance ) due to drought	(first 2019) of the main basic grains (basic diet sustenance) due to drought	of the main basic grains (basic diet sustenance) due to drought
Femicide rate		In 2018 there was a case of femicide (Women's Municipal Office. 2019)				
Percentage of gender-based violence (survival at violent events, etc.)		The Municipal Women's Office does not carry a percentage of cases, however, it states that there are cases of physical violence, psychological and lack of alimony for children from separate households.				
Maternal mortality rates  <a href="https://www.paho.org/hon/index.php?option=com_joomlabook&amp;view=topic&amp;id=514">https://www.paho.org/hon/index.php?option=com_joomlabook&amp;view=topic&amp;id=514</a>	In Honduras, the pattern of the maternal death ratio during the period 1990 to 2015 has had a tendency to reduce (182 to 61 per 100,000 nv) Pan American Health Organization					
Child dropout rate			<b>Both sexes:</b> 4.95% in children 1 to 6 degrees. 1.76% from seventh to Ninth Grade and 7.5% at the Middle Education Level (Municipal Development Plan 2018)			

b) Population hotspots

The largest urban center of the territory is located in the municipality of Choluteca, which is in turn the departmental capital and with the largest territory. A second urban population focus is in the village of Monjarás, in the municipality of Marcovia (second municipality in territorial extension and population) and is located in the lower part of the Choluteca river basin. This can be seen in the municipal maps, in the files of "Atlas de Choluteca".



c) Ethnic groups

- Are there ethnic groups and indigenous territories?  
Less than 1% in certain municipalities, of ethnic groups (Apacilagua 0.6%), belonging to the Chorotega tribe.

- Have they been part of previous projects and/or consultations?

Projects such as:

- Strengthening the Local Management of Natural Resources in the Patuca, Choluteca and Negro River Basins" FORCUENCAS, with the aim of: Strengthening local management of natural resources in the framework of sustainable development based on the order comprehensive management of watersheds under a decentralization approach and broad community participation.
- Territorial Water Governance Programme in Region 13 of the Gulf of Fonseca, whose objective is to contribute to the gradual development of a system of territorial water governance by three basin councils (Nacaome, Choluteca Sampile) in the Gulf Region of Fonseca ensuring water management in an integral, sustainable and fair manner.
- EMPRENDESUR
- USAID Nexos

I.2 Health and nutrition

What is the state of food security in the area?

The territory of the municipalities is located in the southern part of the country and share the characteristics of the dry corridor. One of the main threats to the food security of this territory is the problem of drought, which has led to considerable losses in staple grain crops (mainly maize and beans). In the first cycle of 2019 there was a delay in the start of the rainy season (which should start in May) which caused the losses of first seeding.

The Secretary of Agriculture and Livestock (SAG) reported a loss in the area planted in Choluteca department of 58%, more than half. This situation results in a low availability of food and phenomenon that translates as "seasonal hunger" which causes nutritional deficiencies in the most vulnerable population, causing malnutrition in the most vulnerable groups (children under 5 years, women and older adults).

Unfortunately, this situation is cyclical every year. It is hoped that the planting of second maize (at least for families who were able to obtain seeds and supplies to sow) will improve availability in the area, however, the phenomenon of heavy and concentrated rains in October (which also occurs in the area) , is also a crop hazard. Cattle have also had a negative impact from drought.

According to ENDESA (2011-2012), 21% of children under the age of 5 were met with chronic malnutrition (Size/age). This value is below the national average which was 23% for the same indicator.

Anaemia in children under 5 years of age was found at 23.2% for children under 5 years of age (ENDESA, 2011-2012), below the national average of 29.1%. In women between 15 and 49 the anemia was 15.3%, the same as the national average 15.1%.

I.3 Safety

- What is the level of safety? What are the characteristics of violence in the area?

The territory is not considered violent. Although if there is occurrence of robberies or street assaults, or in homes, but it is not as worrying indicator compared to other areas of the country as the north coast.

- Is there a presence of armed groups or gangs?

The municipalities are not characterized by the presence of gangs or maras. However, the presence of antisocial groups engaged in the distribution and consumption of drugs in marginal areas, especially in the large urban centers of Choluteca and Marcovia, is evident.

I.4 Economy

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
Main productive activities source: Population and housing census 2013	24% wholesale and retail trade 23% agriculture, livestock, forestry and fishing 11% manufacturing industries 8.5% construction 5.6% teaching 28% other activities	56% livestock farming, forestry, fishing. 12% manufacturing industries 10% wholesale and retail trade 5.4% construction 3.3% transport and storage 12% other activities	81% livestock farming, forestry, fishing. 3.6% teaching 3.1% construction 2.4% manufacturing industries 2.4% wholesale and retail trade 7% other activities	89% livestock farming, forestry, fishing. 1.7% teaching 1.6% wholesale and retail trade 1.5% construction 4.9% other activities	64% livestock farming, forestry, fishing. 14% manufacturing industries 8% wholesale and retail trade 3.5% teaching 3.1% Construction 7.9% other activities	79% livestock farming, forestry, fishing. 4.3% teaching 2.6% manufacturing industry 2.4% wholesale and retail trade 9.4% other activities
Main national agricultural enterprises (name and type)	Group Marine Farms (agriculture, fishing, livestock) COEXMAR, RL S. Marine Crops (CUMAR) Agropecuaria montelibano (melon production, member of the Agrolibano group) Snail industries (cane cultivation) Choluteca sugar will Scythe	Sugar ingerates Greece, SA  Choluteca sugar will	2 micro-enterprises: 1) Morolica milky products 2) CRELL (Milky Collection Center)	independent producers on small plots (vegetables)	Orocuina Producers Association (Aprooro) (okra)	2 Agricultural 1 milky processor 1 platain slice processor
Major international agricultural companies (name and type)	Sinclair Import Group (Okra exporter)	Biolarva Aquaculture (productos marinos)	n/a	n/a	n/a	n/a
Men's unemployment rate	Although there is no precise information on unemployment, it is clear that remittances play a very important role in the municipality.			The only company that employs is the Okra		
Participation in male workforce (economically active population)	In rural areas, men work in paid activities.			60%		

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
Participation in women's labour force (economically active population)	In urban areas, women join shrimp factories, and represent a significant share of employment, about 50% of the workforce in urban areas			40% in okra production		10%
Proportion of large producers	In low-lying areas, 60% of producers are large and medium-sized. While in the upper areas, only 10% are medium and large, and approximately 90% are small		5%	60% 15%	Three types of producers: basic grains, fruit and vegetable grains and exporters. 20%	40%
Proportion of medium-sized producers			5%	35%	20%	20%
Production of small producers			90%	15% 50%	60%	40%
Women's Jobs (Listed, including informal work)	like operating in shrimp manufacturing In the banking sector.		as domestic servants	They work in the okra (weeding, cutting, cleaning, manufacturing g. Less pro-porlaying as domestic servants	Family orchards, with irrigation systems. Agricultural work to generate income	housewife, homemade bread, consumer stores

- What is the prevalence of the informal economy?

15% not declared in Duyure, and smaller scale in the municipalities of Morolica, Orocuina and Apacilagua. Choluteca and Marcovia, which have larger urban centers, have more informal economy.

#### I.5 Municipal development

##### a) Municipal development plans

All municipalities have Municipal Development Plans (PDM) however, they are not all validated.

- What are the main axes of action in municipal development plans?

For Morolica (2019 - 2022), the strategic lines of development are:

- Social Development
- Productive Development
- Promoting environmental protection
- Social Infrastructure

For Choluteca: There is a development plan, however, this is more urbanized and does not provide information for the development of communities or natural resources.

- Are there water management plans?

There is a water management plan in Apacilagua.

b) Community and political participation / Women's participation

In Duyure there is a female mayor, 40% of women participate (there are municipal councilwomen), and other women are part of boards of trustees.

Mainly in rural areas, women have minimal participation in income generation, depending largely on the head of the household (husband, father or brother) depending on the family structure.

In Apacilagua. there's a female councilor and vice-mayor. Women also participate in boards of directors and boards.

In Morolica: 2 female councilors and vice mayor. Female participation in boards of directors and boards.

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
Key players in the municipality (including cooperatives, NGOs, communal associations, etc.)	Municipal Mayor's Office Cajas Rurales, Boards, Water Boards, Associations of Farmers, Churches (evangelic, adventist or catholic) Women's network, Micro	Municipal Mayor's Office Cajas Rurales, Boards, Water Boards, Association s of Farmers, Churches (evangelic, adventist or catholic), Women's network, Micro	City Hall, Rural Banks, Boards, Water Boards Farmers' associations, Churches (evangelic, adventist or catholic), Women's network, Micro Emprendedur, Parents' Associations of Educational Centers, Health Committees, Sports Clubs, Producers and Livestock Groups, Environmental Groups	Municipal Mayor's Office Cajas Rurales, Boards, Water Boards, Associations of Farmers, Churches (evangelic, adventist or catholic), Women's network, Micro	Municipal Mayor's Office Cajas Rurales, Boards, Water Boards, Farmers' Associations , Churches (evangelic, adventist or catholic), Women's network, Micro	Rural Banks, Boards, Water Boards Farmers' associations, cooperative San Marcaquea 2 Churches (evangelic, adventist or catholic), Women's network, Micro PROSASUR Project, Corridor Alliance, Water Boards.
Women's organizations (environmental representatives, productive organizations, cooperatives)	There's none		Microbasin tips that are mixed. Network of women municipal and at the level of communities. Supported by WMO	If there is a group of women for nature. They do reforestation and forest protection. Network of women municipal and at the level of communities. Supported by WMO. Microbasin tips that are mixed.	There is a municipal environment al committee that is mixed. There are senior positions on the part of women. Municipal women's network.	Women's network of the municipality, carry out some productive projects such as the family garden initiative, but do not engage in environmental defense actions
Percentage of women who own land ownership	Under 10%		3%	8%	10%	5%
Representation of women in local governments (number, or			1 vice-mayor and 2 councilors	1 vice-admiral and a councilor	1 vice-mayor and a councilor	Mayor and a councilor of 4 rulers. At the level of rural

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
percentage), type of position if possible						banks and in trustees they also hold senior positions

Apart from the above, there are two important instances at the Community level:

- **Patronage:** rural communities and neighborhoods and colonies in urban areas are organized in trustees. These local instances are chosen by members of the community, and are the official representation of the community to the mayors, the same community and any external instance such as NGOs, private company among others.
- **Water boards:** They are the local bodies that are organized at the level of each community, with the purpose of ensuring the management of water, especially for human consumption in communities. They also take care for the protection of water sources, for the maintenance of water supply projects and the allocation of tariffs to users.

#### c) Previous projects

- What adaptation-related projects have been developed in the municipality area?  
USAID Nexus to care for water, fountains and basins.  
Municipal Environmental Unit provides training.  
PROSASUR: rainwater crops, good agricultural practices, drip irrigation systems, family orchards.  
Hydrological governance: community organization, reforestation.
- What were the community participation schemes in these projects?  
They selected communities through prioritization where more water management problems were identified.  
In Hydrological Governance (even if running) watershed councils are established, have regulations, board of directors, supervisory board and its purpose is to protect the basin.
- Have there been previous local consultation processes?  
Open lobbyists, every three months.  
The selection of communities is validated with the Municipal Corporation.

It should also be noted that there are two regional platforms covering a territory beyond the six municipalities of the project, which are constituted as thematic tables. These are the following:

- **Risk management table:** a permanent body of articulation in the subject of risk management where around 32 bodies participate such as NGOs, private company, civil society organizations. The spirit of this table is that it arises from civil society, as a volunteer and has trained personnel in risk management issues. They remain active and support the work of the Standing Committee on Contingencies, COPECO. The coordinator of this table is: Juan Gabriel Mendoza, contact telephone number: (504) 9745-0219 and email: [coordinacionmesasurhn@gmail.com](mailto:coordinacionmesasurhn@gmail.com)
- **Environment Table, Risk Management and Adaptation to Climate Change:** promoted by the Technical Unit of Regional Planning, of the Government of Honduras within the framework of the Country Vision Nation Plan, developed in 2010. The coordinator of this table is CODEFAGOL (Committee for the Defense of the Flora and Fauna of the Gulf of Fonseca). The contact person is Dina Morel and her phone number is: (504) 3173-8604. This table is not currently as strengthened as the first, as it relies heavily on external bodies such as government or cooperation support.

#### d) Land ownership

- What is the general structure of land ownership in the area?  
In the case of Duyure, 60% of the producers are between medium and large and the rest small. There is a population that has no land whose way of producing basic grains is through migration agriculture, in newly developed plots (because of the debarking gurgo of pine). They use them for two or three years.  
In Morolica and Apacilagua, as in Duyure, large producers provide spaces for landless people to produce their basic grains.

## 2. Biophysical dimension

### 2.1 Agroclimatic conditions

- What is the geography of the area and its climatic characteristics?

Duyure: dry tropical climate

Apacilagua 50% is hillside and the other 50% valley. In Morolica 90% is hillside and 10% valley, which is what is located on the riverbank. In Duyure 15% flat and 75% is slopes.

all municipalities enjoy a dry tropical climate. In summer the temperature ranges between 30 and 40 degrees, while in winter it can drop up to 25 degrees.

The municipality of Choluteca according to the Holdrige classification has a sub-humid tropical climate, determined by the mangrove wetlands that surround it.

- What is the level of soil erosion?

There is erosion, mainly by agricultural practices and by the geography of the land.

Duyure: Erosion due to migratory agriculture.

In Choluteca, approximately 80% of the soils are degraded.

## 2.2 Coverage and land use

- What are the main land uses in the municipality?

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
Classification (use)	Livestock: 50% agriculture: 50%		Livestock Agriculture	Agriculture Livestock	Livestock: 20% Basic grains: 40% Fruit: 25% Export products: 25%	Subsistence agriculture, basic grains. Livestock
Extension			12,000 hectares in grasslands. Agriculture: 2000 hectares.	50 squares for corn 350-400 squares to produce okra vegetables: 3 apples. Livestock: 1000 apples	Livestock: 1000 hectares.	agriculture: 80 apples livestock: 80% of available land
Observations						

- What is the state of degradation of existing ecosystems or agro-ecosystems?

There has been and continues the degradation of forests, less water production. The agricultural frontier is still advancing. This year there was lower level of water sources by fire scourge and weevil infestation. In other cases because of livestock and fires, wood cover has been lost. The logging of forests, by exploitative companies (sawmills) because the Forest Conservation Institute provides permits for exploitation and that leaves ineffective the action of the Municipalities to protect the water sources.

○

- What has been the trend in the change in land use?

The plague of pine the cutter weevil has shattered the coniferous, which are then used in livestock and agriculture for basic grains.

Coffee has been stopped planting in Duyure.

The advance of the agricultural frontier, with migratory agriculture and subsequently replaced by livestock.

The fires in the intense summer reveal the forests that are then taken to continue as an agricultural area, it depends on. In pine forests it is left to natural reforestation. But in lowlands, where there is mixed forest, it is usually used for livestock and agriculture.

### a) Agriculture

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
% population dependent on agriculture	70%		80%	80%	75%	60% - 80%

Main actors in agriculture	PROSASUR Producer associations SAG (productive solidarity bond Resilience project (food in exchange for climate change adaptation practices) completed in 218		PROSASUR Producer associations SAG (productive solidarity bond) Caritas (three-month emergency project) EMPRENDESUR PMA	PROSASUR Producer associations SAG (productive solidarity bond) Caritas (three-month emergency project) EMPRENDESUR PMA	EMPRENDESUR PROSASUR FAO PMA Rural banks	Cajas Rurales, PMA, Emprendesur, Prosasur.
Women's roles in the agricultural sector	workers: In shrimp manufacturing and melon/sandia/okra manufacturing and harvesting		3-4%	Only as employees of the okra	Cut okra and manufacture	1%, more for family gardens.
Main crops by municipality (REGATTA data)					Basic grains: Maiz: 15-20 qq/mz Bean: 25 qq/maz	
Productivity of major crops			10 quintals/square corn, downtrend. bean; 6 to 8 qq/bean per apple	corn: 12 qq/sq, prone to drought down Bean: 8-10 qq/sq downward trend	corn: 12 qq/sq, prone to drought down Bean: 8-10 qq/sq downward trend	corn: 12 qq/sq, prone to drought down Bean: 8-10 qq/sq downward trend:
Existence of crops in agroforestry asocio	The tradition of asocio has been lost because the cultivation no longer occurs. Of the ninety with a production of 1 million quintals, approximately 50 thousand quintals are now harvested.		corn and corn (first) corn and beans (last).	corn and corn (first) corn and beans (last).	corn and beans. corn and beans (last)	corn and beans (first in upper area) corn and corn (first in low area) Maiz, bean and live pineapple barrier.
Prelated to agriculture from Nationally Appropriate Mitigation Actions (NAMA)	No. The one that existed was local, funded by German cooperation implemented through LDC, "Resilience in the Central American Dry Corridor" that ended in 2018			No	No	No

- What are the methods of cultivation and harvesting of the main crops?  
A lot agrochemicals is used. Agriculture is for subsistence. There are hillside areas.
- What agricultural techniques to improve the efficient use of water are being used?  
Rotoplast for household consumption by FAO and the Alliance for the Corridor.  
Drip irrigation on a smaller scale.  
In Orocuina, CARE Prosade installed a high-capacity water harvester, which was subsequently abandoned and was no longer used.

In the Las Posas community, there was support for the installation of a storage tank, but it got sedimented and no longer works.

A well was drilled by PRESANCA, it works but it's being contaminated by the cultivation of okra with agrochemicals.

Mini irrigation systems haven't worked not work, people didn't get used to them.

- What is the production and profitability of the main crops per ha?

Grain are sold, but there are drought problems.

There is no profitability to sow grains.

Export crops, which have the technologies to keep the demand of crops.

In Orocuina, pests have greatly affected chili and tomato producers. The maicillo has been affected by the yellow aphid.

b) Forest resource

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
Current forest coverage (%) (Atlas forestal, 2015)	20,834.24 has 19.49 %	13,127.83 Ha, 27.22%	6077.32 Ha, 21.6%	Area has 6,512.14 ha, 30.56% (Forest Atlas, 2015)	3450.15 Ha 27.69%	3,364.99 Ha 31.90%
Types of forest (Atlas forestal, 2015)	Dense Conifer Forest 33.90 Ha 0.34% Rare Conifer Forest 29.87 Ha, 0.30% Mangle Forest Alto 2,660.07 Ha 2.49% Mangle Forest Under 6,330.04 Ha, 5.92% Broadleaf Forest Deciduous 11,780.36 Ha 11.02% (Forest Atlas, 2015)	High Mangle Forest 5,339.89 Ha, 11.07% Mangle Forest Under 3,756.29 Ha 7.79% Broadleaf Deciduous Forest 4,031.65 Ha 8.36%	Dense Conifer Forest 705.90 Ha, 2.51% Rare Conifer Forest 906.75 Ha, 3.22% Broadleaf Forest Deciduous 4,447.70 HA, 15.81% Mixed Forest 16.97 Ha, 0.06%	Dense Conifer Forest (73.68 ha, 0.35%) Rare Conifer Forest 139.15 Ha, 0.65%) Deciduous Broadleaf Forest 6,299.31Ha, 29.56%) (Atlas Forestal, 2015)	Dense Conifer Forest 168.25 Ha, 1.35% Ralo Conifer Forest 31.23 Ha 0.25% Broadleaf Forest Deciduous 3,250.67 Ha 26.09%	Dense Conifer Forest 1,228.16 Ha, 11.64% Rare Coniferous Forest 892.51 Ha 8.46% Broadleaf Deciduous Forest 1,216.60 Ha 11.53% Mixed Forest 27.72 Ha 0.26%
Types of natural ecosystems (Atlas Forestal, 2015)	Conifer forests, mangrove forests, deciduous broadleaf forests, bodies of water	Mangrove forests and deciduous broadleaf forest, bodies of water	Coniferous forest and deciduous broadleaf forest, bodies of water	coniferous forests, broadleaf forests, bodies of water.	Coniferous forests, broadleaf forests, bodies of water.	coniferous forests, broadleaf forests, bodies of water.
Deforestation rate	In the municipal environmental unit of Choluteca a somewhat empirical statistic was provided where they categorize the level of deforestation of the municipalities of more deforestation to less deforested as follows: Orocuina, Morolica, Apacilagua, Choluteca, Marcovia and Duyure					
Actors in the forestry sector (list)	ICF MiAMBIENTE Municipal Environmental Unit	ICF MiAMBIENTE Municipal Environmental Unit	ICF MiAMBIENTE Municipal Environmental Unit	ICF MiAMBIENTE Municipal Environmental Unit	ICF MiAMBIENTE Municipal Environmental Unit	ICF MiAMBIENTE Municipal Environmental Unit
Type of roles of women in the forestry sector (list)	They contribute with support to nurseries.		Reforestation activities.	They do reforestation	Education Participation in organizations.	integrate into reforestation and cleaning with WFP support
% of the population	70%		90%	89%	70% in the urban area	Traditional Fogon:



	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
that uses firewood					alone does not use firewood. 10% of eco-stoves that have been provided and people appropriate .	75.2% and improved bonfire: 19.8% (PDM, 2019)
Volume of wood consumption				a daily burden per family.	On the day 12 woodsticks are used for a family of 3 to 5 members per day.	
Sources of firewood				broadleaf forests	Forest	forests in generation, areas in regeneration
Species used as firewood	Charcoal madreado Quebracho		Quebracho, guiliguisque Charcoal madreado ,	Quebracho, guiliguisque charcoal cipia, madreado	Quebracho, chiguite (leucaena and cipre should be used)	pine, oak, break. red white carbon, chaperene, guanacaste.
Type of forest from which firewood comes	broadleaf		Broadleaf forest	Broadleaf forest	Broadleaf.	Broadleaf forest

- How has forest cover changed over the years?

Forest lost by weevil and changed to agricultural use, swidden agriculture and livestock.

- Are there forest nurseries in the area? How are they managed? What species do they handle and in what volumes?

There are none in Morolica or Duyure.

c) Livestock

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
% livestock-dependent population	30%		12%	10%	20%	20%
Type of livestock prevailing	dual purpose: milk and meat		milk and meat production, double purpose	Milk production, double purpose.	Double purpose: milk and meat.	milking and undressing
Main livestock species, and what is produced	Crosses: brown holstein, brown bramanh and Creole cow		Crosses: brown holstein, brown bramanh and Creole cow	Crosses: brown holstein, bramanh pardo meat geer	Indian Bramanh Less Swiss browning, mixtures.	Crosses: brown holstein, bramanh pardo meat geer criollo
Profitability	Quite high, because livestock is more		if it's profitable	if it's profitable	If it's profitable. But it doesn't	if it's profitable

	resilient than crops on climate change and with little labor can be managed				spread because of the lack of grass	
Main livestock players	Farmers' Association milk processing plants		Farmers' Association milk processing plants	Farmers' associations	Farmers' Association	farmers' association milk processing plants
Roles played by women in livestock	processing.		milking and hauling, artisanal processing	milking and hauling, artisanal processing	Milking, artisanal dairy processing.	milking and hauling, artisanal processing
Are there livestock projects of Nationally Appropriate Mitigation Actions (NAMA)	No		Very sporadic	Very sporadic	There's none	Milk producers have technical assistance from the secretariat of agriculture and livestock SAG and Emprande SUR
Are there are livestock projects of Nationally Appropriate Mitigation Actions (NAMA)	If the document exists at the national level, with the date of preparation January 2018					

d) Protected areas

- Are there protected areas in the area?

According to REGATTA, there are 206 km<sup>2</sup> in Choluteca and 90 km<sup>2</sup> in Marcovia declared as protected areas. The protected areas in Choluteca are: El Jicarito and San Bernardo which are Wetlands and San Ramón which is a source of water.

In orocuina there are no protected areas. Copalío's statement was not achieved.

- Are there endemic species (which)? Are there critical habitats? Are there threatened species?

Cedar, mahogany and ceiba are threatened. Ceibas use them a lot to make canoes.

Mangroves, a species threatened by shrimp farming.

What are the main wild species in the area (flora and fauna)?

deer in threat, wild turkey, tepezcuintle, armadillo, garrobo.

Several fishes have been lost (red jackal, red snapper, river shrimp, silver sardine)

Armadillo, zorrito.

- Are there biological corridors?

There're none.

## 2.3 Water resources

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
Water sources (supply systems, where the water resource comes from)	Choluteca River Wells		Calichuche Cocoa Old Estate	The hill the sylaarch Capulin Guacimal La Peña	Santa Lucia, Omega corner Lastrancas Ojustal	Microbasin of the Oven, and microbasin La Montanita.

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
				Old cheat		The Flower Apasupo Chilamate They flow into the Choluteca river.
Main actors for water resource management (names of institutions, associations, irrigator organizations, etc.)	Community water boards, Hydroric Governanc e, microbasin council Choluteca Waters				Community water boards, Water Governance, microbasin council	Water gaskets
% Agricultural water use	50%				50%	With wells, other small fountains in their lands.
% domestic water use	50%				50%	100% for agricultural use. 70% of the population has access to water in their homes (PDM, )
Used water treatment systems					There is no water treatment. It's just chlorinated.	They don't use it. There are filters endowed for life better (government) alliance for the corridor: ceramic bucket type.
Top irrigation technologies used	Drip irrigation in export crops				Drip irrigation in export crops	For the orchards, drip irrigation.
Proportion of agricultural units with access to irrigation	0.047	0.103	0.002	0.01	0.025	0.002
Water demand						60 m3 a day in the hull
Is there a drought early warning system	The region has emergency protocols, which were agreed with the Standing Committee on Contiguities -COPECO- Currently these protocols are used for COPECO's national drought early warning system.					
Is there water management infrastructure? (dams, community reservoirs, irrigation and atration, other traditional infrastructure)	Yes. drip irrigation, wells, reservoirs.				Water harvester, drip irrigation. A dam will be built from November, in the reloading area in the upper part of	50 water crops that small producers have built, as measures to meet the demand for

	Choluteca	Marcovia	Morolica	Apacilagua	Orocuina	Duyure
					Orocuina. With the support of Water Governance and Mayor.	water for livestock
Rural dwellings with access to safe drinking water	6336	5431	476	897	2237	367

- Description of the cost of water  
Quota set from 15 to 30 lps, no matter the consumption. It's rationed as two hours a day

- Description of water scarcity  
Scarcity from March to September, when first rains after the canicular happen.  
Shortage from March to April shortage (Orocuina)

### 3. Financial component

Name and address of financial institutions in municipalities	Type of financial institution (savings bank, bank, cooperative, others, etc.)	Contact Information: Name, Phone and Mail	Type of used financial products and average amounts	Number of customers and total acquisitions	Number of staff at the agency	Other relevant agencies (even if they are not in the municipality)
... San Marqueña Limitada Cooperative, Barrio El Centro,Duyure	..... Cooperative	... Manager: Carlos Roberto Corrales Mobile: 9853 2561	savings and credit services...	...	...	
Rural Box "Aldea De Carrizal Prieto"	Rural Cash Box	Chairman: Delio Arnulfo Olivera	savings and credit services			
Duyure Centro Rural Savings and Credit Fund	Rural Cash Box	Chairman: Jaime Mauricio Rodríguez	savings and credit services			
Caja Rural "Aldea de Tierras Coloradas"	Rural Cash Box	Chairman: Anita Herrera	savings and credit services			
RURAL BOX "ALDEA EL HORNO	Rural Cash Box	Chairman: Melvin Roberto López	savings and credit services			
Caja Rural Morolica Centro	Rural Cash Box		savings and credit services			
Caja Rural community El Potrero	Rural Cash Box		savings and credit services			
Caja Rural community Agualcagua	Rural Cash Box		savings and credit services			
Caja Rural community Finca Vieja	Rural Cash Box		savings and credit services			
Caja Rural Comunidad La Ceiba	Rural Cash Box		savings and credit services			

Name and address of financial institutions in municipalities	Type of financial institution (savings bank, bank, cooperative, others, etc.)	Contact Information: Name, Phone and Mail	Type of used financial products and average amounts	Number of customers and total acquisitions	Number of staff at the agency	Other relevant agencies (even if they are not in the municipality)
Atlantida Banco Barrio El Centro, Av. Valle, Franklin D. Roosevelt Street, Choluteca	Bank	Phone 2280-1010				
Western Bank, Choluteca Center	Bank					
Banpais, downtown Choluteca	Bank					
Central Bank of Honduras, Choluteca center	Bank					
Banrural, Choluteca Center	Bank					
Bac Credomatic, Choluteca Center	Bank					
Workers' Bank, Choluteca Center	Bank					
Bank Azteca, Choluteca city centre	Bank					
Bank Finsol, Choluteca center	Bank					
Adel Microcreditos Bo Guadalupe, ave Carranza	Financial	2780-4590 <a href="mailto:informacion@amc.com.hn">informacion@amc.com.hn</a>				9 Partners
Finsol Choluteca	Financial					
San Marquesa Cooperative	Cooperative					
Mi Credito La Libertad Neighborhood, Avenida La Rosa in Plaza La Libertada	Financial	(504) 9435-2909 <a href="mailto:rhmicredito@micredito.hn">rhmicredito@micredito.hn</a>				10 partners
Coovesur LTD Cooperative.	Cooperative					
ELGA Cooperative	Cooperative					
San Andres Cooperative	Cooperative					
Banrural In the municipality of Choluteca	Bank	(504) 2290-1010. Extension 401210				

Name and address of financial institutions in municipalities	Type of financial institution (savings bank, bank, cooperative, others, etc.)	Contact Information: Name, Phone and Mail	Type of used financial products and average amounts	Number of customers and total acquisitions	Number of staff at the agency	Other relevant agencies (even if they are not in the municipality)
Bank Atlántida: in the municipality of Choluteca.	Bank	(504) 2782-0121 / 2782-3600				
Bank Atlántida: in the municipality of Marcovia, Aldea Monjarás	Bank	2776-2017				
Bank of the West: in the municipality of Choluteca	Bank	Credit Officer: Israel Corrales. Mail: icorrales@bancococi.hn Cell: 9955-9452				
Bank of the West: in the municipality of Marcovia		Agency Manager: Julio Antonio Medina. Mail: jmedina@bancococi.hn. Cell phone: 9686-4941				

# Nicaragua

## 1. Demographic and socioeconomic dimension

### I.1 Demographics

#### a) Population structure and gender

	<b>Telpaneca</b>	<b>The</b>	<b>Yalagüina</b>	<b>Jícaro</b>	<b>Somoto</b>
Total population	24,014	15,718	11,525	34,008	39,567
Rural population	17,609	10,540	9,698	26,271	16,618
Extension of the municipality	353.28 kms2	164.37 km <sup>2</sup>	70.9 kms2	428.78 km <sup>2</sup>	474 km <sup>2</sup>
Poverty rate	52.9	55.6525			
Education level - Men	65%	87 %	70%	85 %	84.5%
Education level - Women	70%	92%	90%	89%	89.54
Maternal mortality rate	5%	0%	0%	0 %	x
Infant mortality rate	10%	0%	0%	2 %	4.2
Life expectancy men	65%	65%	60%	65 %	75
Life expectancy women	75%	70%	60%	75 %	72
State of food security	23%	No information	No information	3 %	
Femicide rate	0%	0%	0%	A murder on Feb 2019	04
Percentage of gender-based violence (survival at violent events, etc.)	20%	0%	0%	1% There are problems of violence not death.	95
Child dropout rate	17%	2%	1.85%	5%	
School dropout rate girls	15%	4%	2.57 %	5%	
Are there women without an identity card in the municipalities? (yes/no), approximate percentage	10%	NO	5%	2%	20%

#### b) Population hotspots

- Municipality of **Telpaneca**:  
**Disperse Zone**: The most dispersed area is most common in the communities of San Francisco, cuje.  
**Very Urban Area**: It is located in the communities of Santo Domingo, Quibuto, Los Lirios, San Jerónimo and the Urban area of the Municipality
- Municipality of **Palacagüina**.  
Most concentrated locations (More urbanized): In the communities of La Concepción, Saguasca, Jocote, Riño, Cuyali, Rio Arriba, La Tuna, Los Arados, La Calera, Musuli, Las Torres, Riño Abajo, Rio Grande, Malaladera, Sector 1,2,3 and 4.  
**Dispersed Zone**: the most dispersed area is found more common in the communities El Porcal, El Socorro, Ducuali sector Santa Rita, Monte Verde, La Plazuela.
- Municipality of **Yalagüina**  
Disperse Zone: the most dispersed area is found more common in the communities la muta, los calpules.quebrada arriba, el carrizo,el terrero.  
Very Urban Area: In communities such as: Salamasi, Los Encuentros, La Esperanza.
- Municipality of **Jícaro**.  
They have 75 communities and 12 urban neighborhoods, in these there are CLS centers and political promoters.

#### c) Ethnic Groups.

Are there ethnic groups and indigenous territories?

Municipality of **Telpaneca**. There is an organization like Telpaneca's Indigenous People, but there are no ethnic groups.

- Municipality of **Palacagüina**. No. The population is mestizo.
- Municipality of **Yalagüina**. No. The population is mestizo.
- Municipality of **Jícaro**. No

- Municipality of **Somoto**. No information.

Have they been part of previous projects and/or consultations?

- Municipality of **Telpaneca**. They have been involved in projects and taken into account in consultations.

### I.1 Health and Nutrition

- What is the state of food security in the area?

Municipality of **Telpaneca**. Regular depending on the area.

Municipality of **Palacagüina**. It is unknown

Municipality of **Yalagüina**. It is unknown

Municipality of **Jícara**. The state of food security is 3%

### I.2 Safety

- What is the level of security? What are the characteristics of violence in the area?

Municipality of **Telpaneca**: 92%

Municipality of **Palacagüina**: 92%

Municipality of **Yalagüina**. 95%

Municipality of **Jícara**. Permanent National Police and support of the Nicaraguan army in special cases.

- Is there a presence of armed groups or gangs?

There is no presence of armed groups or gangs.

### I.3 Economy.

Production	Telpaneca	The	Yalagüina	Jícara	Somoto
Main productive activities	Basic Grains and Livestock	Basic Grains and Livestock.	Basic grains and livestock, small industries such as artisans and doughnuts	Basic grains, coffee, livestock and forestry, vegetables	
Main national agricultural enterprises (name and type)		x	There's none	There's none	
Major international agricultural companies (name and type)		x	There's none	There's none	
Men's unemployment rate	70%	40%	60%	45%	
Women's unemployment rate	50%	30%	40%	40%	
Participation in male workforce (economically active population)	30%	48.1%	40%	45%	
Participation in women's labour force (economically active population)	50%	51.9%	60%	40%	
Proportion of large producers	10%	1%	15%	5%	
Proportion of medium-sized producers	45%	45%	40%	15%	
Production of small producers	45%	54%	45%	80%	
Women's Jobs (Listed, including informal work)	Homeworker, Dependent, Teacher	Homeworker, Dependent, Teachers	Home assistant, teachers, nurses, dependent, agro-industry processor	Housewife, laborer, coffee cut, Bean starter	Housewives, teachers, nurses, tobacco cigarette labour and agricultural activities

- What is the prevalence of the informal economy?

Municipality of **Telpaneca**. In the domestic work.



Municipality of **Palacagüina**. Formal and informal tertiary sector.

Municipality of **Yalagüina**. Formal and informal tertiary sector. Like the small doughnut, brick and informal doughnut industry

Municipality of **Jícaro**. Lack of formal employment, migration, interfamily abuse.

#### I.4 Municipal Development.

##### a) Municipal development plans.

- What are the main axes of action in municipal development plans?

Municipality of **Telpaneca** and **Palacagüina**. Social Projects of Housing and Schools. / Rehabilitation and Road Improvement. / Reforestation Project. / Cultural and Sports Development Project.

Municipality of **Yalagüina**. There are 12 axes: Technological investment for services for the communities, security, public quality service, public works for society, water and sanitation, risk management, tourism, environment, sports, recreation, promotion in investment.

Municipality of **Jícaro**. The main axes of action that every project is oriented to the conservation of soil and water and taking into account works of mitigation against natural disasters.

- Are there water management plans? Who's leading them?

Municipality of **Telpaneca**. El Malacate Water Reserve. This plan is handled by the mayor's office.

Municipality of **Yalagüina**. There's none

Municipality of **Jícaro**. There is, it is managed by the UMA area, it is oriented to a system of Mini-aqueduct of water by gravity-MAG and maintenance of all existing networks in the municipality.

##### b) Community and political participation / Women's Participation.

Participation	Telpaneca	The	Yalagüina	Jícaro	Somoto
Key players in the municipality (including cooperatives, NGOs, communal associations, etc.) (list)	U.COM, Aid in Action, Dairy the Lilys	U.COM, Coffee Drying Benefits, Rebirth Dairy.	Doughnut workshop, bamboo cooperative, entrepreneurship, John XXIII, among others	Mayors, Vice Mayors, Politicians and institutional delegates. Coop. Orfilia Vásquez, Coop. Santiago. Coop. New Horizon, ASUMUPRO, BPS Associate Core	MCN, UNAG, APRODEIN
Women's organizations (environmental workers, productive organizations, cooperatives (list)	COSMUSOL	Prodecoop, cooperative May 10, CATIE.	There's none	Coop. Orfilia Vásquez, Coop. Santiago. Coop. New Horizon, ASUMUPRO, BPS Associate Core	
Percentage of women who own land ownership	60%	15%	10%	4%	
Representation of women in local governments (number, or percentage), type of position if possible	50% Councilors Mayor	50% Councilors Mayor	50%	Social Promoter, Catastro, HR, Accounting, Civil Registry, Tax Administration, CDI, Livestock Registration. There are 17 women responsible for	50%

Participation	Telpaneca	The	Yalagüina	Jícaro	Somoto
				areas equivalent to 30% of the total	

**c) Previous projects.**

- What adaptation-related projects have been developed in the municipality area?

Municipality of **Telpaneca**. Water and Sanitation, (Reforestation and Mitigation Works).

Municipality of **Palacagüina**. Construction of biofilters, landfill management, installation of solar panels, works,

for wastewater, (reforestation and mitigation works), training of disaster brigades, improvement of water systems

Municipality of **Yalagüina**. Reservoir construction, yard bonds, improvement of waste doughnut workshop furnaces, (Reforestation and Mitigation Works), training of disaster brigades, improvement of water systems.

Municipality of **Jícaro**. In the first instance what has been developed in the reforestation plan through the forest nurseries established in the municipality.

- What were the community participation schemes in these projects?

Municipality of **Telpaneca**. Community counterpart

Municipality of **Palacagüina** and **Yalagüina** Shared Responsibility, Community Counterpart.

Municipality of **Jícaro**. Participation of people willing to enrich critical areas vulnerable to water erosion and promote mitigation works.

- Have there been previous local consultation processes?

Municipality of **Telpaneca**. There have been consultation processes

Municipality of **Palacagüina**. There have been consultation processes through lobbying 5 a year

Municipality of **Yalagüina**. There are consultation processes through municipal lobbying, survey

Municipality of **Jícaro**. No.

**d) Land property.**

- What is the general structure of land ownership in the area?

Municipality of **Telpaneca**. There are 10 large producers and 30% rent it for basic grain planting

Municipality of **Palacagüina**. There are 8 large producers

Municipality of **Yalagüina**. There are 20% landowners

Municipality of **Jícaro**. According to Agricultural Census Information, there are producers of 1-2.5 blocks equivalent to 45%, 5-20 blocks equivalent to 40%, 20-100 blocks equivalent to 14% and 100 to more, only 1%.

(\*) 1 block ("manzana") is equivalent to 0.7ha

**1. BIOPHYSICAL DIMENSION.**

**2.1 Agroclimatic conditions.**

- What is the geography of the area and its climatic characteristics?

Municipality of **Telpaneca**. The land of the municipality is quite rugged, its topography is irregular the climatic characteristics its temperature the high.

Municipality of **Palacagüina**. Topography is irregular climatic characteristics its hot and sub-humid temperature

Municipality of **Yalagüina**. Topography is Irregular. Climatic characteristics: hot temperature

Municipality of **Jícaro**. The municipality has a tropical savannah climate with a rainfall of 1200 to 1400 per year, with a prolonged wet period, this is due to its windward position with respect to the mountains of Dipilto – Jalapa and Telpaneca.

- What is the level of soil erosion?

Municipality of **Telpaneca**. Erosion is high because of the advance of the agricultural frontier.

Municipality of **Palacagüina**. Erosion is high because of the advance of the livestock and agricultural frontier.

Municipality of **Yalagüina**. Erosion is high because of the advance of the livestock and agricultural border and brick workshops that exist in the municipality.

Municipality of **Jícaro**. They are soils between clay, sandy and sandy franc sandy of which are of consistent structure which prevent severe damage.

### 1.1. Coverage and Land Use.

- What are the main land uses in the municipality?

	<b>Telpaneca</b>	<b>The</b>	<b>Yalagüina</b>	<b>Jícaro</b>	<b>Somoto</b>
Classification (use)	Agricultural and Livestock	Agricultural and Livestock	Agricultural and livestock	Livestock Use (2,533 Ha), Agricultural (7,889 Ha), Forestry (32,439 Ha)	
Extension	282.624 km <sup>2</sup>	90 km <sup>2</sup>	70 km <sup>2</sup>	42,861 Ha	
Observations	Advance of the agricultural frontier	Advance of the frontier for livestock	Advancement of the agricultural and livestock frontier		

- What is the state of degradation of existing ecosystems or agro-ecosystems?

Municipality of **Telpaneca**. Very high

Municipality of **Palacagüina and Yalagüina**. Very high because of deforestation, improper use of soils.

Municipality of **Jícaro**. Deforestation due to the advancement of agriculture, the use of insecticides and pesticides and the inadequate exploitation of forests

- What has been the trend in the change in land use

#### a) Agriculture.

	<b>Telpaneca</b>	<b>The</b>	<b>Yalagüina</b>	<b>Jícaro</b>	<b>Somoto</b>
% population dependent on agriculture	75%	60%	80%	80%	
Top players in agriculture	Men	Man	Man	80%	
Women's roles in the agricultural sector	Very Little	Regular	High	80%	
Main crops by municipality (REGATTA data)	Basic beans, coffee	Basic grains, livestock, tobacco, million, horticulture	Basic grains, vegetables	Corn, beans, coffee, cocoa, Musaceae and vegetables	
Crop area (data available in REGATTA)		Basic grains 865, livestock, tobacco, million, horticulture 62 and oilseed 3 temporary crops 4	Basic grains and livestock	36,561 mz	
Productivity of major crops (trends, if available)	Basic grains	Basic grains, livestock, tobacco, million, horticulture	Basic grains and livestock	50% productivity	
Existence of crops in agroforestry partner (yes, no, which)	No	No	Yes, cattle pasture	Coffee, Cocoa, Musaceae	
projects related to agriculture of Nationally Appropriate Mitigation Actions (NAMA)	INTA Project	INTA Project, MEFCCA.	MEFCCA Project. FIDER NGO	None	

- What are the methods of cultivation and harvesting of the main crops?

Municipality of **Telpaneca**. Use of Agricultural Chemicals and Slash and Burn

Municipality of **Palacagüina and Yalagüina**. Traditional Preparation, Squeaking, Use of Agricultural Chemicals and Slash and Burn

Municipality of **Jícaro**. Traditional methods are always performed, controlled burning, removal of the land partly flat and on slopes the methods of crops are to "bordon" and "tunco" prevailing the use of agrochemicals. As for the harvest is traditional with use of awnings and semi-machined in flat parts as such is known as Degranadora.

- What agricultural techniques to improve the efficient use of water are used?

Municipality of **Telpaneca, Palacagüina and Yalagüina**. Soil and Water Conservation Works (OCSAS), Reservoirs

Municipality of **Jícaro**. The use of reservoirs and dams is always used, leaving the flow of water flow (their general appreciation of the municipalities). Also Soil and Water Conservation (OCSAS), Reservoirs

- What is the production and profitability of the main crops per ha?

Municipality of **Jícaro**. As for the previous years, the yield was considerable to the production between 8-15 qq/Ha in bean and corn between 60 to more/ha, In this year, data collected we have a yield of 3-5 qq of first harvest.

#### b) Forest Resource.

Description	Telpaneca	The	Yalagüina	Jícaro	Somoto
Current forest coverage (%)	20%	19.58 km <sup>2</sup>	20%	32,439.0 Ha, 75%	
Types of forest	Broadleaf and Pines	Broadleaf and Pines	Broadleaf	Conifers, Broadleaf and Tacotales	
Types of natural ecosystems	Wood Vegetation	Arboreal Vegetation	Tree vegetation and tacotals	Forest	
Deforestation rate	80%	40%		30%	
Actors in the forestry sector (list)	Owner of Forests and Woodsheds	Owner of Forests and Woodsheds.	Forest owners,	MARENA, INAFOR, ALCALDIAS, PGR, Nicaraguan Police, Nicaraguan Army	
Type of roles of women in the forestry sector (list)	There's none	There's none	There's none	Housewife, Administrative and Commerce	
% of the population that uses firewood	90%	85%	95%	55%	
Volume of wood consumption	100%	1/2 tonne per month at home understanding that 1 tonne is made up of 500 slits.	1/2 tonne per month at home 4 ton in doughnut shops	10-15 M3/mes	
Sources of firewood	San Francisco, Carbonal	La Plazuela, Cusmaji, Rio Grande, El Porcal, Las Torres, Monte Verde, Ducualí Abajo, Río Arriba.	Somoto Township, Totogalpa, Ocotal	Broadleaf snow forest and tacotals	

Species used as firewood	Encino Oak	Quebracho, Coal, Black Wood, Brazil, Paracay, Anisillo, Nacasclo, Cornizuelo.	Quebracho, black wood, sardinilla, charcoal, manda Gual, pine	Quercus Oak, Nance, Guácimo, Coral, Guava, Mandagual Acacias among others	
Type of forest from which firewood comes	Oak, Quercus Oak	Quebracho, Coal, Black Wood, Brazil, Paracay Anisillo, Nacasclo, Cornizuelo.	Quebracho, black wood, sardinilla, charcoal, manda Gual, pine	Tacotales, gallery forest, Latifoleadas and pine in some cases	

- What is the geography of the area and its climatic characteristics?

Municipality of **Telpaneca**. Forest cover has been declining.

Municipality of **Palacagüina and Yalagüina**. It has been declining forest cover because of the advancement of Municipality of **Jícaro**. Through the misuse of soils, the advance of the agricultural frontier, extensive livestock and environmental pollution (forest fires).

- Are there forest nurseries in the area? How are they managed? What species do they handle and in what volumes?

Municipality of **Telpaneca**. No

Municipality of **Palacagüina and Yalagüina**. Yes, prompted by institutions

Municipality of **Jícaro**. Each year a municipal nursery is established with different forest species between an average of 40,000 to 60,000 Seedlings that are given to interested producers to enrich areas of vegetation, energy use, timber and projects that are linked to the recovery of the forestry sector.

#### c) Livestock.

Description	Telpaneca	The	Yalagüina	Jícaro	Somoto
% livestock-dependent population	15%	35%	20%	40%	
Type of livestock prevailing	criollo	criollo	criollo	Bovina, swine, and goats	
Main livestock species, and what is produced	Pardo and the Holstein	Pardo and the Holstein	Brown, bellows, guir	Milk and meat	
Profitability	Good	Good	Good		
Main livestock players	Producers	Producers	Producers and trader		
Roles played by women in livestock (descriptive or list)	Dairy-derived products	Dairy production	Dairy product processing	Housewife, by-product processing	
There are livestock projects of Nationally Appropriate Mitigation Actions (NAMA) (yes, no)	No	Training and productive bonus	CERS, productive bonus training	No	

#### d) Protected Areas.

- Are there protected areas in the area?

Municipality of **Telpaneca**. El Malacate Water Reserve.

- Are there endemic species (which)? Are there critical habitats? Are there threatened species?

Municipality of **Telpaneca, Palacagüina, Yalagüina**. Although there are no endemic species, there are threatened species

- What are the main wild species in the area (flora and fauna)?

Municipality of **Telpaneca**. Broadleaf forest and pine, wildlife such as deer, mountain pig.

Municipality of **Palacagüina**. Bracilillo tree. Broadleaf forest and pine, wildlife such as deer, mountain pig, among others.

Municipality of **Yalagüina**. Broadleaf forest, Tacotales and pine, wildlife such as deer, rabbit, garrobo among others.

Municipality of **Jícaro**. The Coyote, mountain cat, tigrillo, and snakes

- Are there biological corridors?

No, in any of the municipalities

## 2.1 Water Resources.

Description	Telpaneca	The	Yalagüina	Jícaro	Somoto
Water sources (supply systems, where the water resource comes from)	MABE comes from the Coco River	MABE and infiltration wells in the sub-basin	MABE, PPBM AND MAG	Jícaro River Basin	
Main actors for water resource management (names of institutions, associations, irrigator organizations, etc.)	ENACAL, Mayor	ENACAL and 29 CAPs	ENACAL and CAPs and local government NGOs	Mayor, ENACAL, CAP, MRENA, MEM	
% Agricultural water use	20%	10%	30%	40%	
% domestic water use	80%	100%		40%, 16 M <sup>3</sup> /family (3 person)	
Used water treatment systems	100%	80%	80%	Ministry of Aqueduct by Electric Pumping of 40,000 M <sup>3</sup> tank water treatment plant	
Top irrigation technologies used	Drip irrigation	Drip irrigation and groove flooding	Drip irrigation and gravity flooding	Pumping and gravity motors	
Water demand	High	High	High	40,000 M <sup>3</sup> /mes	
There is a drought early warning system (yes, no)	Yes (Drought Plan)	Yes (Drought Plan)	Yes (Drought Plan)	No, just through INETER, SINAPRED warning	
Is there water management infrastructure? (dams, community reservoirs, irrigation and drainage, other traditional infrastructure)	Recruitment Stack	Recruitment Stack	Recruitment piles	Area/UMA of the City Council	
Population with access to sanitation infrastructure (REGATTA data)	85%	No	80%	None	
Type of sanitation services available (septic tanks, sewage treatment plants, others, none)	Latrines	Latrines	Improved and unimproved latrines	None	

- Description of the cost of water

Municipality of **Telpaneca and Palacagüina**. It is paid for household water, measured by cubic meter, monthly payment method.

Municipality of **Yalagüina**. It is paid for household water, it is measured per cubic meter, monthly payment method but if there is a differentiated rate.

Municipality of **Jícaro**. Monthly payments are made for drinking water service, this varies by type of consumption, there are ranges of 1-10 C\$ 10.00, 1-30 C\$ 12.00, 31-40-C\$ 14.00, 41-50-C\$ 16.00 which vary according to consumption. This has an accompaniment of C\$6.00 subsidy that the government guarantees

- Description of water scarcity

Municipality of **Telpaneca**. During summer, water is rationalized.

Municipality of **Palacagüina**. Water flow has decreased by 180 feet. Wells have been drilled to find water at 350 feet.

Municipality of **Yalagüina**. Water flow has decreased by 220 feet. Wells have been drilled to find water at 350 feet.

Municipality of **Jícaro**. Currently, no deficit has been presented as there is permanent maintenance on the part of ENACAL, with the support of the Municipality.

## 2. Financial Component.

Municipality	Name and address of financial institutions in municipalities	Type of financial institution (savings bank, bank, cooperative, others, etc.)	Contact Information: Name, Phone and Mail	Type of financial products and average amounts	Number of customers and total acquisitions	Number of staff at the agency	Other relevant agencies (even if they are not in the municipality)
<b>Telpaneca</b>	ENACAL	None	Brayan Rodriguez 89201913	Cloros	1200	2	SAN JUAN RIO COCO
<b>The</b>	ENACAL	ENACAL, RAPIBAC	Alfredo Aguilar 58739413	Cloros	1964 home connections.	1	- FINANCIERA FUND OF LOCAL DEVELOPMENT, S.A. (FDL, S.A.)
<b>Yalagüina</b>	Enacal	ENACAL, Agent Banpro,	Jorge Luis Espinoza	Cloros	778 home connections.	2	(Bank) In front of the Municipal Police 8435-2518
<b>Jícaro</b>	FUNDENUS E, Coop. Santiago, FAMESA	Financial and Cooperative	Gte from Coop. Santiago. Ramon Mendez Telf. 88226960				
<b>Somoto</b>	FINANCIERA FUNDESER, S.A. From INSS 1 c south 1/2 c east, sector 2	Bank	2722-0728				QUILALI
	BANK OF CENTRAL AMERICA, S.A. From INSS 1/2c east Old Madriz cinema	Bank	2274-4444 x 4322				- FINANCIERA FUND OF LOCAL DEVELOPMENT, S.A. (FDL, S.A.) (Bank) Quilalí Main Street, INSS 1/2 block west 2735-5096
	BANK OF PRODUCTION, S.A. Curacao 1 c west	Bank	2255-9595 x 39407				Jalapa
	BANCO OF PRODUCTION, S.A.	Bank	2255-9595 x 39407				- FINANCIERA FUNDESER, S.A. (Bank) Municipal mayor 3c. To the west 2737 -2246 - BANCO DE LA

	From puma gas station 2 c south						PRODUCCIO N, S.A. (Bank) Mayor 1 c south 3c East 2255-9595 x 39399 - BANCO LAFISE BANCENTRO , S.A. (Bank) Del Almacen Molina 1 Cuadra East, Sector 01. 2737-2061  Ocotal - BANK OF CENTRAL AMERICA, S.A. (bank) Palí Ocotal, from the Mayor 50 Mts to the West 2274-4444 x 4322  - BANK OF CENTRAL AMERICA, S.A. (bank) From the Segovia National Institute 1/2c north on central street 2274-4444 x 4322  - BANK OF PRODUCTIO N, S.A. (bank) Central Park 1 1/2 north 5799-9009  - BANK OF PRODUCTIO N, S.A. (bank) Ocotal Police Facilities 2255-9595 x 39546  - BANK OF PRODUCTIO N, S.A. (bank) Municipal Market 1/2c.
	<b>BANK OF FINANCES, S.A. In front of the Municipal Mayor</b>	Bank	<b>2722-2260</b>				



							<p>South Banks Street 2255-9595 x 33918</p> <p>- BANCO LAFISE BANCENTRO , S.A. (bank) Enitel 10 Vrs. South 1 C. West 2732-3367</p> <p>- FINANCIERA FAMA, S.A. (bank) Enitel 75 vrs. to the north 2732-2077</p> <p>- FINANCIERA FINCA NICARAGUA, S.A. (bank) Bo. Lacy Farfán next to the Rooster plus Rooster. 2732-0047</p>
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## Panama

### 1. Demographic and socioeconomic dimension

#### I.1 Demographics

##### a) Population structure and gender

	Guararé	Pocrí	Pedasí	Tonosí	Macaracas
Total population	10381	3259	4275	9787	9021
Rural population	6033	3259	2355	8309	6797
District extension ( Km2)	218.34	278.14	377.25	1258.56	545.15
Poverty rate	16.0	14.5	15.3	29.5	27.9
Life expectancy men	74.09	74.64	74.65	73.62	73.64
Life expectancy women	81.78	82.18	82.19	80.87	81.07

##### b) Population hotspots

In these districts there is always a “corregimiento” (it is a lower political-administrative divisions) where the commercial activity takes place (banks, supermarkets or shops, fuel stations, small warehouses, agricultural input shops etc. The rest of the population is scattered, with the territory used for agriculture and livestock as main activities.

##### c) Ethnic groups

- Are there ethnic groups and indigenous territories?

No indigenous group or territory is found in the area of future impact of the project. This area consists mostly of rural villagers who practice subsistence farming and livestock. However, it is important to note that due to the increase in pawn costs, the reduction in yield of agricultural products and the disinterest of the new generations in agriculture, the large producers of the area have started to hire indigenous people other areas of the country, especially of Ngabe Bugle descent, to address labour reduction. While there is a small presence of indigenous migrants in the area, there are no traditional laws or regulations that have an impact on the project's implementation area, so national conventional regulations are applicable.

The recruitment of these indigenous workers is on an informal basis and most likely they cannot aspire to the level of payment of local pawns and it is very common that they live in deplorable conditions near the farms where they work. This is a problem that must be considered in the future for the implementation of the project and thus avoid being complicit in a possible scheme of labor exploitation. Therefore, some kind of process is recommended to prevent farms that incur this practice from receiving project benefits.

There are no indigenous groups in this territory, only a few people who have moved to this area for work.

- Have you been part of previous projects and/or consultations?

There are no native villages in this area.

#### I.2 Health and nutrition

- What is the state of food security in the area?

In these districts because people grow much of their food, and the state has implemented a number of subsidies that help school children, older adults, mothers, etc. This has generated income and a less burden on families. Related programs can be found in this document. <https://www.mef.gob.pa/wp-content/uploads/2019/04/Informe-de-Ejecución-Vigencia-2017.pdf>

It is also important to describe that many of the young population of these regions are mobilizing to the city, i.e. the rural areas are being left with adult population, there is no generational replacement

Food security

The "Plan Nacional de Seguridad Alimentaria y Nutricional 2017-2021" seeks to guarantee access to food from those living in extreme poverty, according to data of this plan the province of Los Santos reports a total of 2379 people living in extreme poverty. The purpose of the plan is to promote food and nutrition security through cross-sectoral and inter-agency multidisciplinary coordination in food and nutrition. All goals and actions can be found in the plan.

### I.3 Safety

- What are the characteristics of violence in the area?

According to statistical data in 2018 there were 4 homicides in the province of Los Santos low compared to other parts of the country. Available in: <http://ministeriopublico.gob.pa/wp-content/multimedia/2018/12/Informe-Estadístico-Unidades-de-Homicidio-Enero-Noviembre-2018.pdf>

- Is there a presence of armed groups or gangs?

There are no armed groups or gangs in these districts.

### I.4 Economy

- What is the prevalence of the informal economy?

According to the documents (district plan of Pocrí and Macaracas), informal economy is present. On the page 48 of the district document of Pocrí, a 54% of an informal economy in the province of Los Santos is reported.

### I.5 Municipal development

#### a) Municipal development plans

The plans area available for review for Macaracas and Pocrí, and the provincial strategy is available for Los Santos.

- What are the main axes of action in municipal development plans?

There is a list of actions in the case of Pocrí, it is one of the districts that has a service offer. According to what has been found in this district, there are no banks, pending research on the existence of cooperatives. It is a district that is between Las Tablas and Pedasi, however there is little activity. The main activities are agriculture and livestock, and in its flat.

Pocrí: There have been discussions about some actions, such as: 1) Establish reforestation programmes, 2) Increased sustainable environmental practices, regulate the green areas of riverbanks, 3) solid waste management plan. In a SWOT analysis, opportunities to increase resources to support tourism, build skills for labor were highlighted.

Among the actions, to deal with limited access to water, it is proposed to access new water sources, repair reserve tanks, improve water intakes, establish controls to measure quality among others; expand, improve and innovate the tourist offer, build resorts, restaurants, formalize tourist services and train human resources.

- Are there water management plans?

At the national level, the National Water Safety Plan "Water for All" was developed which establishes a diagnosis and gives guidelines on this issue for the country. Already added to MEGA.

The Ministry of the Environment takes the watershed committees as the environmental management unit in each of the basins of the country. There is already a Law 44 of 2002, which establishes the administrative regime for the management, protection and management of watersheds, where each basin has a large group of actors participating, producers, organizations, ministries located in the territories, for this purpose to revise Law 44 Article 8.

#### b) Community and political participation / Women's participation

	Guararé	Pocrí	Pedasí	Tonosí	Macaracas
Key players in the municipality (including cooperatives, NGOs, communal associations, etc.)	APROLU	Craft Association of Pocrí and Paritilla, Fishermen's Association, Year Organized health groups	APASPE, Azuero Ecological Project Association of Forest Producers		APLDMACA APROLECH APROPELL JOCA AGUA APROLELAC APLEP APMG, JPM, APAPAH

c) Previous projects

- What were the community participation schemes in adaptation projects?

There are participation schemes and consultations in the country, for example is the National Biodiversity Strategy, the REDD+ National Strategy and at the country level for projects, the public consultation should be given where the web is uploaded and the public can comment (each Ministry should do so), there is also a national consultation plan according to the area that you want to implement a project, plan or strategy. Doc. Modernization and management of the state 2016 (Article on page 20 "Citizen participation as a mechanism for development in communities".)

- Have there been previous local consultation processes?

According to the institution and the project that was developed, people from the communities are always located to give their views of what is being proposed, the consultation workshops are usually at the head of the provinces.

d) Land ownership

- What is the general structure of land ownership in the area?

In this topic, there is no recent information, so the data of the 2010 census has been used. The link to the General Comptroller of the Republic of Panama, where there is a table on agricultural exploitation, is the following: [https://www.contraloria.gob.pa/inec/Publicaciones/Publicaciones.aspx?ID\\_SUBCATEGORIA=60&ID\\_PUBLICACION=470&ID\\_IDIOMA=1&ID\\_CATEGORIA=15](https://www.contraloria.gob.pa/inec/Publicaciones/Publicaciones.aspx?ID_SUBCATEGORIA=60&ID_PUBLICACION=470&ID_IDIOMA=1&ID_CATEGORIA=15)

2. Biophysical dimension

2.1 Agroclimatic conditions

- What is the geography of the area and its climatic characteristics?

The Province of Santos belongs to the Central Pacific water region that is characterized by its watercourses flowing into the Pacific Ocean and its watersheds have lower rainfall intensities. Its precipitation levels predominate between the ranges of 1,000 and 2,000 mm/year. It includes basins 124, 126, 128, 130, 132, 134, 136, 138, 140 and 142.

2.2 Coverage and land use

- What are the main land uses in the municipality?

	Guararé	Pocrí	Pedasí	Tonosí	Macaracas
Classification (use)	Livestock Agriculture	Livestock Agriculture	Livestock	Livestock	Livestock

- What has been the trend in the change in land use (e.g. Change of crops, urbanization, increased deforestation, greater restoration, etc.).

This territory in general the province of Los Santos in the past went through a process of deforestation for agricultural and livestock activities, currently the predominant agricultural and livestock activities as activities that support the families, according to the 2012 forest cover map reports stubble and secondary forests, this is because producers for the effects of climate change have found the need to move their activity to other areas of

the country, and this abandonment results in increased coverage of forest (stubble). The map will be passed, it was requested from the Ministry of Environment of Panama (shape). Additional can be quoted from the document

a) Agriculture

	Guararé	Pocrí	Pedasí	Tonosí	Macaracas
Main crops by municipality (REGATTA data)	Rice, corn, cane and sorgo	Rice, corn, cane, beans and sorgo	Rice and corn	Rice, corn, cane, beans, melon, stilts, vegetables, yams	Rice, corn, cane, beans and yams

- What are the methods of cultivation and harvesting of the main crops?

The main crops of these 5 districts are: rice and maize in hectares, followed by bean, cane and sorgo. All have in common soil preparation, use of agricultural machinery, use of agrochemicals. In the case of the cane, fire is still used at harvest time. In the district of Tonosí is where dry rice is produced and by irrigation.

- What agricultural techniques to improve the efficient use of water are used?

Rice is the one that uses irrigation in the district of Tonosí and the water comes from the tone river, also in this area is grown export melon and watermelon and use drip irrigation systems. Rice and maize are grown in the rainy season except for Tonosí as they have availability of tone river water in the summer. The rest of the districts are struggling in the summer because of the low availability of water, the streams and rivers have become completely dry, hence the importance of capturing rainwater for small and medium-sized producers, large producers (farmers) with better economic resources are better prepared.

- What is the production and profitability of the main crops per ha?

Production by province can be found in the MIDA memory document, and in the Regatta document, it is located by district.

b) Forest resource

- How has forest cover changed over the years?

The region of Arco Seco has been a territory that has undergone a process of transformation over the years, this can be seen in the map of wood cover what predominates are the pastures are the predominant in these 5 districts. Forest patches, protected areas are areas that have been maintained due to the problems that have become visible in recent years, these areas are protecting water sources, rivers, ravines. Review Resolution No. DM-0067-2017 (Thursday, February 16, 2017), which approves the use of the coverage map and use.

- Are there forest nurseries in the area? How are they managed? What species do they handle and in what volumes?

In the regional agencies of the Ministry of Environment located in the districts, there are forest nurseries, where the species of the region are sought, the Ministry has a program called "Alliance for the Million Hectares". This private public initiative seeks reforested areas that are degraded. <https://www.alianzaporelmillon.org/componentes-axm>

Macaracas: Savim Ecological Group (Let's name a Tree, Live Better. The information corresponds to the year 2014, is a community forest nursery, some of the species that breed are: fruit trees such as: Chrysophyllum caimito, Tamarindus indica, Anacardium occidentale, Citrus sinensis, woods such as: Anacardium excelsum, Swietenia macrophylla, Tabebuia rosea among others. By 2014 they produced 7, 346 seedlings. Information available at: <https://apronadpanama.wordpress.com/category/viveros-comunitarios/>

Pedasí: The Azuero Ecological project also has a nursery, working on the conservation of the Spider Monkey, creating connectivity through agrolandscape in collaboration with the farmers and farmers of the area, interns among others.

c) Livestock

	Guararé	Pocrí	Pedasí	Tonosí	Macaracas
Type of livestock prevailing	Extensive	Extensive	Extensive	Extensive	Extensive
Main livestock species, and what is produced	Cebú, brahman, crossing this with others for double purpose milk and meat				
Main livestock players	Small mediums and large producers	Small mediums and large producers	Small mediums and large producers	Small mediums and large producers	Small mediums and large producers
Are there livestock projects of Nationally Appropriate Mitigation Actions (NAMA)?	Review Excel table				

d) Protected areas

- Are there protected areas in the area?

According to a list published by INEC with source of the Ministry of Environment of Panama in these territories there are:

1. Bosque comunal el Colmón,
2. Peñón de la Honda,
3. La Tronosa,
4. Cerro Canajagua,
5. Coastal area of the Corregimiento of La Aenea (Guararé)
6. Coastal area of the Corregimiento of Espinal (Guararé)
7. Cocoa River Microbasin (Macaracas) (information available on page 52 of the doc. Panama in figures 2012-2016.

- Are there biological corridors?

No, there aren't.

2.3 Water resources

	Guararé	Pocrí	Pedasí	Tonosí	Macaracas
Water sources (supply systems, where the water resource comes from)	Rural aqueducts	Rural aqueducts	Rural aqueducts	Rural aqueducts	Rural aqueducts and water treatment
Main actors for water resource management (names of institutions, associations, irrigator organizations, etc.)					IDAAN

3. Financial component

Name and address of financial institutions in municipalities	Type of financial institution (savings bank, bank, cooperative, others, etc.)	Contact Information: Name, Phone and Mail	Type of used financial products and average amounts	Number of customers and total acquisitions	Number of staff at the agency	Other relevant agencies (even if they are not in the municipality)
Savings Cash: 1-Guararé, 3rd Street of November. 2-Pedasi, Central Avenue of Pedasi	Savings Box	Phones: 1-Guararé: 800-2252 2- Pedasí: 800-2252	Loans, loan insurance	...	...	In the district of Los Santos are other banks such as: BAC Credomatic, Banistmo, Banco Azteca, Global Bank, all located in Las Tablas.
National Bank of Panama: 1-Pedasi, Pedasi National Highway. 2-Tonosí: Main Street, Tonosí. 3-Macaracas, Calle Central Macaracas.	Bank	Phones: 1-Paedasi: 9952257 Manager: Dania Sánchez de Osorio. 2-Tonosí: 9958029 Manager: Benjamin Chavez. 3-Macaracas, 9954182, Manager: Elvita de González.	Loans, savings accounts			
Agricultural Development Bank 1-Pedasi: In front of the National Bank of Panama. 2-Tonosí: Adjacent to the health center of Tonosí. Manager: Henry Gutierrez, telefax: 9958009, mail: <a href="mailto:hgutierrez@bda.gob.pa">hgutierrez@bda.gob.pa</a> Macaracas: In front of the Fire department.	Bank	Phones: 1-Pedasi: 995-2240 Manager: Pablo Barrios, <a href="mailto:pbarrios@bda.gob.pa">pbarrios@bda.gob.pa</a> 2-Tonosí: 9958009 Manager: Henry Gutierrez, telefax: 9958009, mail: <a href="mailto:hgutierrez@bda.gob.pa">hgutierrez@bda.gob.pa</a> 3-Macaracas: 9954111, Montenegro Atenogenes Manager, <a href="mailto:amontenegro@bda.gob.pa">amontenegro@bda.gob.pa</a>	Loans, Micro-small and medium-sized enterprises.			
Microserfin Tonosí: In front of the central park, inside the Daniel pharmacy. Macaracas: Central street, building of the Pharmacy Pinzón, behind the Church San Juan Bautista de Macaracas. Supervisor Heydi Alonso.	Microfinance	1- Tonosí: Supervisor of the Office Mr. Jorge Barrios. 2- Macaracas: Supervisor Heydi Alonso.	Credits to Micro and Small Business.			

Name and address of financial institutions in municipalities	Type of financial institution (savings bank, bank, cooperative, others, etc.)	Contact Information: Name, Phone and Mail	Type of used financial products and average amounts	Number of customers and total acquisitions	Number of staff at the agency	Other relevant agencies (even if they are not in the municipality)
Multiple services cooperative Nuevo Amanecer Bella Vista de Guararé.	Cooperative	Guaráre Phone: 9955258	Savings and loans.			
Cooperative José del Carmen Domínguez. Address Guararé,	Cooperative	Guaráre, Phones: 9945288/9944241	Savings, loans.			
Savings and Credit Cooperative Santa Catalina, Located in Pedasí.	Cooperative	Pedasí, Phone: 9952224	Savings and loans.			



## Dominican Republic

### 1. Demographic and socioeconomic dimension

#### I.1 Demographics

##### a) Population and gender structure

	Monción	San Ignacio de Sabaneta	Villa Los Almacigos	El Pino	El Partido
Total population	11,753	34,540	11,183	5,675	6,951
Rural population	3,817	18,892	7208	3,656	4,470
Extension of the municipality (Km2)	139	801	207	88	150
Poverty rate	39.4	45.8	65.3	49.6	65.3
Education level - Men (basic)	53.5	54.2	54.6	54.6	52.2
Education level - Women (basic)	46.4	45.7	45.4	45.4	47.8
Maternal mortality rate	*	2.1	1.7	*	*
Infant mortality rate	35 /1000 nv	35 /1000 nv	35 /1000 nv	35 /1000 nv	35 /1000 nv
Life expectancy men (at country level)	71.0	71.0	71.0	71.0	71.0
Life expectancy women	77.3	77.3	77.3	77.3	77.3
Femicide rate (national to 2015)	1.5	1.5	1.5	1.5	1.5
Percentage of gender-based violence (survival at violent events, etc.)	25.6	25.6	25.6	25.6	25.6
School dropout rate (both genders)**	2.98	2.98	2.98	2.98	2.98

Note: \* Data from these municipalities are not available, the national reference is 178 out of 1000

\*\* EDUCA (<http://www.educa.org.do/2016/01/18/tasa-de-abandono-escolar-en-el-sector-publico-aumento-entre-2012-y-2014/>)

##### b) Population focus

- Where are the population hotspots?

The population is concentrated in the municipal headquarters and small rural communities. The main ones are the municipal headwaters: Monción, San Ignacio de Sabaneta, Villa Los Almacigos, El Pino and Partido (for total populations see map of communities)

##### c) Ethnic groups

- Are there ethnic groups and indigenous territories?

The Dominican Republic does not exist ethnic groups

#### I.2 Health and nutrition

- What is the state of food security in the area?

Food production in the area is subject to climatic conditions, extreme events such as droughts and floods directly affects crops and livestock production. Production of milk and meat, and smaller crops, was significantly reduced by a period of drought from mid-2018 to September 2019. Other foods are imported from other regions, but at a high cost.

#### I.3 Safety

- What is the level of security? What are the characteristics of violence in the area?

Traffic accidents are the cases of deaths that are mostly recorded, in the area, by 2017 16 deaths were reported from these causes, in the 5 municipalities. Deaths from road traffic accidents are on the rise.

- Is there a presence of armed groups or gangs?

There is no presence of armed groups or gangs.

#### I.4 Economy

	Monción	Sabaneta	Villa Los Almácigos	El Pino	El Partido
Main productive activities	Livestock, agriculture and timber production	Coffee, agriculture, livestock and wood	Coffee, agriculture and livestock	Agriculture and Livestock	Agriculture and Livestock
Main national agricultural enterprises (name and type)	Grupo RICA, is a dairy producer				
Major international agricultural companies (name and type)	PARMALAC and NESTLE, all are dairy producers				
Men's unemployment rate	7.8	11.5	13.4	17.6	5.6
Women's unemployment rate	6.5	6.6	7.3	9.2	6.4
Participation in male workforce (economically active population)	67.4	71.3	76.7	71.6	71.6
Participation in women's labour force (economically active population)	32.3	28.7	23.3	25.5	28.4
Proportion of large producers (nationally)*	6.1	6.1	6.1	6.1	6.1
Proportion of medium-sized producers (at the national level)**	44.7	44.7	44.7	44.7	44.7
Production of small producers (at national level)***	36.4	36.4	36.4	36.4	36.4
Works carried out by women (Listed, including informal work). At the gene level for all municipalities	-Domestic services -Education (public and private) -Workers in private companies and public institutions -Secretaries private companies and public institutions -Formal and informal sellers -Accounting and administration -Workers in the agricultural sector -Making edible products -Professional services in different areas (agronomy, environment, health, etc.)				

Note: \* > 12.5 ha, \*\* 1.3 - 12.5 ha and \*\*\* < 1.3 ha

- What is the prevalence of the informal economy?

For the most part, the activities of these municipalities are related to agricultural commercial production and are carried out outside the tax payment with the exception of the activities of buying and selling agricultural goods and products that are carried out at the fairs (major and important economic activity of the majority of the producer population, in the three municipalities and on different days). At these fairs you pay 50-100 pesos for occupying a space for the sale of the products. This activity is carried out weekly. 95% of production and commercial activity is informal. Another activity that pays arbitration are livestock auctions that pay taxes and are held not so frequent. They must pay a % of the total volume of each operation that is performed.

## I.5 Municipal development

### a) Municipal development plans

- What are the main axes of action in municipal development plans?

- Economic development and productive promotion
- Social development and human capital
- Land and infrastructure management
- Institutional development and social capital

- Are there water management plans?

The Monción dam, located between the Municipality of Monción and the Municipality of San José de Las Matas (Province of Santiago) aims to generate electricity, irrigation water and water for human consumption. This infrastructure is managed by the Hydraulic Power Generation Company (EGEHI), for which it has a management plan.

### b) Community and political participation, women's participation

	Monción	Sabaneta	Villa Los Almácigos	El Pino	El Partido
Key players in the municipality (including cooperatives, NGOs, communal associations, etc.) (list)	View Actor mapping document in MEGA				
Women's organizations (environmental workers, productive organizations, cooperatives (list)	Mothers Center	1. Mothers Center 2. TEGULINA Group, Group of Guano Weavers	Mothers Center	Mothers Center	Mothers Center
Percentage of women who have land ownership (National FAO Study)*	25	25	25	25	25
Representation of women in local governments (number, or percentage), type of position if possible	41.7	20	20	47.1	50

\*<https://www.diariolibre.com/economia/un-25-de-mujeres-es-propietaria-de-tierras-en-republica-dominicana-GA12120897>

c) Previous projects

- What adaptation-related projects have been developed in the municipality area?
  - Sierra Plan. Reforestation program
  - National Plan Quisqueya Verde. National reforestation programme
  - CC Adaptation Project (IKI) Nature Centre/German Cooperation
  - Natural Resources Management (Soil and Water Conservation, Minor Winner Development, Agroforestry, Community Organization)
  - Northwest Line Project (PROLINO)
- What were the community participation schemes in these projects?  
In the preparation of projects through group consultations in community workshops, in the execution as direct beneficiaries, community representation on board (Partner Assemblies) or consultations, and in some cases as executors of activities contracts.

- Are there previous local consultation processes?  
For the preparation of the IKI project, a project for the conservation of the Mao basin, and the Caribbean Biological Corridor project, consultations were made through community workshops, and consultations with different actors.

d) Land ownership

- What is the general structure of land ownership in the area? (qualitative, are there many large landlords?, producers are tenants?)

The largest proportion of land tenure in the area are in small (< 1.25 ha) and medium (< 12.5 ha) owners. In the case of most small holders are untitled land (56%), which have been occupied by their predecessors for more than 40 years. In a few cases they may be in a leased condition (1.6%).

2. Biophysical dimension

2.1 Agroclimatic conditions

- What is the geography of the area and its climatic characteristics? (description)  
The area of the project is located in the northeastern part of the country, on the northern slope of the central mountain range, with a very heterogeneous relief, ranging from the small plains, with altitudes of 20 meters, to mountainous areas that reach 2000 meters above sea level and with slopes exceeding 55%. These conditions makes area has an extremely varied climate. Despite large differences in altitude and the distorting effect of wet winds caused by relief lines, temperatures are not limiting for human settlements. The temperature has moderate variations throughout the year, resulting in the extreme slight little exaggerated, except in the low areas, which sometimes suffer the effects of the adiabatic warming of the winds coming from the other side of the Central Cordillera (Foehn effect). It has a minimum annual average of 23.6oC and a maximum of 27.9oC. Relative humidity in the region ranges from 78% to 81%. It covers several climatic regions, such as the northwestern climate region.

The rainfall regime has large variations according to its variation, in the low parts the rains only reach 700 mm per year, with two dry periods, one short from February to March and another longer in the summer (June – September); in the months of spring moderate rains of convective origin are received, the period October – January is its rainy season, originated by the passage of the cold fronts typical of the winter season. In mountainous regions the rainfall regime varies, annual values reach 2,000 mm, with a prolonged rainy period from May to October and reaching the lowest values from January to March.

- What is the level of soil erosion? (status description)

There are no studies on soil loss with local data in the area, but given soil types, relief, as well as land use, a high potential loss is estimated in the middle and lower part of the project area. If the global soil loss map prepared using the RUSLE form is referenced and with global data, we can see that there is some consistency with these assessments, indicating that in the middle there is a potential soil loss greater than 200 Ton/ Ha/Year

## 2.2 Coverage and land use

- What is the state of degradation of existing ecosystems or agro-ecosystems?  
A recent study estimated that by 2015, 7% of forests are in a process of degradation in the project area. In the case of pine forests, due to illegal extraction, mismanagement of forests and are also being attacked by pests for the prolonged period of drought. In the case of dry forests are affected by overgrazing of goats, extraction of firewood and coal. Soils, on the other hand, are shown to be accelerated degradation by erosion, overgrazing. Agroforestry systems, in the case of coffee, have been strongly affected by rust, which have been abandoned in most cases, and have changed them to another use.

- What has been the trend in the change in land use (e.g. Change of crops, urbanization, greater deforestation, greater restoration, etc.).

The trend of land use change occurs in area with abandoned for several years and the forest recovers, otherwise there is changes of the coffee crop, by the incidence of the bit and / or low market price , so it converts to other crops, such as cocoa, fruit, etc. In the case of the reduction of forest cover is a change from use to cultivation and/or pasture.

### a) Agriculture

	Monción	San Ignacio de Sabaneta	Villa Los Almácigos	El Pino	El Partido
% population dependent on agriculture	30	30	30	20	20
Key players in agriculture	-Producers -Agricultural Bank -Ministry of Agriculture -INDRHI -Associations of Producers -Cooperatives -Financial Intermediaries -Asoc. casabe producers	-Producers -Agricultural Bank -Ministry of Agriculture -INDRHI -Associations of Producers -Cooperatives -Financial Intermediaries -Asoc. casabe producers	-Producers -Agricultural Bank -Ministry of Agriculture -INDRHI -Associations of Producers -Cooperatives -Financial Intermediaries	-Producers -Agricultural Bank -Ministry of Agriculture -INDRHI -Associations of Producers -Cooperatives -Financial Intermediaries	-Producers -Agricultural Bank -Ministry of Agriculture -INDRHI -Associations of Producers -Cooperatives -Financial Intermediaries
Women's roles in the agricultural sector	Planting, harvesting and threshing of the harvest, post-harvest work (storage and marketing packaging)				

	Monción	San Ignacio de Sabaneta	Villa Los Almácigos	El Pino	El Partido
Main crops by municipality (REGATTA data)	-Bitter yuca -Yuca -Guandul -Citrus -Frijol -Banana -Coffee -Maiz -Yautía -Potato -Banano -Aji* -Tomato* -Cucumber* -Macadamia -Aguacate -Tobacco -Auyama	-Bitter yuca -Yuca -Guandul -Citrus -Frijol -Banana -Coffee -Maiz -Yautía -Potato -Banano -Aji* -Tomato* -Cucumber* -Aguacate -Cacao -Rice -Tobacco -Auyama	-Bitter yuca -Guandul -Citrus -Frijol -Banana -Coffee -Maiz -Yautía -Potato -Banano -Cacao -Auyama	-Yuca -Gandul -Citrus -Frijol -Banana -Coffee -Maiz -Yautía -Potato -Cacao	-Yuca -Guandul -Citrus -Frijol -Banana -Maiz -Yautía -Potato
Crop area (data available in REGATTA)	646	6,893	237	103	1444
Productivity of major crops (trends, if available)	At MEGA see agriculture statistics table, nationally				
Existence of crops in agroforestry asocio (yes, no, whodoes)	Short-cycle crops with trees, avocados and fruit trees	Short-cycle crops with trees, avocados and fruit trees	Short-cycle crops with trees, avocados and fruit trees	Short-cycle crops with trees, avocados and fruit trees	Short-cycle crops with trees and fruit trees
Prelated to agriculture from Nationally Appropriate Mitigation Actions (NAMA)	No	No	No	No	No

- What are the methods of cultivation and harvesting of the main crops?  
Agriculture in the project area is still very poor, traditional crop methods are used, such as stubble burning, “yunta” plowing, planting and manual harvesting. In some parts, machined plowing is used. The use of agrochemicals is necessary mainly in the case of producers of the lower part. On the other hand, the production system under controlled environment exists in several of the municipalities, especially for the production of chili peppers, tomatoes, cucumbers, among others.
- What agricultural techniques to improve the efficient use of water are used?  
Most of the agriculture in the area is in dry, especially the upper part, but some crops that have higher water demands, such as rice systems are few efficient, use stream channeling system for flood irrigation. Some cases, where water is scarcer, use systems by microspray and in less cases by dripping.
- What is the production and profitability of the main crops per ha?  
Medium- and large-scale agricultural production in the area is very low, which dominates is subsistence production, where there is no cost-of-production data, much less yield. In the case of small producers who sell their production in local markets do not estimate their costs, and do not know equally what the productivity of their premises is, because it is not possible to estimate a priori the profitability of agricultural activity in that area. However, at the national level, production of certain items is currently unprofitable, although due to the variation in market prices, producers may have certain profits.

b) Forest resource

	Monción	San Ignacio de Sabaneta	Villa Los Almácigos	El Pino	El Partido
Current forest coverage (%)	35.6	52	63.8	29.3	22.8

	Monción	San Ignacio de Sabaneta	Villa Los Almácigos	El Pino	El Partido
Types of forest	Mature Broadleaf Secondary Broadleaf Conifer (dense and rare) Dry forest	Mature Broadleaf Secondary Broadleaf Conifer (dense and rare) Dry forest	Mature Broadleaf Secondary Broadleaf Conifer (dense and rare)	Mature Broadleaf Secondary Broadleaf Conifer (dense and rare)	Secondary Broadleaf Conifer (dense and rare) Dry forest
Types of natural ecosystems	Dry forest Secondary broadleaf forest Mature broadleaf forest Dense pine Open pine Riparian forest Grasslands with trees	Dry forest Secondary broadleaf forest Mature broadleaf forest Dense pine Open pine Riparian forest Grasslands with trees Dry forest	Secondary broadleaf forest Mature broadleaf forest Dense pine Open pine Riparian forest Grasslands with trees	Secondary broadleaf forest Mature broadleaf forest Dense pine Open pine Riparian forest Grasslands with trees	Dry forest Secondary broadleaf forest Dense pine Open pine Riverside forest Grasslands with trees Dry forest
Deforestation rate(%)	10.8	5.7	5.8	6.5	5.7
Actors in the forestry sector (list)	-Ministry of the Environment -Plan Sierra -Nature Center -Owners of the assertion industry -Owners of Management Plans -Factories of casabe producers -Peasant associations	-Ministry of the Environment -Plan Sierra -Nature Center -Owners of the assertion industry -Owners of Management Plans -Factories of casabe producers -Peasant associations	-Ministry of the Environment -Nature Center -Owners of the assertion industry -Owners of Management Plans Asoc. of forest producers -Peasant associations	-Ministry of the Environment -Nature Center -Peasant associations Forest Inc. Asoc. of forest producers	-Ministry of the Environment -Nature Center -Peasant associations Forest Inc.
Type of roles of women in the forestry sector (list)	-Professional service -Regency -Forest owners (PM) -Administration	-Professional service -Regency -Forest owners (PM) -Administration	-Professional service -Regency -Forest owners (PM) -Administration	-Professional service -Administration	-Professional service -Administration
% of the population using firewood (homes)	10.7	22.2	46.4	28.3	15.8
Sources of firewood	Natural forests	Natural forests	Natural forests	Natural forests	Natural forests
Species used as firewood	Acacia scleroxylon (candelón) Acacia macracantha (black bayahonda), Haematoxylon campechianum (campeche) Prosopis juliflora (cambrón, white berry) Petitia domingensis (Capá) Pine				
Type of forest from which firewood comes	Dry forest Secondary Broadleaf forest Riparian Forest				

- How has forest cover changed over the years?

For the period 2005-2015 the forests of the project area were reduced by 6.3%, but on the other hand it was estimated that there was a recovery of them by the order of 8.1% which reflects a net gain for that period of 1.8%

- Are there forest nurseries in the area?

The Ministry of the Environment has infrastructures for the production of forest plants for national programmes in all provinces. In the case of the study area, it corresponds to the nursery of the Municipality of Santiago

Rodríguez, located in the Municipality of San Ignacio de Sabaneta; Indocafe, Naranjito and La Peonia (V. Los Almacigos). There is also a Border Development at the Municipality of San Ignacio de Sabaneta and El Partido, as well as a province nursery at Dajabón,  
The highest-producing species are the Occidentalis and Caribbean pine, edar, native and Honduran mahogany mara, oak and coffee.

The Coffee Institute also installed a nursery for the production of coffee plants in the Municipality of Sabaneta, mainly a rust-resistant coffee species, has a capacity of 450,000 plants

c) Livestock

	Monción	San Ignacio de Sabaneta	Villa Los Almacigos	El Pino	El Partido
% livestock-dependent population	65	70	65	75	75
Type of livestock prevailing	Dual Purpose Extensive Livestock	Dual Purpose Extensive Livestock	Dual Purpose Extensive Livestock	Dual Purpose Extensive Livestock	Dual Purpose Extensive Livestock
Main livestock species, and what is produced	Mestizo (Cebu Or Brahma Base), Mestizo (Base Holstein) and Creole				
Profitability	In milk, low profitability (Cost 17 pesos/Lt and sold 19 pesos). In medium to regular meat or fattening (< 15% of investment)				
Main livestock players	-Rancher -Directorate-General for Livestock -Association of Sierra Cattlemen -Plan Sierra -Special Fund for Agricultural Development (FEDA)	-Rancher -Directorate-General for Livestock -Association of Sierra Cattlemen -Plan Sierra -Association of Mahogany Cattlemen -Federation of Savanna ranchers -Special Fund for Agricultural Development (FEDA)	-Rancher -Directorate-General for Livestock -Association of Sierra Cattlemen -Plan Sierra -Federation of Savanna ranchers -Special Fund for Agricultural Development (FEDA)	-Rancher -Directorate-General for Livestock -Association of Sierra Cattlemen -Plan Sierra -Federation of Savanna ranchers -Association of Cattlemen El Pino -Special Fund for Agricultural Development (FEDA) -Border Development	-Rancher -Directorate-General for Livestock -Plan Sierra -Association of Cattlemen El Pino -Special Fund for Agricultural Development (FEDA) -Border Development
Roles played by women in livestock (descriptive or list)	The woman, in lesser livestock: Poultry (chicken, turkey and pork) have an important weight. In larger livestock, they have much less direct participation				
There are livestock projects of Nationally Appropriate Mitigation Actions (NAMA) (yes, no)	No	No	No	No	No

d) Protected areas

- Are there protected areas in the area?
  - Armando Bermudez National Park
  - Nalga de Maco National Park
  - Manolo Tavarez Justo Forest Reserve (recently changed the category to RF)
  - Píky Lora National Park
  - Alto de Mao Forest Reserve
  - Cerro Chaquey Wildlife Refuges
  - Wild Refuges Gurabo River Canyon
  - Rio Cana Forest Reserve

- Are there endemic species (which)? Are there critical habitats? Are there threatened species?

In a study carried out in a part of the project area, 249 species of vascular plants were observed, of which 20 are Endemic, 210 Natives of the Spanish Island, 3 naturalized, 16 introduced. This total is distributed in 81 families, of which the Pinaceae is present in almost all communities such as *Pinus occidentalis*. In some communities in the study area they have a good number of endemism, which represents 8% of the total species observed. Of the 81 families identified, which the highest number of species are: Meliaceae, Myrtaceae, Verbenaceae, Pinaceae, Fabaceae, Euphorbiaceae, Malvaceae, Poaceae, Asteraceae, Boraginaceae, Mimosaceae. The most abundant genera are: Roystonea, Sabal, Bactris, Bursera, Tetragastris, Trichilia, Eugenia, Inga.

In the area studied, 28 species were threatened or protected by national legislation, which are distributed in 10 endemic, 17 native. As for threatened species, according to the Red List of Vascular Flora in Dominican Republic 2016, 15 species are classified as Vulnerable (VU), 8 Endangered (EN) and 5 in Minor Concern (LC).

The most critical ecosystems are pine forests, which are constantly being affected by forest fires and pests (mostly when there are long periods of droughts).

- What are the main wild species in the area (flora and fauna)?

In the natural conifer forest there is only one species endemic to the island, which the Creole pine (*Pinus occidentalis*). In secondary broadleaf forests, the most common plant species are Guarana (*American cupania*), Copey (*Clusia rosea*), Catey (*Bactris nireiana*), Caimoni (*Wallenia laurifolia*), Caimito (*Chrysophyllum caimito*), and several species of Eugenia.

In the riverside forests, the tree species of greater abundance are, Amacey (*Tetragastris balsamify*), Guarana (*American Cupania*), Cabirma (*Guarea guidonea*), Copey (*Clusia rosea*), Catey (*Nirerian Bactris*), Caimoni (*Wallenia laurifolia*), Caimito (*Chrysophyllum caimito*), Escobón (*Eugenia monticola*), Gina (Inga *Fagifolia*) and Bitter Stick (*Trichilia pallida*).

In the cloud forest, the arboreal stratum is dominated by Cow tongue (*Dendropanax arboreus*), Bija cimarrona (*Alchornea latifolia*), Wind stick (*Didymopanax tremulus*) and mostly the trees reach a height of up to 25 meters. Associated tree species include Common Name Palo e cotorra (*Brunellia comocladifolia*) and Gina (*Inga fagifolia*).

In tales of fauna, in the area studied, a total of six (6) species of amphibians were recorded visually and through reports of community leaders, equivalent to 8% of the 77 species described for La Hispaniola Island (Hedges, 2016; Martinez, et al, 2015; Gunther, et al, 2016 and Incháustegui, 2015). They belong to one (1) Order, four (4) Families and five (5) Genders.

As for endemism, of the six (6) amphibian species recorded in the different communities visited, four (4) are endemic to Hispaniola Island; equivalent to 5% of the 74 recorded species. Of these two (2) are introduced and correspond to the mace pempem (*Rhinella marina* s *Bufo marinus* and the bull frog (*Lithobates catesbianus*, *Catesbeiana* Frog). The first introduced to the island in the 1930s, in order to control populations of insects considered pests in sugarcane crops and the second in the 1950s for edible purposes (uses of ancas). In addition, both are listed in the Preliminary List of Invasive Species of Fauna threatening the Dominican Republic (in I3N Database) (SEMARENA, 2010).

This group only recorded through singing the green tree frog of La Hispaniola (*Hypsiboas heilprini*), which is in the category of Vulnerable (VU), according to World Union for Conservation of Nature (IUCN) Red Lists, revised on 03 October, 2014 and the Ministry of the Environment (2011).

There is a total of 14 species of reptiles, equivalent to 8% of the 185 known species of La Hispaniola, of these two (2) are native to La Hispaniola Island, one (1) introduced and the remaining endemic (table). The latter equivalent to 7% of the 168 endemic species described for the island. Two (2) species of endangered lizards were recorded from this group, which correspond to the species *A. baleatus* and *A. christophei*. Both in Endangered Category (EP) according to Red List of Fauna developed by Ministry of Environment and Natural Resources in 2011. The Boa de La Hispaniola (*Chilabothrus striatus*) was the only recorded species to be included in Appendix II to the CITES Convention (Convention on International Trade in Species Threats of Wild Fauna and Flora).

As for the birds, 41 species belonging to 22 families were observed. Of that total of (41), 21 are permanent residents, 12 endemic, 7 migratory and one (1) colonizer. Regarding endemic species of The Spanish Island, 12 species were found in the areas studied, such as: the tall palm tree (*Dulus dominicus*), our National Bird, the parrot (*Priotelus roseigaster*), the four eyes (*Phaenicophilus palmarum*), bobo bird (*Coccyzus longirostris*), barrancolí (*Todus subullatus*), chi-cui (*Todus angustirostris*), carpenter (*Melanerpes striatus*), parrot (*Amazona ventralis*), parakeet (*Psittacara chloropterus*), as well as maroite (*Contopus hispaniolensis*), ash face owl (*Tyto glaucops*) and crow (*Corvus leucognaphalus*). With regard to threatened birds, in the different communities visited during the recent study, seven (7) species were recorded, according to the Dominican Republic's Endangered, Threatened or Protected Species List (Red List, 2011). Of these, four are rated as Vulnerable and three as In Danger.



- Are there biological corridors?  
Only the Caribbean Biological Corridor. Targeting Biodiversity Conservation, Environmental Rehabilitation and Life Alternative Development in Haiti, Rd and Cuba (PROJECT UNEP/EU CBC)

## 2.3 Water resources

	Monción	San Ignacio de Sabaneta	Villa Los Almácigos	El Pino	El Partido
Water sources (supply systems, where the water resource comes from)	Aqueduct Well Rivers Rain	Aqueduct Well Rivers Rain	Aqueduct Well Rivers Rain	Aqueduct Well Rivers Rain	Aqueduct Well Rivers Rain
Main actors for water resource management (names of institutions, associations, irrigator organizations, etc.)	Hydroelectric Generation Company INAPA	INAPA	INAPA	INAPA	INAPA
% Agricultural water use	47	47	47	81	81
% domestic water use	37	34	37	13	13
Used water treatment systems	Chlorination	Chlorination	Chlorination	Chlorination	Chlorination
Top irrigation technologies used	Spray Drip River pipeline Flood	Spray Drip River pipeline	Spray Drip River pipeline	Spray Drip River pipeline	Spray Drip River pipeline
Water demand (offer-demand)	36%	36%	36%	57%	57%
There is a drought early warning system (yes, no)	No	No	No	No	No
Is there water management infrastructure? (dams, community reservoirs, irrigation and drainage, other traditional infrastructure)	Taken Reservoir at the farm level Channels Pumping directly from rivers Well pump Community aqueducts and reservoirs	Reservoir at the farm level (lagoons) River water channeling Pumping directly from rivers Well pump Community aqueducts and reservoirs	Reservoir at the farm level (lagoons) River water channeling Pumping directly from rivers Well pump Community aqueducts and reservoirs	Reservoir at the farm level (lagoons) River water channeling Pumping directly from rivers Well pump Community aqueducts and reservoirs	Reservoir at the farm level (lagoons) River water channeling Pumping directly from rivers Well pump Community aqueducts and reservoirs
Type of sanitation services available (septic tanks, sewage treatment plants, others, none)	Septic tanks	Septic tanks	Septic tanks	Septic tanks	Septic tanks

- Description of the cost of water  
The cost of water for consumption, according to the CAASD (Santo Domingo Aqueduct and Sewerage Corporation) is RD\$ 30 per cubic meter, the population pays RD\$ 6.0, the other parts are subsidized by state. Payment is made monthly. In case of Community aqueducts there is no payment fee. In the area is not paid for the use of water for irrigation, which is usually with well and pumping directly from the river.

- Description of water scarcity  
Across the national territory, and with emphasis on arid and semi-arid areas, there was recently a period of extreme drought, which had to be affected by the population, the one should have been rationalized, in the case of human consumption, but the most shocking effects occurred in the agricultural production, food shortages led to higher prices.

## 3. Financial component

[illegible]

Name and address of financial institutions in municipalities	Type of financial institution (savings bank, bank, cooperative, others, etc.)	Contact Information: Name, Phone and Mail	Type of used financial products and average amounts	Number of customers and total acquisitions	Number of staff at the agency	Other relevant agencies (even if they are not in the municipality)
CoopGood. C/ Duarte, Edif. Nicolás Valerio, El Pino	Cooperative	Lic. Ana Estevez 809-579-4010	Savings and credits	95 (RD\$32 MM portfolio)		CoopSano, ADOPEM, FONDESA Agricultural Bank BanReservas
CoopGlobal. Duarte Avenue, 17, El Pino	Cooperative	1 829-521-1160 www.cooperativaglobal.com	Savings and credit			
El Partido						
CoopGood. Calle Andrés Medina No. 118	Cooperative	Li. Eugenia Jáquez. 809-226-4012 809-200-4004 646-797-2690 www.coopbueno.com.do	Savings and credits	946 (RD\$660 MM Portfolio)		CoopSano, ADOPEM, FONDESA Agricultural Bank BanReservas

Note: Financial institutions do not provide data by telephone, it must be personal and by appointment