

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

Pöyry Tecnologia Ltda.

Av. Alfredo Egídio de Souza Aranha, 100
Bloco B - 7º andar
04726-170 São Paulo - SP
BRASIL
Tel. +55 11 3472 6955
Fax +55 11 3472 6980
E-mail: contato.br@poyry.com

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Pulp Mill, River Port, Transmission Line and Electrical Substation in Concepción – Paraguay
VOLUME II – BOOK III - ENVIRONMENTAL DIAGNOSIS OF THE SOCIO-ECONOMIC ENVIRONMENT

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9 ENVIRONMENTAL DIAGNOSIS

9.3 Socioeconomic environment

This section presents the content of the "Social Study Report", developed within the framework of the Environmental and Social Impact Assessment (ESIA).

It is emphasized that a "Cultural Heritage" report was prepared by the external consultant Lic. Enrique Bragayrac, a cultural heritage specialist and team, from which the main information for this document was extracted.

For the purposes of the IPRS, and considering the requirements of the indigenous population, a specific study has been developed independently of the social studies, the "Preliminary Study on Indigenous Communities in the Departments of Concepción and San Pedro", prepared by the principal consultant Urbano Palacio and specialists contracted by PARACEL, from which the main information for this document was also extracted.

9.3.1 Presentation

This document was prepared on the basis of a report by a team of external specialists led by Caren Kremer and corresponds to the results of the studies of the social component, developed within the framework of the ESIA PARACEL project for the construction and operation of a pulp mill in the department of Concepción, Paraguay.

This report is developed according to the following sections:

- Description of the project and the areas of influence, which contains a brief description of the project and the implications of its implementation, the proposed phases, including the estimated periods of execution and the results to be achieved, in terms of income generation, technological innovation, possible partnerships, among others. Likewise, the selection criteria for the project's areas of influence: Area Directly Affected (DAA), Direct Influence Area (DIA) and Indirect Influence Area (IIA).
- Methodology for the elaboration of the social studies, presenting in detail the work done by the team responsible for the elaboration of this material, in its different chapters as baseline and support studies, evaluation and analysis of impacts, measures and proposed programs. It also describes the process of collecting information in the field, the techniques used, the processing and analysis system, among others.
- Social characterization of the project's areas of influence. This section describes the economic, social and cultural aspects of the IIA and DIA, including variables such as land tenure, income, gender, among others. Initially, a general presentation is made of each area (departmental, district and local) and then its situation in relation to demography, economy, employment, access to basic services, etc.
- The survey of social perception is one of the main components of the baseline, since it contains information, especially qualitative information regarding the perception of the resident population in the DAA and the DIA, in two major categories :

- Socioeconomic characteristics of the area in which they reside; and
- The installation of the pulp mill in the department of Concepción.

Finally, in the annexes section, information related to information collection tools, verification sources resulting from field work and specific studies is presented.

9.3.1.1 Objectives and scope of the studies of the social component

The main objective of the social studies carried out within the framework of the ESIA is to develop a social baseline of the project's area of influence that will make it possible to evaluate the impacts of the social environment and consequently develop mitigation measures and social management programs.

An important part of the social studies was devoted to surveying the population's perception of the area of influence in relation to its community and the project, as well as identifying key actors at the institutional and community level, and the communities living in the area closest to the plant.

Taking into account the importance of social management in a project of this magnitude, permanent two-way social work was proposed from the outset, that is, the development of actions that would make it possible, on the one hand, to collect first-hand information that was as accurate as possible for the purposes of the project and the ESIA, and on the other, to provide communities with information of interest from the outset, generating participatory spaces so that the population would be involved from the project design stage.

9.3.1.2 Related International and National Regulatory Framework

The following are the main laws, norms and principles that have been considered for the development of social studies. PARACEL's sustainability policy takes into account the best international practices, which guide the socio-environmental management of the project.

The national and international regulatory framework cited below has been considered in the different stages of the social studies, from the definition of the areas of influence to the criteria for impact evaluation and program development.

National level

Within the framework of the socio-environmental processes of the projects, both public and private, specific studies are carried out within the framework of Law 294/93 on Environmental Impact Assessment, and its Regulatory Decrees No. 453/13 and 954/13, which establish the Environmental Management Plan (EMP) or the Environmental and Social Management Plans (ESMP) that will govern the undertaking in its different stages, i.e. during design, construction and subsequent operation.

International level

Related international legislation, such as the Equator Principles, the International Finance Corporation's (IFC) Environmental and Social Sustainability Performance Standards that guarantee the implementation of socially responsible projects linked to rigorous

environmental management practices, the Sustainable Development Goals (SDAs), the World Bank's Environmental, Health and Safety Guidelines, and ILO Convention No. 169, ratified by Law No. 234/93, among others.

Table 1 presents the legal instruments and principles that govern the project, with emphasis on social aspects.

Table 1 – National and international legal framework related to PARACEL's project

Matter	Law
NATIONAL CONSTITUTION	<ul style="list-style-type: none"> Main rule of the Paraguayan State. It establishes the principles of the organization and administration of the country, guaranteeing the protection of fundamental rights. It establishes the principles that define the right to quality of life (Article 6), the right to a healthy environment (Article 7), among others.
Major International Treaties and Conventions	<ul style="list-style-type: none"> Law No. 1231/1986. Approving and ratifying the Convention concerning the Protection of the World Cultural and Natural Heritage. Law No. 2885/2006. Approving the Convention on the Protection of the Archaeological, Historical and Artistic Heritage of the American Nations (San Salvador Convention). Law No. 2886/2006. Approves the Convention on the Protection of the Underwater Cultural Heritage and Annex. Instruments derived from the commitment to climate change (National Strategy for Adaptation to the CC, National Strategy for Mitigation of the CC, National Plan of Adaptation to the CC). Law No. 234/93. Which approves the Convention No. 169 on Indigenous and Tribal Peoples in Independent Countries, adopted during the 76th. International Labor Conference held in Geneva on 7 June 1989.
Environmental Impact Assessment	<ul style="list-style-type: none"> Law No. 294/1993. Environmental Impact Assessment. Law No. 345/1993. Amending Article 5 of Law No. 294/93 on Environmental Impact Assessment.
Institutional framework with emphasis on environmental, social and territorial issues	<ul style="list-style-type: none"> Law No. 1561/2000. Creates the National System of the Environment, the National Council of the Environment and the Secretariat of the Environment. Law N° 6123/2018. It elevates the Secretariat of the Environment to the rank of Ministry and changes its name to the Ministry of the Environment and Sustainable Development. Law N° 436/1994. Departmental Organic Charter. Law N° 3966/2010. Municipal Organic Law. National Environmental Policy - PAN. Law No. 1183/1985 Civil Code

Matter	Law
	<ul style="list-style-type: none"> ▪ Ordinances of the Municipalities of the area of influence. ▪ Resolutions issued by the MADES
Health, Hygiene and Safety	<ul style="list-style-type: none"> ▪ Law No. 836/80 Health Code ▪ Law No. 213/93 Labor Code ▪ Decree No. 14.390/1992. General Technical Regulations on Safety, Hygiene and Medicine at Work
Social, Cultural and Heritage	<ul style="list-style-type: none"> ▪ Law No. 3051/2005 "National Culture". ▪ Law No. 5621/2016 on the Protection of Cultural Heritage. ▪ Law No. 904/1981 "Statute of Indigenous Communities". ▪ Law No. 946/1982 on the Protection of Heritage Assets. ▪ Law No. 352/1994 on Protected Areas. ▪ Law No. 4228 /2010 By which the National Park Serrania San Luis is declared a Protected Wildlife Area under public domain, within the department of Concepcion. ▪ Law No. 4577 on Natural Monuments (Santa Elena, Kamba Hopo Cavern, Tres Cerros, among others.) ▪ Decree N° 1039/2018 "By which the Protocol for the Process of Consultation and Free, Prior and Informed Consent with the Indigenous Peoples living in Paraguay is approved".
Other related regulations	<ul style="list-style-type: none"> ▪ Laws governing the management of solid waste (Law No. 3956/2009), water resources (Law No. 3239/2007), air quality (Law No. 5211/2014), noise pollution (Law No. 1100/1997), others.

The following is a detailed presentation of the Principles and International Performance Standards that have guided the development of the baseline and the studies of the social component within the framework of the development of the ESIA.

Table 2 – Environmental and Social Sustainability Standards and Performance Guidelines from IFC

Performance standards	Description
1. Assessment and management of environmental and social risks and impacts	In order to develop a good management system during the different stages of the project, a comprehensive evaluation is required to identify impacts, risks and opportunities at the environmental and social levels. This requires the inclusion of stakeholders as part of participatory processes, as well as the dissemination of relevant information about the project.
2. Work and working conditions	This principle is based on recognizing and guaranteeing the basic rights of workers by promoting fair, healthy and safe working conditions. Promoting non-discrimination, equality, protection of workers including the category of vulnerable workers such as children, migrants or contract workers.
3. Resource efficiency and pollution prevention	Increased industrial activity and urbanization can lead to increased levels of pollution. Therefore, this principle describes the approach of the project to avoid or minimize the impacts generated on human health and the environment; integrating technologies and practices for pollution prevention and control.
4. Community health and safety	The principle stipulates the need to anticipate and avoid impacts and risks on the health and safety of communities affected by project activities.
5. Land acquisition and involuntary resettlement	The acquisition of land for project purposes may result in: physical displacement (relocation or loss of housing) and/or economic displacement (loss of access to resources to generate income or livelihood) of individuals or communities. The objective is to avoid physical or economic displacement or to minimize impacts through appropriate measures that are governed by general requirements stipulated in the regulations such as: compensation, community participation, complaints mechanism, among others.
6. Conservation of biodiversity and sustainable management of living natural resources	It aims at the protection and conservation of biodiversity; the sustainable management of natural resources by adopting conservation and protection practices.
7. Indigenous Peoples	To ensure that the development process ensures and promotes full respect for the human rights and dignity of indigenous peoples
8. Cultural Heritage	This principle seeks to protect cultural heritage from the adverse impacts of project activities and to support its conservation by recognizing its importance for current and future generations.

Source: Prepared by the external consultant Lic. Caren Kremer and team based on the documents examined

Table 3 – Equator principles

Principles	Description
Review and categorization	The adhering financial institution (EPFI) categorizes the project based on risk levels and environmental and social impacts of the project.
Environmental and Social Assessment	Refers to assessment processes to address relevant environmental and social risks and impacts of the project; incorporate measures to minimize, mitigate and compensate for adverse impacts in an appropriate manner
Applicable Environmental and Social Standards	The evaluation process should address compliance with the laws, regulations and permits of the host country and should demonstrate the overall compliance of the project with applicable standards.
Environmental and social management system and EP action plan	Projects must have an adequate environmental and social management system. An Environmental and Social Management Plan must be developed.
Stakeholder Engagement	The effective and systematic participation of stakeholders must be guaranteed through informed consultation and participation processes in the different phases of the project.
Complaints and Claims Mechanism	A system must be in place to receive and facilitate the resolution of concerns and problems related to the environmental and social performance of the Project.
Independent Review	A review by an external environmental and social consultant is needed to evaluate compliance with the principles.
Contractual Commitments	All projects must comply with current host country documentation, regulations, environmental and social permits.
Independent Monitoring and Reporting	Monitoring information must be verified by a qualified external expert
Reporting and transparency	In addition to the reporting requirements of Principle 5, at least a summary of the Environmental and Social Impact Assessment should be ensured; public reporting of GHG emission levels.

Source: Prepared by the external consultant Lic. Caren Kremer and team based on the material examined.

9.3.1.3 Human Rights

In Paraguay, the General Directorate of Human Rights (in Spanish, *Dirección General de Derechos Humanos* - DGDH) is in charge of coordinating, articulating, formulating and executing all those actions that make it possible to provide permanent institutionality to the promotion, defense and realization of Human Rights through the commitment of the authorities, other public officials and non-governmental organizations. The DGDH reports to the Vice-Ministry of Justice.

In the DGDH there is a general directorate and 4 specialized directorates (Public Policies, International Affairs, Human Rights Protection in the Penitentiary System and Historical Memory and Reparation).

The Human Rights action in Paraguay are guided by National Human Rights Plan

Among the main areas worked in the DGDH are:

1. The coordination of the Human Rights Network of the Executive Branch, a body that promotes the permanent and sustainable institutionalization of Human Rights throughout the country, through the formulation and articulation of policies, plans and programs coming from this branch of the State. In this sense, the MJT faces a series of actions for the strengthening of Human Rights and the fulfillment of the commitments assumed in the matter. One of its main goals is the implementation of the National Human Rights Plan and the continuation of the process of elaboration of the Human Rights Indicators.
2. The construction of Human Rights Indicators, i.e., a methodological system of measurement absolutely necessary to evaluate the implementation of national efforts in this area, based on information that allows assessing and measuring the progress, impact and specific results of the actions adopted and policies implemented.
3. The follow-up of international recommendations and sentences through the Inter-institutional Commission for the fulfillment of International Sentences and Recommendations (CICSI), which is coordinated by the MJT and chaired by the Vice-Presidency of the Republic.
4. The coordination of tasks with the National Team for the investigation, search and full identification of detained-disappeared and extrajudicially executed persons, during the period 1954-1989-(ENABI), formed by different institutions.
5. Monitoring of the National Penitentiary System, carried out through prevention and follow-up visits of a thematic or comprehensive nature, consisting of periodic visits to detention centers under the Ministry of Justice and Labor, interviews with detainees and those responsible for such centers, analysis and orientation of complaints made by detainees and/or family members, drafting of notes, reports and recommendations related to conditions of deprivation of liberty, among others.

Human Rights by PARACEL

According to HSE Guidelines, PARACEL is committed to developing its activity in a safe, environmentally correct and socially responsible manner, generating value and creating opportunities for society and the country. Human rights is embedded in one of the guiding principles: "Equal opportunities and promotion of non-discrimination based

on gender, religion, ethnicity, race, sexual orientation, social status or any other, within the framework of full respect for human rights.”, and in one of the pillars on which the company's values are structured: “Sustainability, create value by protecting the environment, people and their culture. At PARACEL, sustainability is a fundamental value since it encompasses all the axes of corporate social responsibility, such as: institutional governance, human rights, fair operating practices, labor practices, consumers, the environment and the community.”

Code of Ethics guides the actions of PARACEL and its stakeholders through declarations of principles and values, moral and ethical foundations of a universal nature, in order to establish relationships based on trust, transparency and mutual benefit. PARACEL support the principles of the United Nations Global Compact, basing our fundamental values on respect for human rights, labor rights, the environment and the fight against corruption. Human Rights is one of the Ethical Principles: “The directors and employees of Paracel must treat all people with respect and dignity, promoting diversity, promoting equal opportunities for all and an ethical culture in accordance with the conventions and recommendations of the International Labor Organization (ILO). Paracel wants and expects the same conduct on the part of the stakeholders with which Paracel has relationships.” In addition, Directors and employees must ensure that Paracel does not use illegal child labor in its operations. The minimum age for work is determined by national legislation. Young people under the age of 18 should not be employed to perform any work that, by its nature or the circumstances in which it is performed, may harm their physical, mental or moral health, school performance, safety or spirit, or that must be performed underground or under water. Also, Directors and employees will refrain from violating human rights. They should not incur or benefit from the use of forced or compulsory labor. All employment is voluntary (under an employment contract) and employees are free to terminate their hiring or leave their job in accordance with the law.

Human Rights topic is also embedded in the Social Management Program, Communication Plan, Stakeholder Engagement Plan, Internal Management Program for Land Affection and risks by External Agents, Awareness and Follow-Up Program for Contractors and Workers Regarding Compliance with Regulations, Corporate Security Management Manual, Supplier Code of Conduct and PARACEL’s policies (Recruitment and Selection, Equal Opportunity and Non-Discrimination and Linkage with Indigenous Peoples).

9.3.2 Project description and influence areas

9.3.2.1 Project synthesis

PARACEL, a Paraguayan company with national and foreign investment, is planning to build and operate a pulp mill on the left riverside of Paraguay River, approximately 15 km north of the city of Concepción, in the department of the same name.

The plant (industrial component of the Project) will be designed based on the best available technologies and managed according to certified systems; both from the productive and the environmental point of view.

The raw material, made up of Eucalyptus sp. wood, will come from our own plantations, with certified forestation, located almost entirely in the department of Concepción (forestry component of the Project), although during the first years of operation a supply

from Mato Grosso do Sul (Brazil) and, in a smaller fraction, from the north of Argentina is foreseen.

The estimated times for each component are:

- Study phase: For the study phase (engineering, forestry, environmental, social, among others) initiated in 2019, it is expected to last approximately 2 years.
- Planting phase: 5 - 7 years.
- Construction phase: 2 - 3 years.

It is estimated that the project will generate direct quality jobs: around 8,000 at the peak of the construction phase, and 1,200 during operation. In addition, the generation of indirect jobs is projected to be between 10,000 and 30,000, with the venture being a potential for boosting the local and national economy. Having as a priority the absorption of local labor, the company will seek to create partnerships with local and national educational institutions, to stimulate training and qualification according to the required profiles.

To protect the environment, the project will be governed by national regulations (water and effluent quality standards, zero deforestation, among others). With the highest international standards, which require permanent monitoring of environmental impacts, and public dissemination of the results.

9.3.2.2 Criteria for defining the areas of influence

The following criteria were taken into account for the delimitation of the areas of influence in the framework of social studies:

- IFC Performance Standard No. 1, on the delimitation of the project's area of influence,¹
- The phases of the project (design, construction and operation), its components (industrial and forestry²), possible impacts and
- The social and cultural aspects studied

From the analysis of these aspects and the initial recognition of the area, three areas of influence of the project were established, for which a particular methodology of work with the resident population has been defined, taking into account the different aspects studied about them.

- The three areas were named as follows:
- Indirect Influence Area (IIA);
- Direct Influence Area (DIA); and
- Directly Affected Areas (DAA).

¹ The area possibly affected by: (i) the project and by activities and facilities directly owned or operated by the client (including through contractors) and which are components of the project; (ii) impacts of unplanned but predictable events caused by the project, which may occur later or elsewhere; or (iii) indirect impacts of the project on biodiversity or on the ecosystem services on which affected communities depend for their livelihoods. Related facilities, which are facilities not funded as part of the project, that would not have been built or expanded in the absence of the project, and without which the project would not be viable. The cumulative impacts (resulting from the incremental impact) on areas or resources used or directly affected by the project, produced by other existing, planned or reasonably defined constructions at the time of the risk and impact identification process. Performance Standard 1 assessment and management of environmental and social risks and impacts. IFC.2012. P.9.

² Although the characterization does not include the development of the baseline and impact assessment for the forestry component, it will be taken into account in the framework of the proposed social work.

9.3.2.3 Description of the project's influence areas

The scope of the areas of influence is described below:

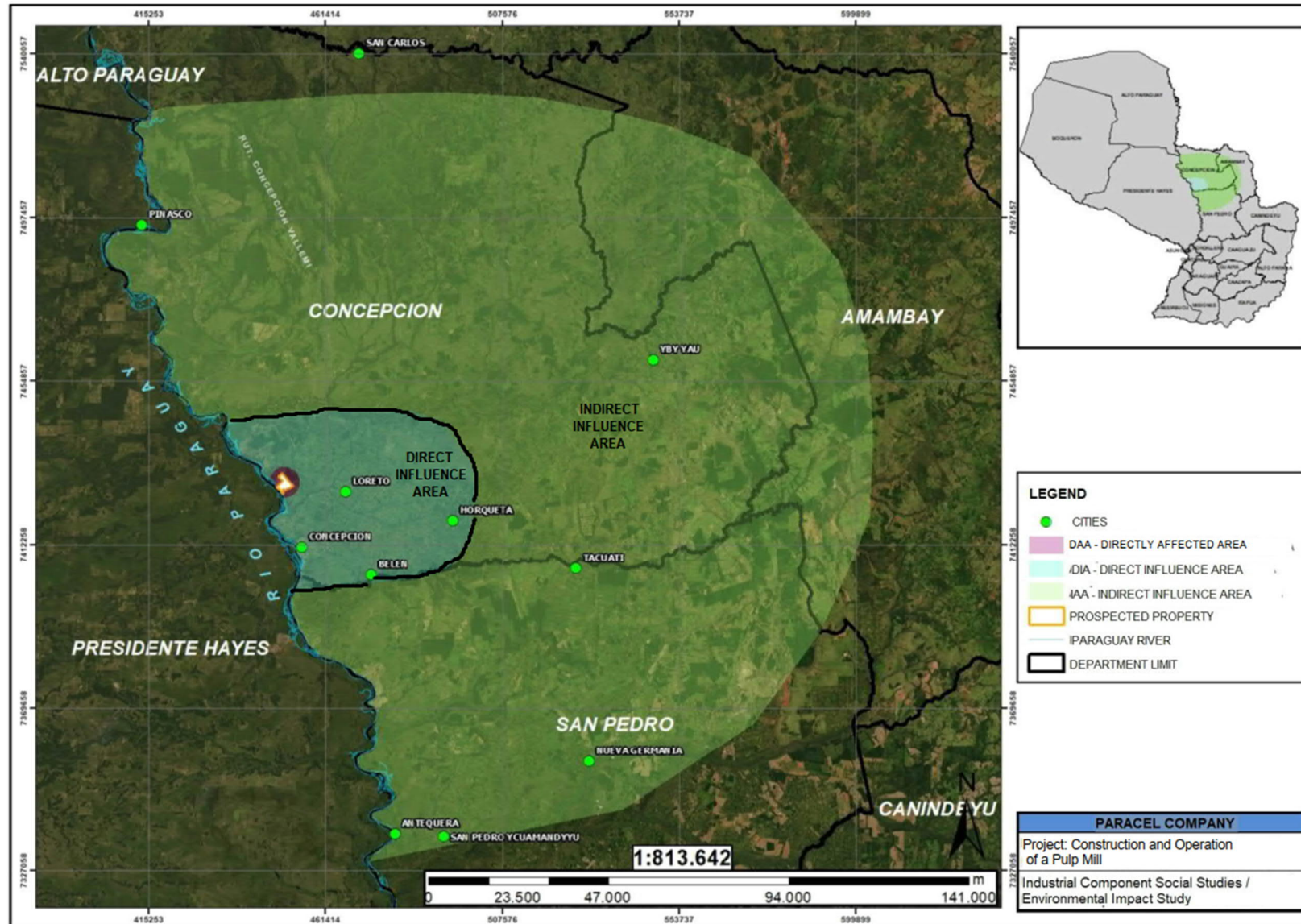
Indirect Influence Area (IIA): Includes the three northern departments of the country: Concepción, San Pedro and Amambay; which were taken into account since they could represent, given their proximity, areas of possible migratory flows, especially in the context of the construction stage.

Direct Influence Area (DIA): The district of Concepción (belonging to the department of the same name) was integrated to the project's direct influence area, as it is the closest urban area and the most populated one to the project, which is also important because it is the department's capital. Especially, within this district, it was initially considered an area of approximately 5 km around the area prospected for the construction of the mill. Regarding the transmission line right of way, is considered 15 meters for the cable side and 10 meters for the other side. The impacts of port, wood transport and accommodation camps on the Direct Influence Area were also considered, although they are not included in the map. In this area, 18 localities were identified as being interconnected by local roads. In view of this aspect, it was decided to extend the initial range to a 13 km radius around the prospect area. Also included were the districts near the prospect area, such as Belén (54 km), Horqueta (66 km) and Loreto (26 km)³.

Directly Affected Area (DAA): This area included the social units (properties, building infrastructure, housing, etc.) located in the immediate surroundings of the area prospected for the installation of the plant, settled within a radius of 1 km.

³ Road distances.

Figure 1 – Areas of influence for social environment studies



The figure below shows the location of the mill and all of the associated facilities, including the locations of the worker accommodations.



Figure - Location of the Industrial Mill and relevant related activities

9.3.3 Social Environment Studies Method

For the elaboration of the social studies referring to the industrial component of the project, the following actions have been developed:

- **Creation of an interdisciplinary team** of professionals and social technicians in charge of carrying out the necessary process for the elaboration of the studies. The collection, processing and analysis of information was carried out according to the different study topics developed in each section.
- **Survey and analysis of information** obtained through secondary and primary sources, including the use of different selected techniques, which has allowed, in the case of field work, access to the perception of the inhabitants regarding the socioeconomic characteristics of their community and the implementation of the project in those areas.
- **Identification and direct communication** with key actors in the areas involved in the project, departmental, municipal and community references, in

order to have their participation and involvement during all stages of the work carried out.

9.3.3.1 Methodological framework

Considering the objectives of the elaboration of this document, a methodological scheme of work was defined based on the steps described below:

- **Review of Secondary Sources:** In order to access information regarding the socioeconomic characteristics of the project's areas of influence, including their cultural heritage; and for the elaboration of the impact assessment carried out, it was necessary to review and analyze relevant documentation such as censuses, statistical databases, development plans, specific studies, land use plans, periodic reports from public institutions, regional research, reports from local programs for socioeconomic development, among others.
- It was considered information from the departmental and district level, however, there were difficulties in accessing official data on the local level, so we turned to information generated through field work, including consultations made to reference bodies such as the Government of Concepción, municipalities involved and other public institutions in the area.
- Both national and international regulations, mentioned above, have been the basis of guidance for the development of the various sections that make up this document.
- **Access to information via primary sources/field work:** Several activities were carried out to collect information in the field, through the application of pre-designed tools in order to obtain the necessary data for each study and to provide information to the population involved. These will be described in detail in item 9.3.3.2.
- **Processing of collected data:** Once collected, the information has been processed in order to generate a unique database, taking into account each technique used, so that it is available for the following actions to be developed within the project.

9.3.3.2 Field information reporting

As mentioned above, for social work in general and in particular for field surveys, the importance of carrying out a constant two-way process was proposed, developing actions that made it possible, on the one hand, to collect information from the first source, as accurately as possible and necessary for the purposes of the project and the ESIA, and on the other hand, to provide information of interest to the communities from the beginning, generating participatory spaces so that the population is involved from the design stage of the project.

Through this work, baseline studies have been developed, contributing with information (especially qualitative) regarding the population living in the areas involved in the project.

The field survey was structured taking into account the different zones of influence of the project, which has also required the use of different data collection techniques (qualitative and quantitative). The steps taken during the data collection process are described below:

- Direct observation: Initially, a reconnaissance tour in situ was carried out and important aspects of the zones were recorded for the final delimitation of the project's areas of influence; in addition, the first contacts were made with key actors in the departmental capital.
- Resident population in the Directly Affected Area (DAA), the units closest to the plant's area, with whom the following activities were carried out:
 - ✓ Socioeconomic census with the application of a previously designed census card, to families identified in the community of Piquete Cue, located near the entrance to the prospected area of installation of the Plant; and
 - ✓ Semi-structured interviews with owners and managers of mostly livestock establishments (estancias) located in that area.
- Resident population in the Direct Influence Area (DIA) with whom survey activities were carried out, taking into account the district (Concepción, Horqueta; Loreto and Belén) and local level involving 18 localities or micro-territories, located in the access roads to the plant area, carrying out the following activities:
 - ✓ Interviews with institutional actors in coordination with focal points of the municipalities and the Government of Concepción, in addition to other references with whom we had contact during the field work;
 - ✓ Community interviews, which initially involved the identification of key informants, which made it possible to involve representatives of community organizations, women's committees, members of water and sanitation boards, educators, pantry workers and former residents, among others.
- Participatory workshop with institutional actors from the city of Concepción, including representatives from public and educational institutions, the private sector, civil society organizations and other key actors in the area;
- Focus groups with representatives of community organizations, producers, neighborhood committees, water and sanitation boards, educational institutions, among others. These were implemented by areas that bring together several localities, in addition to communities in the districts of Loreto, Horqueta and Belén;
- Perception surveys in strategic points of agglutination of people such as supermarkets; educational supervisions; public hospitals; private sanatoriums and pharmacies; transport and tourism houses; hotels; small, medium and large shops; churches; squares; etc. In the urban area of the districts involved in the project, taking into account profiles such as: university students; shopkeepers and users of shops; people who frequent religious, organizational and recreational spaces; teachers; directors of educational institutions; staff in white; among others.

Finally, it is important to consider the following points related to the working methodology:

- Tools were designed to collect information with special emphasis on identifying the socio-economic characteristics of each zone and the existing capacities and/or needs from the viewpoint of the actors involved.
- The survey of the population's perception of the socioeconomic characteristics of their community and of the installation of the plant was carried out in a transversal manner, to all the people involved in each of the activities, so that the necessary inputs are available to carry out the corresponding monitoring during other stages of the project.
- The work of field surveys (primary sources) was considered a priority since it provided valuable information for the development of the studies that make up this document, especially the sections of characterization of the districts and localities of the DIA in the absence of specific data related to these.

9.3.4 Characterization of the project's areas of influence

9.3.4.1 Indirect Influence Area (IIA)

Taking into account the information available from official sources, this socioeconomic characterization contains data related to the three departments involved in the IIA (Concepción, San Pedro and Amambay), with emphasis on Concepción. Likewise, with reference to the four districts of the IYD, this section presents complementary quantitative data that was available. As explained in item 9.3.3. Methodology for the elaboration of the social studies; for the characterization of the DAI, and due to the lack of official data at the district level, the information has been complemented with the survey work carried out in each of the districts, which is presented in item 9.3.4.2.

The information is presented in subchapters by topic of interest, grouped by department and district (where available). Taking into account the diversity of data sources and the differences in the periods for which the information was available A comparative analysis between departments was integrated where possible.

With regard to statistical data, the following should be mentioned:

- Preference was given to the use of the most recent publications and databases provided by the General Directorate of Statistics, Surveys and Censuses (DGEEC);
- Although certain information could only be obtained from the different Censuses carried out: National Census (2012), Agricultural Census (2008), Economic Census (2011), a valuable amount of information could be gathered from the Permanent Household Survey 2017 (and previous ones);
- For uniformity of criteria, population projections and related data were used for the year 2017;
- In December 2019, the DGEEC presented departmental results from the Permanent Household Survey (EPHC) 2017 and 2018, a publication that presents average annual estimates at the departmental level. Where possible, these data were incorporated. However, given the change in methodology, it was not always possible to perform a comparative analysis.

9.3.4.1.1 Departmental Overview

The department of Concepción is located in the north of the Eastern Region. To the north, it borders the Apa River, to the south the department of San Pedro, to the west the Paraguay River and to the east the department of Amambay. Numerous rivers and streams run through it; and the main river communication route is the Paraguay river.

The department has a surface of 18,051 km² and occupies the second place in the region in terms of area. According to data from 2017, the current population amounts to 244,071 inhabitants of which 48.58% are women, with a population density of 13.51 people per square kilometer. In this department the population is young, with a large majority under 35 years old (72%); and with an average of 7.61 years of education. Concepción is divided into twelve districts: Concepción, Belén, Horqueta, Loreto, San Carlos del Apa, San Lázaro, Yby Yaú, Azotey, Sargento José Félix López, San Alfredo, Paso Barreto and Arroyito; and the city of Concepción is the capital of the department.

Although the main economic activity historically was extensive agriculture and livestock, in recent years, large companies have been installed such as meatpacking plants and cement plants, with the latest technology. Likewise, important service providing companies have been developed; and, in the district of Azotey there is a milk processing plant (Lácteos Norte) that has developed the milk basin in the districts of Azotey, Tacuati, Yby Yaú and Horqueta. These companies generated new sources of work for qualified and unqualified people, and boosted economic growth in the department.

The department of San Pedro borders on Concepción to the south and has an area of 20,002 km². Its population reaches 419,629 inhabitants (data projection 2017) and has a population density of 21 inhabitants/km². Slightly more than half of the population is male and predominantly young: 70% of the inhabitants are under 35 years old; with an average of 7.21 years of education. The main economic activity is agriculture and livestock. The department is divided into 21 districts: Antequera, Capiibary, Choré, General Aquino, General Resquín, Guayaibi, Itacurubí del Rosario, Liberación, Lima, Nueva Germania, San Estanislao, San Pablo, San Pedro, Santa Rosa del Aguaray, San Vicente, Tacuatí, Unión, 25 de Diciembre, Yataity del Norte, Yrybycuá and Villa del Rosario. The departmental capital is the city of San Pedro del Ykuamandiyú.

The department of Amambay borders to the west with Concepción. It has an area of 12,933 km², its population is 164,462 inhabitants (2017 data) and the population density is 12.7 inhabitants/km². In this department, there are almost equal numbers of men and women and most of the population is under 35 years old (68%); and with an average of 8.48 years of education. The department is divided into five districts: Pedro Juan Caballero, Bella Vista, Capitán Bado, Zanja Pyta and Karapai; the capital is Pedro Juan Caballero.

9.3.4.1.2 Demographic dimension

As follows, there are statistical information related to the population of the Indirect Influence Area and their evolution, age and gender distribution, households, housing, poverty levels, among others. It also includes data related to the migration patterns that occurred in the departments, with emphasis on the department of Concepción. Where available, data are also presented for the districts of the Direct Influence Area.

9.3.4.1.2.1 Population

According to data from the General Directorate of Statistics, Surveys and Census (DGEEC), the total population of the department of Concepción is 244,071 inhabitants

(projection 2017); this represents 3.5% of the total population of Paraguay (6,953,646 inhabitants, projection 2017). It is the ninth most populated department in the country, while San Pedro is in sixth place and Amambay is in thirteenth place.

Table 4 – Total population projection by sex, according to department. Year 2017

	Concepción	San Pedro	Amambay	Total IIA
Men	125.490	219.509	82.173	427.172
Women	118.581	200.119	82.289	400.989
Total (both sexes)	244.071	419.629	164.462	828.162
% Total population of Paraguay	3,5%	6,03%	2,37%	11,91%

Source: DGEEC. Anuario Estadístico del Paraguay, 2017.

Women account for 48.58 per cent of the inhabitants of Concepción, while in San Pedro less than half the population is women (47.39 per cent) and in Amambay approximately half are women (50.77 per cent). The total population of the three IIA departments is 828,162, which is estimated to represent 11.91% of the country's population, of which 400,989 are women (48.41%).

With respect to the population living in rural and urban areas, Figure 2 presents estimates made for each department ⁴.

Table 5 presents data from Population Projection, revision 2015, in the three departments of the Indirect Influence Area, and also for the districts studied. An estimate of the IIA population projection has also been made.

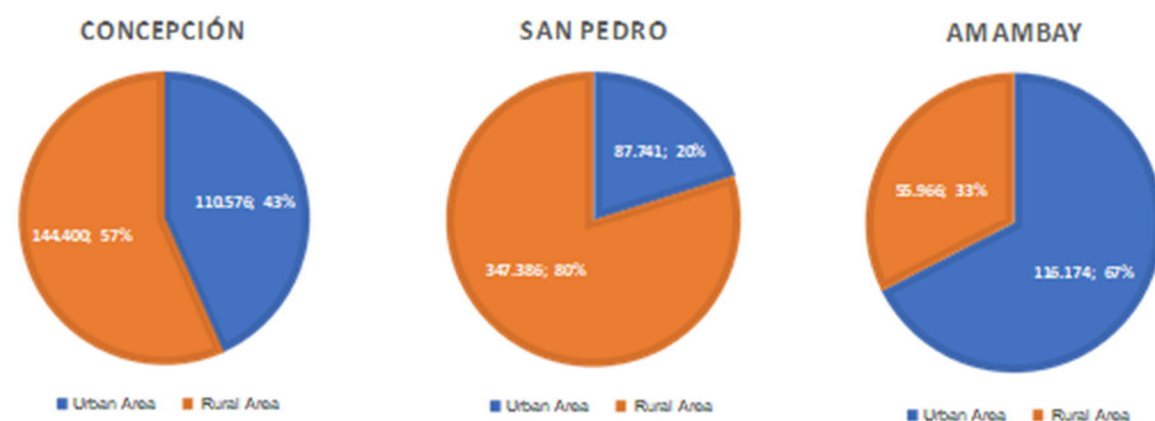


Figure 2 – Projected rural-urban population by department in 2020, according to projections for 2012 ⁵.

Source: Elaboración en base a datos proporcionados por STP/DGEEC. February 2020

⁴ For the estimates, according to the methodology indicated by the DGEEC, data from a report specifically prepared by that institution were used; for each department, the population projected for the year 2020 was used and the proportions according to observations of the 2012 National Census were applied.

⁵ Source: STP/DGEEC. Paraguay. Population projection by sex and age, by department, 2000-2025. Revision 2015 and STP/DGEEC. National Population and Housing Census 2012.

Table 5 – Population Evolution (Projection 2017)

Department/District	2015	2016	2017	2018	2019	2020
Total IIA	805.603	816.868	828.161	839.499	850.887	862.272
Concepción	236.959	240.495	244.071	247.675	251.314	254.976
Concepción	80.622	81.917	83.226	84.545	85.876	87.215
Belén	12.223	12.418	12.615	12.814	13.014	13.215
Horqueta	59.374	60.031	60.691	61.349	62.008	62.664
Loreto	18.419	18.514	18.608	18.701	18.791	18.879
San Pedro	409.381	414.503	419.629	424.774	429.957	435.126
Amambay	159.263	161.869	164.462	167.050	169.615	172.169

Source : DGEEC. Paraguay. National Population Projection. Revision 2015. Prepared by the external consultant Lic. Caren Kremer and team.

In terms of population density, the department of Concepción has a density of 13.5 inhabitants per km², while San Pedro has 21 and Amambay 12.7. On average, then, one can estimate a population density of 16.2 inhabitants per km² in the Area of Indirect Influence. Table 6 summarizes these data.

Table 6 – Population density

	Concepción	San Pedro	Amambay	Total IIA
Surface (km ²)	18.051	20.002	12.933	50.986
Total Population (Projection 2017)	244.071	419.629	164.462	828.162
Population Density (inhabitants/km ²)	13,5	21,0	12,7	16,2

Source: DGEEC. Statistical Yearbook of Paraguay, 2017. Prepared by the external consultant Lic. Caren Kremer and team.

9.3.4.1.2.2 Indigenous Population

For the purposes of the ESIA and considering the requirements of the indigenous population, a specific study has been developed independently of the social studies, prepared by specialists hired by PARACEL. The complete report produced by the Natan Foundation is presented in the ESIA Forestry, social baseline chapter.

It is important to highlight that there are indigenous population communities within the area of influence of the pulp mill, the details of these communities are included in the ESIA Forestry.

Administration and Self-Determination

Indigenous peoples or ethnic groups are distributed in indigenous communities, that is, the organizational component of the ethnic is reduced to communities and each

community is autonomous and autarkic to define its own statutes and rules (Law 904/81, Official Gazette of the Republic of Paraguay). One of the main cultural characteristics that have resulted from the autonomy of indigenous communities is that they are “closed”, this means that they maintain social distance with those people who are not members of their communities.

The community is a territorial entity that, within the departmental territorial order, is endowed with a communal territory, legislative autonomy and executive powers, as well as the power to administer itself through its own representatives (Law 904/81, Official Gazette of the Republic of Paraguay). The communities function as “micro-states” with the right to self-determination, recognizing their right to choose their political administration and the actions they will take to achieve their well-being and economic, social and cultural development.

In short, the times and processes related to the relationship with indigenous peoples do not respond to the conventional logic of community intervention, but to their own traditions and customs.

Language families of Paraguay

Before the incursion and occupation of the Paraguayan lands by the Spanish colonizers, the people that inhabited them had a diverse and complex ethnic-cultural composition; the region was populated by various ethnic groups, belonging to various linguistic groups, with their own languages and different cultural traits, the most important being Paĩ Tavyterã, the Avá Guaraní and the Mbyá Guaraní. For historical reasons, today we can also find some families and population groups of the indigenous people of the Chaco.

Right to Consultation and Free, Prior and Informed Consent

Indigenous communities have the right to participate actively and collectively in those projects that may affect their territories, culture and livelihoods. Projects, whether of public or private origin, have the obligation to consult, inform and dialogue with indigenous communities in all phases of project execution, from the preliminary study to the completion or closure of the project.

For this project, it was ensured the technical specifications of the Performance Standard 7 Indigenous Peoples were followed. This rule postulates that the indigenous communities identified within the DIA (direct influence area) are vulnerable groups who live in a socio-economic situation that does not allow them to defend their rights and interests. Therefore, all the necessary steps required by this standard were taken to identify any adverse impacts that, as a consequence of project activities, could threaten their integrity, identity, culture, and livelihoods; as well as for the survey of information and relationship respecting the free consent of the communities, which was prior and informed; baseline analysis; and for the development of management plans that benefit the development and participation of indigenous communities.

It is also important to note that IFC Performance Standard 7, as a guideline, is in line with the Paraguayan legal framework and establishes respect for the rights of indigenous peoples, as well as international conventions that contribute to respect the rights of indigenous peoples and promote their sustainability, such as the United Nations Declaration on the Rights of Indigenous Peoples and the International Convention on the Elimination of All Forms of Racial Discrimination, among others.

Prior is the right of the community to know in advance when they will be consulted, before decisions that could affect them are made.

Informed is the right of the community to know in completeness and truthfulness all the information related to the project, including things that could benefit and harm them, giving them the information in an appropriate language that allows them to fully understand it.

The dialogue with the indigenous communities in instances of meeting and consultation, were carried out with the objective of finding out if each community provides its broad support to the project, that is, the support of the main groups of each community that are representative of the voice of the other members who agree with the project and want it to be carried out.

Taking into account the areas linked to the project, the communities identified are presented below, with the exception of the district of Loreto where, according to the source consulted, there is no presence of indigenous people. Of the total indigenous population living in these areas, 9.5 per cent (381 persons) reside in urban areas, in the district of Concepción, and 90.5 per cent (3,617 persons) in rural areas, including Concepción, Belén and Horqueta.

The project identified the following indigenous communities: Redención, Jeguahaty, Vy'a Renda, Takuarendyju, Takuarita, Sati - Pai Renda Chiru Poty, Guyra Ñe'engatu Amba, Mberyvo Jeguarmi, Yvyty Rovi Cerro Poi and Apyka Jegua. They will be discussed at Socio-Economic Forestry ESIA in more detail.

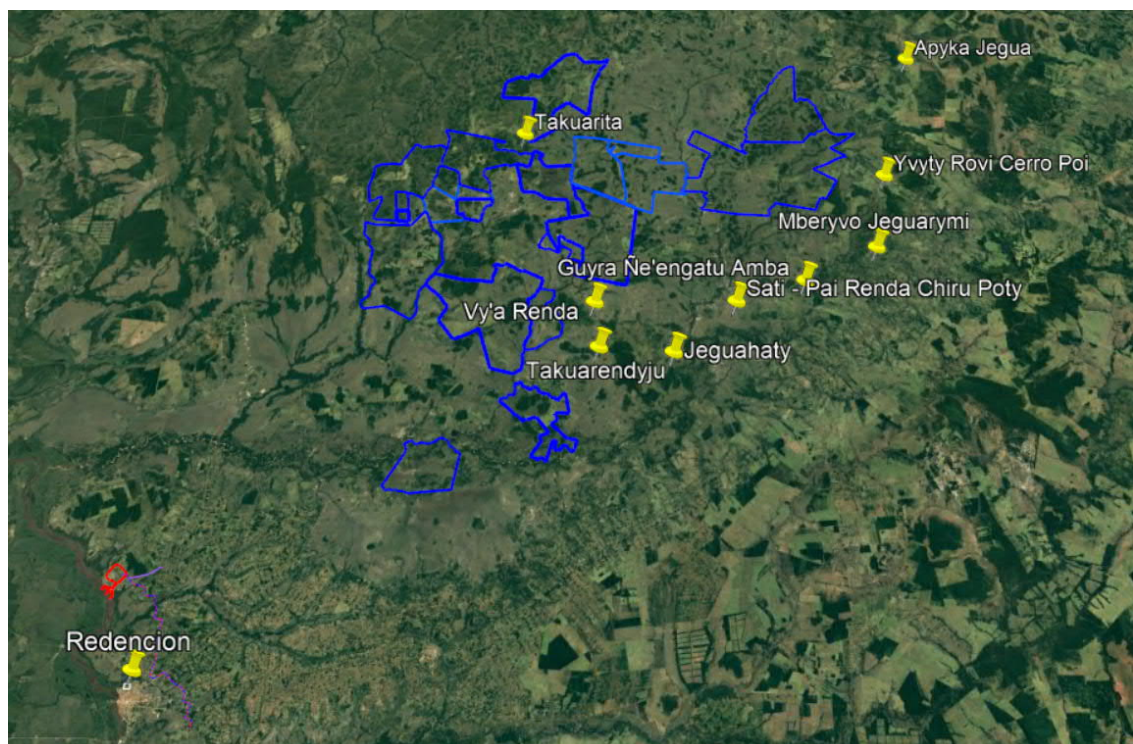


Figure 3 – Location of the indigenous communities and PARACEL project (pulp mill in red, TL and mill access road in purple and farms in blue).

Summary of the baseline of the Redención indigenous community

The families that belong to the indigenous community of Redención, the nearest from the pulp mill, mainly carry out informal work activities such as selling gambling tickets on the streets of Concepción or doing masonry work; they do not carry out activities to take advantage of ecosystem services, such as harvesting, fishing, or agriculture. The community's water supply comes from an artesian well.

Community members report that they live in conditions of poverty, hopelessness and social rejection. Living in the city gives them access to public services, such as health centers, educational centers, professional technical centers, legal institutions and the national police.

Although inclement weather temporarily affects their living conditions, especially the flooding of the stream due to rain, it does not seem to determine their well-being and quality of life.

In the Redención community, the form of social organization is established by three main institutions: the assembly, the political leader, and the spiritual leader, who collaborate to guide their community towards development and sustainability.

Throughout the consultation and diagnostic process, the community leader showed interest and support for the project; a high level of participation in the planning and execution of meetings and interviews facilitated the establishment of an atmosphere of enthusiasm and cooperation.

The people of the community stated that their original culture is being displaced by the predominant western culture, acquiring practices typical of the people of the city, such as the celebration of festivals and the Christian religion. Among the negative aspects that affect the integrity of community members, some interviewees mentioned drug addiction, delinquency, alcoholism, and prostitution.

Indigenous Peoples Plan

The baseline is the main tool for the evaluation and analysis of the impacts that will occur in the indigenous communities related to the PARACEL project, serving as a starting point for the development of the Indigenous Peoples Plan, as well as to guide the development of strategies and programs focused primarily on avoiding, minimizing, mitigating and compensating the identified socio-environmental impacts.

The strategies, programs and actions resulting from this plan are especially relevant for the indigenous communities identified because there are vulnerable groups that are highly dependent on some type of assistance to enhance their development.

The dialogue and work activities done in partnership with the indigenous communities should always seek horizontal relationships, emphasizing the strengths and all kind of resources that families have, in order to contribute to the improvement of their living conditions and increase their level of well-being.

The purpose of the programs presented below is to avoid, prevent, mitigate or compensate for negative impacts and enhance positive impacts.

The Indigenous Peoples Plan (PPI) is linked to PARACEL's Social Management Plan and Environmental Management Plan; this plan is designed for the 10 indigenous

communities analyzed in this study, one of them located in the urban area in the district of Concepción and the homonymous city called Redención and 9 rural indigenous communities distributed in the departments of Concepción and Amambay, called Jeguahaty, Vy'a Renda, Takuarendyju, Takuarita, Sati, Guyra Ñe'engatu Amba, Mberyvo, Yvyty Rovi and Apyka Jegua.

The objectives of the PPI are:

- Ensure full respect for the rights of indigenous peoples and carry out activities established by current legislation and international regulations.
- Establish a participatory, healthy and predictable relationship framework with indigenous communities.
- Strengthen support for indigenous communities with the project.
- Promote local and community development.
- Influence PARACEL's stakeholders for the improvement of the relationship practices with indigenous communities.
- Generate a successful experience of social management with indigenous communities in the country in order to inspire future work related to local and foreign investment projects of similar characteristics.

The selection of these communities within the AID was made under the following criteria:

- Location of the PARACEL project; Distance from PARACEL undertakings; Watercourses of the Aquidabán Basin; Common access roads between the communities and the undertakings; Protected wilderness areas (PWA) bordering PARACEL properties; Social indicators; and Traditions and customs.
- The AID is in accordance with Paraguay's current legal framework, the international regulations ratified by the Paraguayan government and the frameworks that guide this report, using as guidelines the Equator Principles, the IFC Performance Standards and the World Bank's Operational Policy for Indigenous Peoples. Likewise, all the design, execution and evaluation of the activities contemplated in this program or that may result as a product of some of the strategies presented here, must be framed strictly within the respect for the self-determination model of each community.
- The implementation of the PPI is the responsibility of PARACEL's Communication and Social Sustainability Management, which should work towards the commitment and cooperation of other areas of the company that are linked to the indigenous issues analyzed in this report. The PPI must be integrated into the other management plans of the company and also incorporated into the PARACEL Socio-Environmental System.
- Collaboration with other company departments and stakeholders is essential for the success of this plan. To this purpose, it is recommended that no effort be spared to achieve a clear understanding and awareness of the importance of working responsibly, systematically and permanently on the programs and actions described in this PPI, essentially in those areas and groups in which their actions may directly affect the respect for the rights of indigenous peoples.
- Throughout the implementation process of the PPI and in accordance with Decree No. 1039/18, PARACEL is responsible for maintaining fluid, clear and complete

communication with indigenous communities about actions involving their physical integrity, cultural identity, use of ecosystem services, livelihoods, heritage, territories and any elements that are part of their traditional way of life, as well as to carry out free, prior and informed consultations, in all cases when necessary.

- For the PPI, as for all other management plans, it is recommended to supervise and audit external organizations to ensure the proper and timely implementation of this plan, including documentation of the activities carried out and verification of participation with broad support from the communities.
- The execution of the PPI will be the responsibility of the Socio-Environmental Committee formed to execute the Social Management Plan, who may assume responsibility for carrying out the programs and activities or may delegate their execution to external and competent organizations.
- The Socio-Environmental Committee is responsible for establishing the dates, frequency of meetings, work spaces and activities, while in conversation with the indigenous communities and attending institutions, as well as representing the company before local government organizations.
- Some of the stipulated measures in this PPI are mandatory to ensure full respect for the rights of indigenous peoples from the pre-construction phase of the project, so they should be implemented as soon as possible and continue throughout the life of the project; other activities should be implemented during the operation phase. As stipulated in INDI's regulations, this organization will act as supervisor and guarantor of the indigenous peoples' rights, therefore, the Socio-Environmental Committee and/or the organization in charge of implementing this plan must coordinate actions in collaboration with this government institution, especially those stipulated in the Law, such as Decree 1039/18.
- The following is the PPI designed to be added to the management plans of the Industrial and Forestry components mentioned in the Social Studies and which are especially focused on rural indigenous communities. For the urban indigenous community of Redención, it is proposed (in addition to their participation in the PPI programs), to include them in the management plans designed for the Industrial Component presented in the Social Studies, because they reside in the urban area and their socio-demographic characteristics and means of subsistence are more similar to an urban vulnerable group than to a vulnerable group of a rural indigenous community, since they have practices that are typical of the predominant culture in the country. According to what was found during fieldwork, they celebrate 15th birthday parties, work informally in the city, and engage in banditry. In addition, population at risk of drug addiction, prostitution, domestic violence, among others, was found.

9.3.4.1.2.3 Gender Context

The project plans to employ 90% of women in forest nurseries, thus contributing to reducing the existing gender gap in employment opportunities. The jobs related to the nurseries will be around 150, including more than 80% of unskilled profiles that will be trained by the project. In this sense, it is expected that most of the jobs may be held by local women, considering that the technical/professional qualification of labor in the area

is low, with the additional advantage that the nurseries operate throughout the cycle of the project.

In the DIA districts, women make up an average of 47.97% of the population. As for the Bella Vista Norte district of the Amambay department, also part of the DIA, 49.44% of the population are women. According to the data collected in the field in the localities of these districts close to/neighboring the forest plantations (with emphasis on Paso Barreto, Loreto and Jhuguá Guazú). Women are mainly engaged in household chores, the farm, handicrafts, the raising of small animals, the sale of dairy products and their derivatives, trade, decoration, rentals, gastronomy, hairdressing, dressmaking, among other activities and/or they migrate in search of job opportunities, both to Asunción and its metropolitan area; the departmental capitals of the IIA as well as abroad. Regarding training aimed at productive employment for women, the lack of opportunities was mentioned. It was also mentioned that unequal practices still persist, assigning women to household tasks and to men productive tasks that generate income.

In this context of lack of opportunities for women, the project's human resources policy will contribute to offering employment opportunities that currently do not exist in the DIA, from which women from the IIA or other areas of the country could also benefit.

9.3.4.1.2.4 Main demographic indicators

In this section, the main demographic indicators related to the three IIA departments are presented. The data used were collected in publications of the General Directorate of Statistics and Censuses and correspond to the year 2017.

Table 7 – Main demographic indicators, by department. Year 2017

Indicator	Concepción	San Pedro	Amambay
Global Fertility Rate	3,02	2,97	2,62
Birth Rate (per thousand)	24,7	23,38	22,31
Mortality Rate (per thousand)	5,31	5,53	5,36
Life Expectancy at Birth	74,12	73,73	73,76
Men	71,3	70,88	70,91
Women	77,09	76,72	76,76
Sex Reason	105,8	109,7	99,9
Median Age	22,5	23,2	24,3
Total dependency ratio	66,9	64,5	59,3
Dependency ratio children	57,6	55	50,7
Dependency ratio older adults	9,3	9,5	8,6
Ageing index	16,2	17,2	17
Percentage of female population of reproductive age	49,7	49,9	52,5

Percentage of male population of household age	27,6	26,2	25,9
Index of availability of care for the elderly	26,2	24,3	20,9

The definitions provided by the DGEEC⁶ for the indicators contained in the table above are transcribed below.

Table 8 – Indicators of Table 7

Gender reason	It is the ratio of men to women, expressed as the number of men per 100 women.
Median age	Age indicating exactly when half of the population is older and the other half younger.
Age-dependency ratio	It is the ratio of people in the age group on which they generally depend (people under 15 and over 64 years old) and people in the economically productive age group (between 15 and 64 years old)
Ageing index	It relates the older population (65 years and older) to the younger population (0-15 years), indicating the number of older adults per 100 children. This indicator clearly shows how the ageing of the population is progressing in line with the two previous indicators.
Percentage of male population of household age	It is a rough indicator of the demand for housing
Index of availability of care for the elderly	Ratio between adults over 80, most of whom have lost their autonomy, and the female population between 50 and 64, which would correspond approximately to their daughters. This measure roughly indicates the number of elderly people per 100 potential me-care providers.

Source: DGEEC.

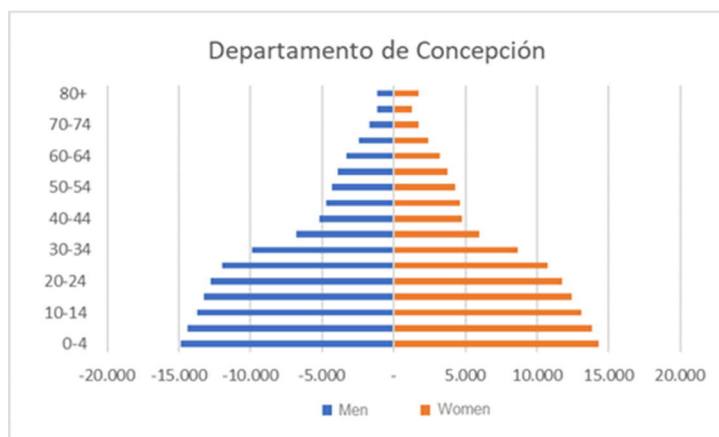
In the department of Concepción, the age and gender distribution are presented as illustrated in Figure 6.

The age and gender distribution of the departments of San Pedro and Amambay can be seen in the following Figures 7 and 8⁷:

In the three departments, the population is eminently young: in Concepción 72% of the total population is under 35 years old, while in San Pedro and Amambay the figures are 70% and 68% respectively.

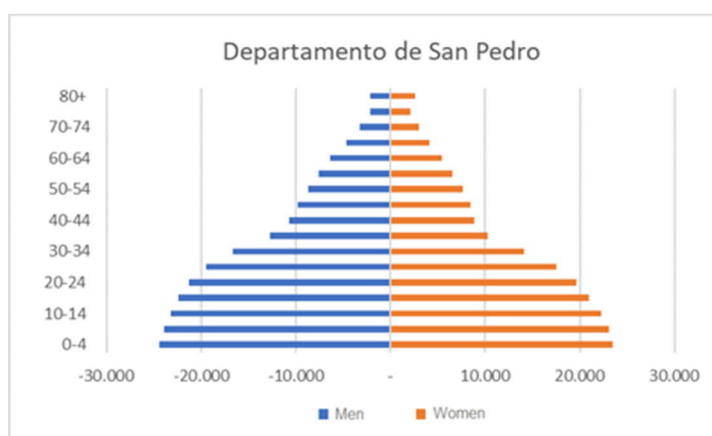
⁶ DGEEC. Paraguay, Proyección de la Población por Sexo y Edad, según Departamento, 2000-2025. Revisión 2015.

⁷ DGEEC. Paraguay, Population Projection by Sex and Age, by Department, 2000-2025. Review 2015.



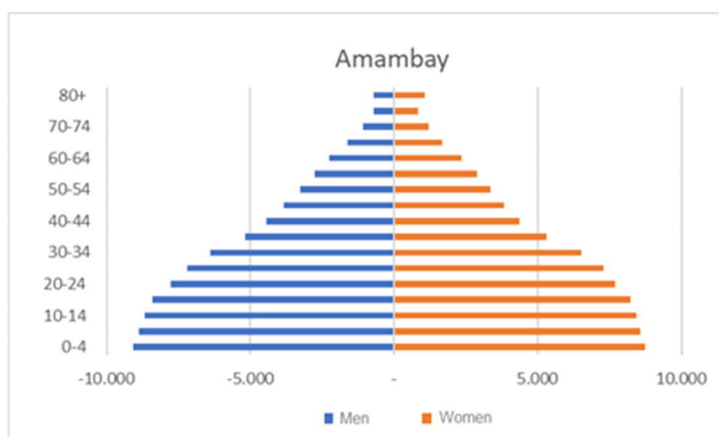
**Figure 4 – Age and gender distribution according to 2017 projected data.
Department of Concepción ⁸**

Source: DGEEC. Prepared by the external consultant Lic. Caren Kremer and team.



**Figure 5 – Age and gender distribution according to 2017 projected data.
Department of San Pedro**

Source: DGEEC. Prepared by the external consultant Lic. Caren Kremer and team.



**Figure 6 – Age and gender distribution according to 2017 projected data.
Department of Amambay**

Source: DGEEC. Prepared by the external consultant Lic. Caren Kremer and team.

⁸ DGEEC. Paraguay, Population Projection by Sex and Age, by Department, 2000-2025. Review 2015.

9.3.4.1.2.5 Households, accommodation

Throughout this section, we present data taken from the Permanent Household Survey, year 2017 (Encuesta Permanente de Hogares, in Spanish); complemented with the data included in the Permanent Household Survey, years 2017-2018. Due to differences in the methodology of each Survey, the data may not be comparable at this time, but will serve as a baseline for comparisons with future surveys.

In the department of Concepción, there are 60,157 households (EPH 2017); while in San Pedro, there are 103,024 households (EPH 2017); and in Amambay 43,100 households (EPH, 2017). In the data contained in table 9, it may be observed that a large percentage of the households in the three departments are owned or are in the process of purchasing in installments, and have electricity.

In both Concepción and San Pedro, in 2017, the highest percentage of water in the dwellings came from SENASA or the local Sanitation Board, while in Amambay, most of the households obtained water from a community network, as shown in Table 10.

Table 9 – Households, legal and current tenure, years 2017 and 2018

	Concepción		San Pedro		Amambay	
	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾
Total Households (Number)	60.157	62.476	103.024	109.443	43.100	44.719
Legal ownership (%)						
- own or paying in installment	83,65	85,7	86,25	87,6	73,86	68,6
- on loan	11,33	8,1	10,91	9	13,08	12,1
- rented	(*)		(*)	3,5	13,06	19,3
Electric current rating (%)	97,79	98,6	99,24	99,4	98,54	98,4

Source: DGEEC. Prepared by the external consultant Lic. Caren Kremer and team based on DGEEC data (1) DGEEC. EPH 2017 data. (2) DGEEC. EPHC 2017-2018 data. (*) Sample deficiency, less than 30 cases.

Table 10 – Home water sources (%), years 2017 and 2018

Water sources (%)	Concepción		San Pedro		Amambay	
	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾
- SENASA/“Junta de Saneamiento”	48,79	29,6	58,29	69	8,13	10,8
- Public System	27,85	37,7	25,76	16,9	33,57	32,3
- ESSAP	11,28	18,8	(*)	2,8	17,89	20,8
- Water well	(*)		(*)	3,4	10,9	8,9
- pumped or no-pumped wells	9,88	7,9			18,36	14,3
- Others ⁽³⁾	(*)		6,09	7,8	8,33	3,6

Source: DGEEC. Prepared by the external consultant Lic. Caren Kremer and team based on DGEEC data

(1) DGEEC. EPH 2017 data. (2) DGEEC. EPHC 2017-2018 data

(*) Sample deficiency, less than 30 cases.

(3) Others: includes spring or source, floodplain, river or stream.

In terms of solid waste disposal, the vast majority of households use burning in Concepción and San Pedro, and public/private collection services in Amambay. It is worth mentioning that one third of the population of Concepción has access to garbage collection services.

Similarly, for the disposal of wastewater (sewage), only 6.55% of households have access to the sanitary sewerage network (cloaca) in Concepción (1.03% in San Pedro and 4.14% in Amambay).

Almost 30% of households use a cesspit with a septic chamber, and a similar percentage use a cesspit without a septic chamber in Concepción and San Pedro, while in Amambay these percentages rise to more than 40% in both cases. In addition, a very important percentage of households (35.47% in Concepción, 37.38% in San Pedro) still use common latrines with or without a roof or door, ventilated dry pit latrines or surface soil, stream, river and others. While in Amambay this percentage drops to 8.23%. The corresponding data are found in Table 11.

Table 11 – Solid waste and wastewater disposal (%), years 2017 and 2018

Solid Waste and Wastewater Disposal (%)	Concepción		San Pedro		Amambay	
	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾
Solid Waste Disposal (%)						
- Incineration	61,44	52,3	75,7	72,2	29,84	30,5
- Public/Private Collection	30,32	33,1	8,18	13,4	63,12	62,8
- Shoot in a hole			12,73	11		
- Others (3)	8,24	14,6	(*)	3,3	7,05	6,7
Sewage Disposal (%)						
- Sanitary sewage network (sewer)	6,55	6,8	1,03	2,2	4,14	6,1
- Septic tank and cesspit	29,8	35,8	29,08	34,4	46,39	47
- Cesspool without septic tank	27,81	23,5	31,38	25	41,24	35,2
- Common toilet without roof or door	27,79	25,7	26,93	29	4,57	9,9
- Common dry pit toilet (with slab, roof, walls and doors)	6,01	6,4	8,79	7	2,63	1,1
- Ventilated dry pit latrine (common with vent)	1,29	0,3	1,26		1,03	
- Land surface, open hole, ditch, stream, river.	0,38	1,4	0,40	1		0,4

Source: DGEEC. Prepared by the external consultant Lic. Caren Kremer and team based on DGEEC data

(1) DGEEC. EPH 2017 data

(2) DGEEC. EPHC 2017-2018 data

(*) Sample deficiency, less than 30 cases.

(3) Others: includes Landfill, hole, yard, waste, ditch or street, farm.

In households in Concepción, the most widely used fuel for cooking continues to be wood (46.49%), followed by gas (31.87%), coal (9.57%) and electricity (8.69%), as in San Pedro. However, in Amambay, the statistical data indicate a strong predominance of gas use, as can be seen in Table 12.

Table 12 – Main fuel used for cooking (%), years 2017 and 2018

Main fuel used for cooking (%)	Concepción		San Pedro		Amambay	
	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾
- Firewood	46,49	44,2	59,76	55,3	12,76	83,1
- Gas	31,87	38,7	21,31	23	82,74	11,2
- Coal	9,57	6,5	8,07	5,6	(*)	(*)
- Electricity	8,69	9	9,31	13,8	(*)	(*)
- No cooking	(*)		(*)		(*)	(*)

Source: DGEEC. Prepared by the external consultant Lic. Caren Kremer and team based on DGEEC data

(1) DGEEC. EPH 2017 data

(2) DGEEC. EPHC 2017-2018 data

(*) Sample deficiency, less than 30 cases.

Regarding existing durable goods in households, in the three departments it can be observed that the same five types of goods have higher percentages of ownership; and the ownership of mobile phones is higher. In second place is the possession of motorcycles in Concepción, while households in San Pedro and Amambay give preference to the possession of electrical appliances (refrigerators, televisions and washing machines), as can be seen in Table 13.

Table 13 – Ownership of long-term goods (%), years 2017 and 2018

Ownership of long-term goods (%)	Concepción		San Pedro		Amambay	
	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾
- Mobile phone	96,63	95,9	95,97	96,2	98,46	96,5
- Motorcycle	86,58	82,2	71,88	76,2	74,57	74,1
- Refrigerator	83,25	85	84,69	86,9	92,41	90,3
- Television	81,24	86,8	79,98	81,1	89,39	86,9
- Washing machine	69,57	76,1	71,62	76,7	83,07	82,7

Source: DGEEC. Prepared by the external consultant Lic. Caren Kremer and team based on DGEEC data

(1) DGEEC. EPH 2017 data

(2) DGEEC. EPHC 2017-2018 data

9.3.4.1.2.6 Poverty, Income Distribution, Unsatisfied Basic Needs (UBN)

Poverty

In Paraguay, the method used to measure poverty is the Poverty Line method. Among other indicators, the DGEEC makes calculations to estimate the incidence of total

poverty and extreme poverty (percentage of poor and extremely poor), defined as "the proportion of the population with an income below the total poverty and extreme poverty lines".⁹ That is, it measures the percentage of people in a situation of Total Poverty¹⁰ and in extreme poverty¹¹. Considering the cultural and consumption characteristics of the population in urban and rural areas, Total Poverty Line and Extreme Poverty Line values are calculated for urban and rural areas.

For the year 2017, the values of the poverty lines are as follows¹²:

Table 14 – Información sobre líneas de pobreza al 2017

	Urban Area (Gs.)	Rural Area (Gs)
Total Poverty Line (TPL)	664.297	473.601
Extreme Poverty Line (EPL)	256.881	234.592

Source: DGEEC. Permanent Household Survey 2017.

As can be seen in the data from the Permanent Household Survey 13, 43.97% of the population of Concepción is in a situation of poverty, that is, around 107,097 people have a per capita income lower than the cost of a basic consumption basket (LPT). Of these people, 15,911 (6.53 per cent) have a monthly per capita income below the cost of a minimum food consumption basket, i.e. they are unable to cover the cost of the minimum amount of food. In San Pedro, the percentage of total poverty is similar to that of Concepción; however, the percentage of people in extreme poverty is higher. Amambay is the department with the lowest poverty rates in the IIA, and this result is aligned with the other indicators contained in other sections of this report. Table 15 summarizes the main data obtained.

⁹ DGEEC. Main Poverty and Income Distribution Results. EPH 2017. Marzo 2018.

¹⁰ The percentage of inhabitants in a situation of poverty is calculated by comparing the per capita income with the cost of the basic consumption basket (Total Poverty Line), considering in addition to food other non-food expenses such as: housing, education, health, transportation, communication, entertainment, etc. (DGEEC. Summary of the Estimation of the Poverty Lines).

¹¹ The percentage of inhabitants living in extreme poverty is determined by comparing the per capita income of households with the cost of the basic food basket or Extreme Poverty Line (DGEEC. Summary of the Estimation of the Poverty Lines).

¹² DGEEC. Main Results of Poverty and Income Distribution EPH 2017. March 2018.

¹³ DGEEC. Permanent Household Survey 2017.

Table 15 – Total and Extreme Poverty by Department (Year 2017)

Department	Total Population ⁽¹⁾	Total Poor Population ⁽²⁾		Extreme Poor Population	
		Absolute (number)	Relative (%)	Absolute (number)	Relative (%)
Concepción	243.560	107.097	43,97	15.911	6,53
San Pedro	418.851	182.567	43,59	33.894	8,09
Amambay	164.254	25.026	15,24	5.390	3,28

Source: DGEEC. Permanent Household Survey 2017.

(1) Does not include domestic employees without retirement.

(2) Includes extreme and non-extreme poor

Income distribution

According to available data, in 2017, the average per capita income in Concepción was approximately Gs. 896.026¹⁴, which is 8.7% less than that of San Pedro and 41.47% less than that of Amambay. In the three IIA departments, the richest quintile is over 50% of the population. There is a marked inequality in both per capita income in each department and between quintiles. For example, in Concepción, the poorest 20% earn 11.74% of what the richest 20% earn, a ratio similar to that of Amambay (11.50); while in San Pedro, the ratio drops to 8.55%. However, when comparing absolute values in that same quintile, the average income in Concepción is almost 40% lower than in Amambay and 7.45% higher than in San Pedro. The data collected can be seen in Table 16.

Table 16 – Average and distribution of monthly per capita income of the population, by monthly income quintiles (2017)

Quintiles of per capita income	Concepción		San Pedro		Amambay	
	Average (Gs)	Percentage Distribution	Average (Gs)	Percentage Distribution	Average (Gs)	Percentage Distribution
Total	896.026	100	981.516	100	1.530.906	100
poorest 20%	265.696	5,93	245.836	4,97	440.099	5,71
next 20%	433.258	9,67	397.922	8,16	754.516	9,9
next 20%	605.317	13,43	550.863	11,29	1.069.846	13,93
next 20%	911.518	20,48	832.589	16,86	1.553.616	20,34
20% wealthier	2.262.201	50,5	2.876.140	58,72	3.824.094	50,12

Source: DGEEC. Permanent Household Survey 2017. Prepared by the external consultant Lic. Caren Kremer and team

¹⁴ DGEEC. Newsletter - Main Results of Poverty and Income Distribution EPH 2017. Concepción.

Unsatisfied Basic Needs (UBN)

According to data from the 2012 Census, in Concepción, more than half of the households (56.2%) have at least one UBN. In the three departments the highest percentage is in access to health infrastructure, as is also the case, if we compare, with the total (country). It should be mentioned that all percentages are higher than those recorded at the country level (except access to livelihood capacity in Amambay), indicating that the departments and districts are in a worse position than the national average.

As for the districts studied for DIA, Concepción has the lowest percentages in each indicator surveyed, denoting better access overall compared to other districts, while Loreto has the highest percentage of households with at least one UBN, in addition to the highest percentages in each type of UBN, except access to education. Table 17 presents data for the 3 departments and 4 districts.

Table 17 – Homes with UBN, by department and district

Department and District	Total houses	Households with Unsatisfied Basic Needs (UBN) (%)				
		At least 1 UBN				
Total (country)	1.232.496	43,0	Total (country)	1.232.496	43,0	Total (country)
Concepción	42.638	56,2	Concepción	42.638	56,2	Concepción
Concepción	14.973	46,6	Concepción	14.973	46,6	Concepción
Belén	2.165	57,9	Belén	2.165	57,9	Belén
Horqueta	10.784	59,4	Horqueta	10.784	59,4	Horqueta
Loreto	3.317	60,0	Loreto	3.317	60,0	Loreto
San Pedro	78.742	57,6	San Pedro	78.742	57,6	San Pedro
Amambay	27.047	48,3	Amambay	27.047	48,3	Amambay

Source: DGEEC. Triptych Unsatisfied Basic Needs (UBN) 2012. Paraguay based on STP-DGEEC. National Population and Housing Census 2012.

9.3.4.1.2.7 Migration

Like other countries, in Paraguay there are significant difficulties in determining migration, and even more so in predicting it. This situation is compounded by the lack of internal migration statistics at the interdepartmental level¹⁵. Considering these limitations, in this section, we have used the Population Projection data published by the DGEEC, where data are presented that allow for their analysis.

Migration may be defined as "permanent or semi-permanent transfer of persons and families between geopolitical units, with the consequent change of residence"¹⁶.

¹⁵ DGEEC-STP. PARAGUAY. POPULATION FORECAST BY SEX AND AGE, BY DEPARTMENT. 2000-2025. REVIEW 2015

¹⁶ DGEEC. Migración Pendular en el Paraguay, 2012 (original title).

In Paraguay, for the years 2001 to 2024, migration rates are negative in all departments, except in the Central Department, where there is a high rate of immigration. These data suggest a significant migratory movement from the interior of the country to the cities surrounding the capital.

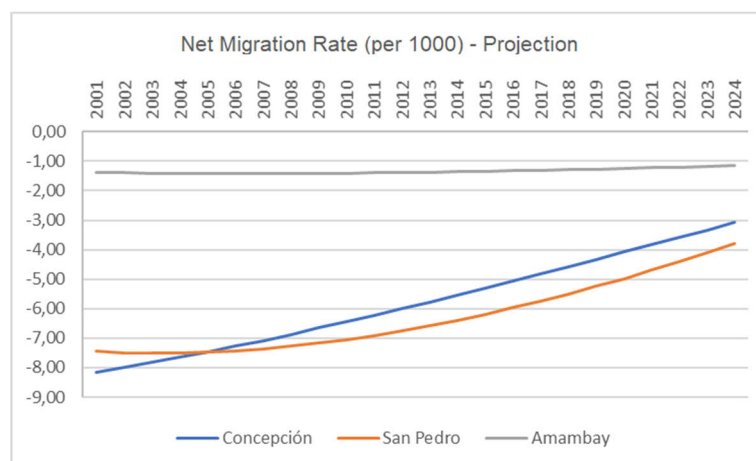


Figure 7 – Net migration rate, projection by department

Source: Prepared by the external consultant Lic. Caren Kremer and team based on Population Projection (DGEEC).

Figure 9 presents the Net Migration Rate for the years 2001-2024 for the three IIA departments. As can be seen, in Concepción and San Pedro, the net rates are negative (emigration) with a tendency to decrease. In Amambay, although they are also negative, the trend remains relatively stable.

According to Pereira, in his text "Departamento de Concepción. Wealth and Social Inequality", based on official data from the 2002 Population and Housing Census, 40% of people migrated to the central department, 16% to Asunción and 12% to the department of Amambay. It also reports that during this period "emigration from the department of Concepción has a woman's face. Fifty-seven out of every 100 migrants... were women"¹⁷. This statement may still be valid as of 2017, however, no data have been found.

Fluctuating Migration

Pendular migration is migration "of a periodic nature and does not result in a change of residence".¹⁸ This refers to persons who regularly move to another country, department or even district for work purposes. In this section, data will be used on the population aged 10 years old and over, employed in the same department, but in a different district, a different department, another country or no fixed district from the one in which they reside, according to data from the 2012 Census.

Table 18 – Population aged 10 years and over migrating by department of residence, according to place of occupation, 2012

¹⁷ Pereira, Hugo. "Departamento de Concepción. Riqueza y desigualdad social". Available in: <https://revistascientificas.una.py/index.php/RE/article/view/714>

¹⁸ DGEEC. Migración Pendular en el Paraguay, 2012 (original title).

Workplace	Residence Department		
	Concepción	San Pedro	Amambay
Asunción	113	272	29
Concepción	666	118	69
San Pedro	133	1.020	16
Amambay	261	110	131
Cordillera	5	18	0
Guairá	0	25	5
Caaguazú	13	73	1
Caazapá	3	6	2
Itapúa	3	7	0
Misiones	2	6	0
Paraguarí	1	8	0
Alto Paraná	23	83	9
Central	43	121	4
Ñeembucú	3	4	0
Canindeyú	2	101	6
Presidente Hayes	401	168	5
Boquerón	659	114	6
Alto Paraguay	357	60	9
Another country	104	122	2.346
Has no fixed district	346	441	148
Total Pendular migrant population	3.139	2.875	2.786

Source: DGGE. Pendular Migration in Paraguay. Prepared by the external consultant Lic. Caren Kremer and team.

As can be seen in Table 18, a large part of the pendular migration from Concepción and San Pedro occurs as intra-departmental migration: 21.2% and 35.5% respectively, indicating that while a significant number of people move outside their area of residence to work, the vast majority do so relatively close by and remain in the same department.

It should also be noted that a very significant proportion of Concepción's workers in the Chaco: 45 per cent in the three departments of Chaco¹⁹, with easy access via the Nanawa bridge linking the Western and Eastern regions, which is not reported in San Pedro department. With respect to Amambay, 84.2% of the pendulum migrant population moves to another country (probably Brazil due to the geographical location of the

¹⁹ On the contrary, the total number of people who migrate from the Chaco to Concepción on a temporary basis to work is low, being 101 people, which represents 1.57% of the total number of Chacoans with pendular migration.

department) and the lowest percentage of people moves to Concepción (4.7%) although no significant numbers of interdepartmental pendulum migration are recorded.

Going a little deeper into the analysis, and based on the data included in other sections of this document, it is possible to observe that the industrial sector in San Pedro is better paid than the industrial sector in Concepción. For this reason, it is likely that the migratory flow is of untrained labor and probably also from the primary sector.

Based on the information presented in this document, the migratory flow from Amambay to Concepción is unlikely, considering that the department of Amambay presents much better ratios than the other two departments of the IIA, so the flow could be unlikely.

9.3.4.1.3 Employment

In the first part of this section, the main statistical data related to the Working Age Population (WAP), Economically Active Population (EAP), Unemployment, Underemployment and others are presented. Where available, data disaggregated by sex was included.

In the second part, information is presented on employment formality in the 3 departments of the IIA, and on average labor income.

9.3.4.1.3.1 Overview of main labor market indicators

For the three departments, wherever possible, data and information have been compiled and total values have been calculated. The data used were extracted from reports prepared by the DGEEC, according to data from the Permanent Household Survey (Year 2017).

Table 19 systematizes the main labor market indicators, and Table 20 provides data on the employed population, according to different segmentation criteria.

In Concepción, there is a Working Age Population (WAP) of 186,627 people (53.53% are women), of which 58.33% are Economically Active (108,860 people, of which 41.33% are women). The activity rate in the department is 58.33 per cent, which is lower than the national activity rate (63.09 per cent)²⁰. For women, an activity rate of 45.04 per cent was recorded, while for men this figure reached 73.64 per cent, in line with the nationally recorded rates of 50.91 per cent and 75.24 per cent respectively.

The figures recorded for the other two departments are close to the national figures. In San Pedro, the activity rate was 63.11 per cent (47.33 per cent for women and 77.63 per cent for men). In Amambay, it was 64.03 per cent (54.07 per cent for women and 74.55 per cent for men).

In 2017, the open unemployment rate in Concepción was 6.66% and in Amambay 5.48%. In other words, some 7,247 people in Concepción and another 4,490 in Amambay were unemployed²¹. The unemployment rate in the country was 5.20%, which is lower than any of the above.

The Permanent Household Survey also measures the number of "people who worked less than 30 hours a week and wish to work more hours and are available to do so".²², i.e. underemployment due to insufficient working time (or visible underemployment) In Concepción, the rate of visible underemployment reached 8.25% (13.55% of women),

²⁰ DGEEC. Main Employment indicators. Permanent Household Survey 2017.

²¹ DGEEC. EPH 2017. Sin datos para San Pedro.

²² DGEEC. Main Employment indicators. Permanent Household Survey 2017.

while in San Pedro it was 6.41% (10.8% of women) and in Amambay it was 5.63% (10.27% of women). It should be mentioned that the country's visible underemployment rate is 5.43 per cent, lower than those recorded in the three departments.

With regard to employment by economic sector, 47% of the economically active population of Concepción is dedicated to activities in the tertiary sector (commerce and services), a sector that absorbs two thirds of the female and one third of the male workforce; while the primary sector occupies 36.2% of the EAP and the secondary sector 16.63%. A similar situation exists in Amambay where 70% of the EAP works in the tertiary sector, which occupies 88% of the female EAP and 57% of the male EAP. In San Pedro, however, the vast majority of EAPs work in the primary sector (56.35%), which occupies 60% of the male population and 49% of the female population.

Table 19 – Main labor market indicators

	Concepción			San Pedro			Amambay			Total		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Total Population	244.097	114.152	129.945	419.617	220.754	198.863	164.483	80.975	83.508	828.197	415.881	412.316
Working Age Population (WAP)	186.627	86.734	99.893	330.995	172.399	158.596	127.915	62.230	65.685	645.537	321.363	324.174
Economically Active Population (EAP)	108.860	63.869	44.991	208.902	133.841	75.061	81.908	46.391	35.517	399.670	244.101	155.569
Economically Inactive Population (EIP)	77.767	22.865	54.902	122.093	38.558	83.535	46.007	15.839	30.168	245.867	77.262	168.605
Population occupied	101.613	59.780	41.833	203.463	131.579	71.884	77.418	44.197	33.221	382.494	235.556	146.938
Open Unemployment	7.247	(*)	(*)	(*)	(*)	(*)	4.490	(*)	(*)			
Underemployed population due to insufficient working time (visible underemployment)	8.981	(*)	6.097	13.398	5.292	8.106	4.611	(*)	3.646	26.990	S/D	S/D

Source: DGEEC, Permanent Household Survey - Year 2017. Prepared by the external consultant Lic. Caren Kremer and team

(*) Sample deficiency, less than 30 cases.

Table 20 – Employed population, by sector of occupation

	Concepción			San Pedro			Amambay		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Employed by Economic Sector (%) ⁽¹⁾	101.613	59.780	41.833	203.463	131.579	71.884	77.418	44.197	33.221
Primary	36,2	41,78	28,22	56,35	60,48	48,8	11,27	17,13	(*)
Secondary	16,63	24,5	(*)	11,55	14,72	(*)	18,74	26,12	(*)
Tertiary	47,17	33,72	66,39	32,1	24,79	45,46	69,98	56,76	87,58
Occupied by Category of Occupation (%)	101.613	59.780	41.833	203.463	131.579	71.884	77.418	44.197	33.221
Employee / public worker	8,37	(*)	11,12	6,38	5,7	7,62	7,82	(*)	10,35
Employee / private worker	27,42	36,61	14,28	18,26	23,01	9,56	43,93	55,13	29,02
Employer	5,07	(*)	(*)	3,28	(*)	(*)	7,07	9,72	(*)
Self-employed person	38,92	40,19	37,11	44,32	46,97	39,46	25,96	22,84	30,11
Unpaid family worker	13,03	9,8	17,64	24,86	19,8	34,12	6,09	6,08	(*)
Domestic employee	7,19	(*)	16,86	2,9	(*)	(*)	9,14	(*)	20,88
Employed by Company Size (%)	101.613	59.780	41.833	203.463	131.579	71.884	77.418	44.197	33.221
Alone	27,57	25,88	29,98	27,06	26,59	27,94	19,88	16,27	24,68
2 to 5 people	42,97	49,34	33,87	54,28	55,36	52,3	36,26	44,91	24,75
6 to 10 people	7,21	8,66	(*)	15,28	17,05	12,04	9,39	11,38	(*)
More than 10 people	14,2	14,91	13,18				23,18	24,48	21,45
Domestic employee	7,19	(*)	16,86	2,9	(*)	(*)	9,14	(*)	20,88
Doesn't know	0,87	0,78	0,98	0,47	0,6	0,24	2,03	2,64	1,21
Occupied according to Years of Study (%)	101.613	59.780	41.833	203.463	131.579	71.884	77.418	44.197	33.221
No Instruction ⁽²⁾	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
From 1 to 6	42,04	41,38	43	50,35	48,69	53,4	34,36	37,91	29,63
From 7 to 12	38,47	43,33	31,53	34,97	39,72	26,27	41,25	42,14	40,07
From 13 to 18	16,97	12,28	23,67	12,31	9,73	17,02	22,58	18,06	28,59
Not available							0,14	- -	0,32

Source: DGEEC, Permanent Household Survey - Year 2017. Prepared by the external consultant Lic. Caren Kremer and team

(1) Primary Sector: Includes Agriculture, Livestock, Hunting and Fishing Secondary Sector: Includes Manufacturing Industries, Construction, Mines and Quarries. Tertiary Sector: Includes Electricity and Water, Commerce, Financial Establishments, Communal and Personal Services.

(2) Includes: Pre-Primary (*) Sample deficiency, less than 30 cases

In the three departments, the largest proportion of people working is in MSMEs/Establishments with 1 to 5 employees (Concepción: 70.54%; San Pedro: 81.34%; Amambay: 45.14%). On the other hand, analyzing the data provided by occupation category, it is possible to conclude that both in Concepción and San Pedro, the population works mainly independently (Concepción: 57.02%; San Pedro: 72.46%) while in Amambay most of the population works as an employee of private companies (43.93%) compared to 39.12% of independent workers.

Employment formality

One of the main criteria for defining formality or informality in the employment of wage-earners is registration and contributions to a retirement system. In Paraguay, although there are various types of retirement schemes depending on the business sector, the main mandatory retirement system for salaried workers in a dependent employment situation is the Social Security Institute.

In 2017, just over a third of the employed wage earners in the three departments were registered and contributed to a retirement system: 13,969 people in the department of Concepción contributed to a retirement system, or 38.41% of the employed wage earners; in San Pedro, there were 19,171 contributors (38.24%) while in Amambay there were 14,167 (35.36%).

In addition, taking into account that, in general, people who were able to complete higher levels of education have better access to better-paid jobs with a greater degree of formality, one indicator to consider is the employed population that is employed according to years of study. Table 21 provides data in this regard:

Table 21 – Occupied people according to years of study, by sex, in the IIA (2017)

	Concepción			San Pedro			Amambay		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Occupied according to years of study (%)	101.613	59.780	41.833	203.463	131.579	71.884	77.418	44.197	33.221
No instructions (1)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
From 1 to 6	42,04	41,38	43,00	50,35	48,69	53,40	34,36	37,91	29,63
From 7 to 12	38,47	43,33	31,53	34,97	39,72	26,27	41,25	42,14	40,07
From 13 to 18	16,97	12,28	23,67	12,31	9,73	17,02	22,58	18,06	28,59
Not available							0,14	- -	0,32

Source: DGEEC, Permanent Household Survey - Year 2017. Prepared by the external consultant Lic. Caren Kremer and team.

(1) Pre-primary

(*) Sample deficiency, less than 30 cases

In table 21, it can be seen that, in Concepción, the majority of the working population has a maximum of six years of studies (i.e. 42.04% have primary education), a smaller percentage (38.47%) has secondary studies, and only 16.97% have tertiary studies (7,340 men and 9,900 women). In San Pedro, approximately half of the EAP has a primary education, while almost 35 per cent has a secondary education and only 12 per cent has a tertiary education. In Amambay, the majority have secondary studies (41.25% compared to 34.36% with primary studies); and there is also a higher percentage of EAP

with tertiary studies (22.58%). It should be noted that in all three departments, more women (as a percentage) have completed tertiary studies.

Current Legal Minimum Salary

In recent years, the legal minimum wage has been gradually increased. From March 2014 to November 2016 it was Gs. 1,824,055; on that date it increased to Gs. 1,964,507 and in July 2017 it increased to 2,041,123. Finally, in July 2018, it increased to Gs. 2,112,562, until the conclusion of this study.

Average Employment Income

As can be seen in the data from the Permanent Survey of Homes, until 2016, the department with the lowest overall average labor income was San Pedro. While the department with the best average income was Amambay, corresponding to the number of years of study of the population. In 2017, the average labor income was reduced by almost 14% in Concepción, placing this department in last place. It is worth mentioning that in 2017, the average labor income was higher than the minimum legal wage in force only in the department of Amambay.

Table 22 shows the average monthly income (in thousands of guaraníes) in the main occupation of the population aged 15 and over per year, by department and sex, for 2017 and 2018.

Table 22 – Average labor income (years 2016 and 2017)

	Concepción		San Pedro		Amambay	
	2016	2017	2016	2017	2016	2017
Average labor income (in thousands of guaraníes) of the main occupation (1)	1.763	1.518	1.537	1.747	2.580	2.422
Average labor income (in thousands of guaraníes) of the population of Q1 (1) and Q2 (1)	738	704	494	665	1.110	1.350
Average labor income (in thousands of guaraníes) of the population of Q1 (1)	562	497	389	512	887	1.082
Average labor income (in thousands of guaraníes) of the population of Q2 (1)	853	865	579	795	1.264	1.554

Source: DGEEC. Permanent Household Survey 2016-2017

(1) Corresponds to the regular monthly income of those employed in the main occupation at constant prices 2017

As can be seen, the average income is significantly higher in Amambay, when we compare data from the three departments. Moreover, in all three departments, there is a significant wage gap between women and men. In Concepción, women earn 25% less than men, on average, while the gap is 15% in San Pedro and 22% in Amambay.

Table 23 – Average labor income, by department and sex (in thousands of guaraníes)

Department	2017	2018
Concepción		
Total	1.511	1.735
Men	1.682	1.920
Women	1.259	1.439
San Pedro		
Total	1.506	1.885
Men	1.594	1.977
Women	1.317	1.672
Amambay		
Total	2.249	2.346
Men	2.466	2.581
Women	1.932	2.016

Source: DGEEC. Annual Departmental Results EPHC 2017-2018

9.3.4.1.4 Economy

By way of introduction, an attempt was made to present comparative information on the different economic sectors: primary, secondary and tertiary for the three departments. However, it was only possible to do so for the Secondary (Industry) and Tertiary (Commerce and Services) sectors due to the type of data available²³.

Accordingly, the first section presents data related to the Primary Sector and then data from the Secondary and Tertiary sectors of the IIA. Finally, an analysis of the evolution of the economy in the department of Concepción is presented.

9.3.4.1.4.1 Primary Sector

In all the three departments, 68,047 properties are registered with a total area of 4,575,725²⁴ hectares dedicated to the sector. The surface dedicated to livestock reaches 2,935,287 hectares (65.2% of the total), while the one used for agriculture is 527,512 hectares (11.5%), and the surface with natural forests and cultivated forests is 734,741 hectares (16.1%).

Comparing the data corresponding to the three departments, there is a greater number of farms in the department of San Pedro, which shows the greater occurrence of small agricultural farms, more agricultural than livestock, as can be seen in Table 24.

²³ In other words, we only have data from the primary sector for 2008 (collected by the 2008 National Agricultural Census, with some annual projections using sampling techniques in non-continuous years), and from the other 2 sectors for 2011 (collected by the 2011 National Economic Census, applied by the DGEEC, was unique in its class so the data presented corresponds to an observation). The provision of projections from a single observation lacks statistical robustness, since its preparation is carried out through indirect methods, using series of other observations or determinations taken periodically or regularly over time, such as the Permanent Household Survey (EPH), the Consumer Price Index (CPI), among others.

²⁴ DGEEC. Agricultural Census

Table 24 – Land according to its use in number of properties, by department in 2008

Department	Number of farms with land	Farms with Permanent Temporary Crops and Vegetables	Farms with natural or cultivated pasture	Properties with natural woods or forest plantation	Farms with fallow and resting land	Farms with land for other uses
Concepción	17.377	15.285	10.071	6.414	7.485	15.583
San Pedro	45.875	42.889	23.866	18.468	24.154	40.784
Amambay	4.795	3.969	2.726	2.454	1.745	3.261
Total, Estimated IIA	68.047	62.143	36.663	27.336	33.384	59.628

Source: National Agricultural Census 2008. Prepared by the external consultant Lic. Caren Kremer and team

On the other hand, the department of Concepción is the one that devotes a notoriously higher percentage of its area to livestock activity in relation to agriculture, compared to the other departments of the IIA.

With a total of²⁵ farms covering an area of 1,619,416 hectares where the farm management by a single producer reaches 16,809 farms, associated producers 431 farms, companies or societies legitimately constituted 115, the State 4 and others not defined 8.

The cultivated area is 464,267 hectares, the composition of the labor force is dominated by the national one with 16,512 national producers and the international labor force is dominated by the Brazilian one with 261, and only 36 of other nationalities.

The education of agricultural producers in the department of Concepción is distributed among 1,108 producers with no educational training at all; 5,066 with basic school training (from 1st to 3rd year); 7,668 with basic school training (from 4th to 6th year); 1,422 with basic school training (from 7th to 9th year); 1,058 with secondary school training and 173 with a technical bachelor's degree, while 404 are those with non-university higher education.

Table 25 – Land according to its number in terms of surface area, by department as of 2008

Department	Total surface (ha)	Area with permanent temporary crops and vegetables	Area with natural and cultivated pasture	Area with natural forests and cultivated forests	Fallow and resting surface	Surface area under other uses
Concepción	1.619.416	71.431	1.218.911	233.300	50.394	4.538
San Pedro	1.739.232	321.156	909.500	276.656	81.091	150.828
Amambay	1.217.077	134.925	806.876	224.785	28.567	21.924
Total, Estimated IIA	4.575.725	527.512	2.935.287	734.741	160.052	177.290

Source: National Agricultural Census 2008. Prepared by the external consultant Lic. Caren Kremer and team.

²⁵ DGECC. Agricultural Census

As shown in table 26, with respect to soil management and conservation, San Pedro presents a clear leadership in conservationist techniques, which could be connected to its link with international cooperation development programs, since this department has historically shown high levels of poverty and inequality.

Table 26 – Farms according to soil management and conservation, by department as of 2008

Department	Number of farms with soil management	Management and soil conservation					
		Contour farming	Crop rotation	Green manure	Plots with certification of organic production	Direct sowing	Others
Concepción	10.390	232	9.176	178	273	596	1.196
San Pedro	28.598	998	23.592	297	393	3,669	3.792
Amambay	1.715	307	1.123	10	39	740	241

Source: National Agricultural Census 2008

As for the existing forest plantations in the three departments, it is also possible to see a clear leadership of the department of San Pedro in terms of the number of trees. However, Amambay presents a smaller number of farms containing more trees per unit of area. The department of Concepción presents a lower efficiency among the three, per unit of area. This could be due to less efficient, or less aggressive, planting and management techniques. The corresponding information is included in Table 27.

Table 27 – Forest plantations (Eucalyptus and Pine), by department in 2008

Department	Compact forest plantation		Eucalyptus plantation			Pinus plantation		
	Total surface	Number of farms	Surface cultivated	Total surface	Number of farms	Surface cultivated	Total surface	Number of farms
Concepción	1.451	4.209	573	1.269	2.254.095	19	60	113.387
San Pedro	2.994	11.022	740	4.431	6.315.778	29	332	556.676
Amambay	222	6.716	87	3.126	5.986.820	6	7	12.787

Source: National Agricultural Census 2008

9.3.4.1.4.2 Secondary and tertiary Sectors

The following data is presented for the Secondary and Tertiary sectors of the Project's IIA departments, seeking to measure part of the economic activity in the area. The data used were extracted from the 2011 Economic Census, which did not include the primary sector.

In Concepción, there are 5,242 economic units that employ 13,682 people (44.55% are women) and generate income of Gs. 1.444.284.575.000. San Pedro presents data of high similarity with Concepción, while there is a lesser coincidence with Amambay, where all the registered data are of greater magnitude; for example, the income that reaches Gs. 5.112.545.870.000. This is due to the exposure of the department of Amambay to

Brazil, where trade with the neighboring country is one of the highest in the country after Alto Paraná.

In fact, the Trade sub-sector is the most developed of the three sub-sectors in the IIA, occupies the largest number of Economic Units and people, and generates the largest amount of income. The following table 28 presents a summary of the Secondary and Tertiary sectors of the three departments of the Project's Indirect Influence Area.

Table 28 – Total economic units. Secondary and Tertiary sectors, by department. Year 2011

Department and sector of economic activity	Economic units	Busy personnel			Total Payments	Expenditure on purchases of goods and services	Income from the supply of goods and services
		Total	Men	Women	(In thousands of Gs)	(In thousands of Gs)	(In thousands of Gs)
Concepción	5.242	13.682	7.586	6.096	88.154.610	1.079.862.460	1.444.284.575
Industry	572	1.877	1.604	273	12.397.928	109.362.370	151.834.489
Commerce	3.032	7.136	3.757	3.379	39.053.593	857.146.675	1.069.238.665
Services	1.638	4.669	2.225	2.444	36.703.089	113.353.416	223.211.421
San Pedro	5.448	13.801	7.786	6.015	89.635.307	1.151.030.240	1.530.882.702
Industry	493	1.641	1.385	256	15.239.236	92.135.588	131.524.254
Commerce	3.416	7.481	3.986	3.495	44.082.621	934.217.439	1.207.312.984
Services	1.539	4.679	2.415	2.264	30.313.450	124.677.213	192.045.463
Amambay	6.249	18.502	11.071	7.431	188.575.177	4.236.320.036	5.112.542.870
Industry	540	1,869	1,504	365	24.544.937	148.327.137	214.828.806
Commerce	3.868	10.663	6.310	4.353	100.170.416	3.721.163.117	4.347.214.366
Services	1.841	5.970	3.257	2.713	63.859.823	366.829.782	550.499.699

Fuente: DGEEC. Censo Económico del Paraguay, 2011

9.3.4.1.4.3 Evolution of the economic-productive and service activity in the department of Concepción

The economic and productive activity in the department of Concepción, in general, has been increasing in the last 50 years.

There are no available and detailed time series to carry out a consistent and evolutionary analysis in a punctual way, however, it is possible to analyze aggregated data such as those shown in table 29, including macro trends at a regional level.

In Table 29, the decrease in the EAP can be seen, which is due to the interdepartmental migration that occurs towards the Chaco, as well as towards the capital Asunción and the Metropolitan Area. This also affects the EAP of the primary sector as can be seen in the corresponding section of the same table.

The EPH data for 2015 show an unemployment rate for Concepción of about 16%, which is inconsistent with the results in table 29, which has the same institution as its source. This is mainly due to the modification of methodologies in the determination of the percentages of occupation that occurred in the same year.

Table 29 – Evolution of the conceptual economy in the last 50 years

Years	1.962	1.972	1982	1,992	2,002	2.012	2.017
Population of Concepción	85,690	108,130	133,977	167,289	179,450	226,585	244,070
Economically Inactive Population	61,397	77,783	95,191	121,058	121,843	129,833	135,210
Economically Active Population (EAP)	24,293	30,347	38,786	46,231	57,607	96,752	108,86
Economically Active Population (%)	28	28	29	28	32	43	45
Occupancy rate	87	97	96	98	98	99	93
EAP per sector							
Primary	14,456	18,467	24,675	27,189	25,805	38,984	39,19
Secondary	3,873	4,419	4,901	6,477	9,195	17,442	17,418
Tertiary	5,18	5,986	6,791	11,046	21,932	40,325	51,164
Other	784	1,475	2,419	1,519	675	s.d.	1,089

Source: Elaborated by extern consultant Lic. Caren Kremer and team with DGEEC Data Base.

9.3.4.1.5 Services

This section presents content related to the availability of services in the Project IIA. The information is organized by type of service to which the population has access: basic services, education, vocational and technical training, health, security and justice, infrastructure and accessibility, means of transport, information and communication technologies (ICTs), media, financial services, housing, state presence.

9.3.4.1.5.1 Basic services

Considering that in item 9.3.4.1.2.4. Households and housing, details of the use of basic services in households were presented, this section complements the information with data related to the service and the providers.

Overall, a significant percentage of the IIA population has access to two basic services: electricity and improved water. In terms of improved sanitation, the percentages of access are much lower, as they are throughout the country. With respect to waste collection, service is registered in some municipalities and a relatively small proportion of the population has access to this.

Electric power

The electricity provider is the National Electricity Administration (ANDE), which has national coverage and provides electricity to 99.92% of the population (2017 data). The company's coverage in the IIA is high, reaching 97.79% of households in Concepción, 99.24% in San Pedro and 98.54 in Amambay (2017 data) .

In order to benefit the population, depending on the use the client will make of the electricity, the company establishes requirements and differentiated rates. The categories of use (consumption) available are the following²⁶:

- Household consumption group (residential)
- Industrial consumer group
- Consumption group others: low and medium voltage
- High and Very High Voltage consumption group
- Governmental Consumer Group
- Differential Consumption Group
- Electric Lighting Service

Improved water

According to the sectoral study conducted by the Pan American Health Organization²⁷, In 2010, the Ente Regulador de Servicios Sanitarios (ERSSAN) had the following number of providers registered in the Project's IIA:

Table 30 – Number of water systems and connections according to provider, by department

	ESSAP		Sanitary Boards (Juntas de Saneamiento)		Neighborhood Commissions		Private Operating Institutions		Others	
Dpto.	N° of systems	N° of connections	N° of systems	N° of connections	N° of systems	N° of connections	N° of systems	N° of connections	N° of systems	N° of connections
Concepción	1	5.183	127	11.104	65	3.628	2	1.056	1	100
San Pedro	1	1.311	261	32.196	64	4.376	1	100	0	0
Amambay	1	6.630	13	3.034	35	8.876	3	457	0	0

Source: MOPC-OPS/OMS

At present, it is possible to provide details on the following:

- a) a) National Environmental Sanitation Service - SENASA: It is the main supplier of improved water in the three departments according to 2017 data²⁸.

²⁶ Details of fees and requirements can be found in the following documents: ANDE. Fare Document N. 21; and ANDE. Resolution N. 42.847/19 "By which the definitions and general conditions of Fare Document N. 21 are modified".

²⁷ MOPC-OPS/OMS. Update of the Paraguayan Water and Sanitation Sector Analysis. 2010.

²⁸ Source: DGEEC. Permanent Household Survey period 2003-2004-2015-2016-2017.

In 2017, the SENASA office in Concepción had registered 81 artesian wells in the districts of Concepción, Loreto, Belén, Paso Barreto, José Félix López, San Alfredo, San Lázaro and San Carlos del Apa that had been built from 1993 to 2014 by the same institution or several others such as DINCAP, FONPLATA, Gobernación de Concepción, Lions Club, Office of the First Lady, IBRD, JICA and Sembrando Oportunidades. These wells had 8,904 users. Of the wells, 17.3% had chlorine treatment, the same percentage had systems that were not working and 65.4% had no system for chlorine treatment. 53% is managed by a Sanitation Board (which has legal status); and 47% is managed by Neighborhood Commissions. The number of users per well is variable, from 20 to 1,800 beneficiaries connected to the network. According to data provided by the office manager, these numbers have varied very little in the last two years (Justino Blanco, personal interview, 2020).

- b) Paraguayan Sanitary Services Company - ESSAP: It is the second most important provider in the department of Concepción and reaches 11.28% of households in Concepción. It has two water treatment plants in the IIA ²⁹:
 - *Treatment Plant of Concepción*: Located in the area north of the departmental capital, it draws water from the Paraguay River and then distributes it to the city. It has a production capacity of 25,920 m³, to serve 31,245 inhabitants.
 - *Treatment Plant f Pedro Juan Caballero*: The production is 800 m³ of drinking water, which is distributed to about 6,500 users.
- c) Private service: Supplies 8.33% of households in Amambay (EPH, 2017), less than 1% in San Pedro, and not registered in Concepción.
- d) (d) Other sources: They include artesian well, well with or without pump, spring or river or stream, all in much lower percentage of use by the population of Concepción and San Pedro; while almost 30% of the population of Amambay obtains water from artesian wells and/or wells (EPH, 2017).

Sanitary Landfill

There is sanitary sewage service in the city of Concepción, provided by ESSAP; and it reaches some 3,742 users, approximately 23% of the population of the departmental capital. In May 2018, ESSAP presented the Preliminary Environmental Impact Report for the adaptation of the system, whose data are reproduced in this section³⁰.

The system has an estimated flow of 5,760 m³/d, which is much less than 1% of the natural flow of the river. It includes a network of pipes of approximately 48,020 m in length that collects the wastewater with the support of two pumping stations located in the center of the city of Concepción; and then discharges it underwater (through a final emissary of 150 m in length) to the Paraguay River 10 m from the bank. The discharge point is located about 600m south of the ESSAP raw water intake for the Water Treatment Plant. Its geographical coordinates in UTM are: 21K 453777; 7410868.

²⁹ www.essap.gov.py. Consultado el 05/02/2020

³⁰ ESSAP. Relatorio de Impacto Ambiental Preliminar. Emrendimiento "Adecuación Ambiental del Sistema de Alcantarillado Sanitario de la Ciudad de Concepción – ESSAP S.A.". Mayo, 2018.

On the other hand, MOPC is planning the construction of Wastewater Collection and Treatment Systems and Improvement of the Drinking Water System for the City of Horqueta³¹, with effluent collection network and pumping station, within the framework of the Sanitation and Drinking Water Program for the Chaco and Intermediate Cities of the Eastern Region of Paraguay. The plant would be located within the city of Horqueta, and would benefit the city's urban population estimated at 13,222 inhabitants per year 2,016³².

Garbage collection

In Paraguay, garbage collection is the responsibility of the municipalities.

In the Municipality of Concepción, garbage collection is a service provided by the Municipality that reaches 8,500 taxpayers (data 2016, Abc). For disposal, it has a landfill on a 22-hectare site located at kilometer 9 of Route PY05 "Gral. Bernardino Caballero". As indicated on the website of the Municipality of Concepción³³.

With respect to the other municipalities in the Area of Direct Influence, Belén does not have a garbage collection system, so most of the population proceeds to burn and others bury³⁴. In Loreto, according to a publication by MSPYBS-CIRD³⁵, Only some houses in the urban area have access to the service provided by the Municipality and in rural areas, burning is used. Finally, in Horqueta, there is a collection service provided by the Municipality, but only a part of the houses in the urban area have access to it, while almost 90% of the houses resort to burning and a few others bury³⁶.

9.3.4.1.5.2 Education

In this section, statistical data related to the Project IIA population in terms of education (school, middle and university level) and number of institutions in the DIA districts are presented. With respect to universities, considering that several are located in more than one district, consolidated information is provided.

According to data from the DGEEC, the young population of the IIA (in general) has an average of more than 9.4 years of education. In Concepción, the average is 10 years and 10.8 years of study for women, the highest in the IIA. Table 31 presents information for each department and by age group.

Table 31 – Average years of study of the population aged 15-29, by department and gender – Year 2018

Department, gender and age group	Concepción		San Pedro		Amambay	
	Men	Women	Men	Women	Men	Women
Total	10,0	10,8	9,4	9,9	10,0	10,2
15 to 19	8,9	9,2	8,7	8,9	8,8	8,8
20 to 24	10,9	11,8	10,4	9,8	10,3	10,7

³¹ MOPC Dirección de Planificación Vial. Resumen de Obras del MOPC en Concepción, San Pedro y Amambay. Agosto 2018-Diciembre 2019.

³² HYDEA-AESA-HIDROCONTROL Consortium Environmental Impact Assessment. "Construction of the Sanitary Sewage System and Effluent Treatment Plant in the City of Horqueta". Sanitation and Drinking Water Program for the Chaco and Intermediate Cities of the Eastern Region of Paraguay - MOPC. Loan Agreement 2589/BL-PR and GRT/WS-12928/PR. December 2017.

³³ <https://www.municipalidadconcepcion.gov.py/> Consulted on February 5th, 2020

³⁴ MSPBS-CIRD. Plan Local de Salud. Belén. Period 2014-2016.

³⁵ MSPBS-CIRD. Plan Local de Salud. Loreto Period 2014-2016.

³⁶ MSPBS-CIRD. Plan Local de Salud. Horqueta. Period 2014-2016.

25 to 29	10,3	11,2	9,6	11	10,9	10,9
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Source: DGEEC. EPHC 2017-2018

As indicated in DGEEC publications, the vast majority of the school-age population in the Department of Concepción attends an educational center (97.18% in 2017), with a gradual increase in both percentage terms and average years of study. The percentage of the population attending in 2017 is 97.18 per cent for children up to 14 years old; and, the average number of years of study for the population aged 10 and over is 7,61.

Table 32 – Main education indicators of the population of Concepción (% and absolute value)

	2003	2004	2015	2016	2017
Average years of study of the population 10 years and older	6,34	6,47	7,53	7,6	7,61
Assistance population 6-14 years old (%)	89,56	94,87	96,88	95,71	97,18
Assistance population aged 6-14 (absolute value)	44.994	50.466	53.779	52.599	51.736

Source: DGEEC. Encuesta Permanente de Hogares - Period 2003-2004-2015-2016-2017

With reference to the department of San Pedro, a situation with similar characteristics is presented: 88,204 people of school age attended educational centers in 2017; this represents 97.33% of the school population, with an average number of years of study of 7.21 (DGEEC, EPH 2017). In Amambay, although the absolute number of students attending an educational center is much lower (31,889 in 2017), the trend is maintained in percentage terms (97.48%) and the average number of years of study increases to 8.48 (DGEEC, EPH 2017).

Basic School Education

In the Department of Concepción, most of the institutions that offer Basic School Education (BSE) are official (398 institutions) and the private ones are subsidized (32 institutions)³⁷. 79% of the institutions are located in rural areas. While 42% of all institutions offer all cycles (first, second and third cycle), the rest offer a combination.

In San Pedro, there are a total of 943 educational institutions that offer BSE; 87.7% of which are in rural areas and the rest in urban areas. Ninety-six percent of the institutions are public, and the rest are divided between private subsidized (2.86%) and private institutions.

In Amambay, 210 institutions offer BSE. 91.9% are public; 5.7% are private and the rest are subsidized private. Although most are located in rural areas (65.7%), the percentage of institutions in urban areas is higher than in Concepción and San Pedro (34%).

High School Education

There are a total of 111 institutions that provide secondary education in the Department of Concepción (data 2015³⁸), 39 institutions are located in urban areas and 72 in rural

³⁷ DGEEC. Anuario Estadístico del Paraguay, 2017, p. 77-79

³⁸ DGEEC. Anuario Estadístico del Paraguay, 2017, p. 103, 104, 116, 117

areas. Of these, 106 offer the Scientific degree (38 in urban areas and 68 in rural areas); and 22 offer the Technical degree (13 in urban areas and 9 in rural areas).

In San Pedro, there are 49 institutions that offer high school education in urban areas and 222 in rural areas, while in Amambay there are 32 institutions in urban areas and 9 in rural areas.

In the three departments covered by the IIA, the vast majority of students enrolled in the Scientific Baccalaureate and only a smaller percentage enrolled in the Technical Baccalaureate, according to official data from 2015³⁹ included in Table 33.

Table 33 – Students enrolled in high school, by department and gender (year 2015)

	Scientific Graduation	Technical Graduation	Total
Concepción	8.011	1.323	9.334
Men	3.824	742	4.566
Women	4.187	581	4.768
San Pedro	12.689	2.995	15.684
Men	6.391	1.616	8.007
Women	6.298	1379	7.677
Amambay	3.832	514	4.346
Men	1.778	224	2.002
Women	2.054	290	2.344

Source: Elaborated by extern consult Lic. Caren Kremer and team based on data of DGEEC

As can be seen in table 33, both Concepción and Amambay have a slight majority of female students enrolled (51% and 54% respectively), while in San Pedro the situation is the opposite (49% are female).

Moreover, with respect to the area in which they enrolled, in both the department of Concepción and Amambay most students were enrolled in urban areas. While in San Pedro, almost a third of high school students are in rural areas (see table 34).

Table 34 – Students enrolled in high school by emphasis, according to department and zone (year 2015)⁴⁰

	Scientific Graduation	B. on Industrial Technician	B. on Services Technician	B. on Farming Agricultural Technician	Total
Concepción	8.011	153	855	315	9.334
Urban area	4.359	131	713		5.203
Rural area	3.652	22	142	315	4.131
San Pedro	12.689	182	1725	1088	15.684
Urban area	3.826	93	1178	221	5318

³⁹ DGEEC. Anuario Estadístico del Paraguay, 2017, p. 103, 104, 116, 117

⁴⁰ DGEEC. Anuario Estadístico del Paraguay, 2017, p. 99, 100, 113

Rural area	8.863	89	547	867	10.366
Amambay	3.832	0	451	63	4.346
Urban area	3.542		451	50	4.043
Rural area	290			13	303

Source: Elaborated by extern consult Lic. Caren Kremer and team based on data of DGEEC

It is worth mentioning that while most of the students enrolled in the Scientific Baccalaureate (General), the second option of those enrolled was Technical Baccalaureate (emphasis on Services) in the year 2015.

Universities

In the Department of Concepción, there are several public and private university educational offerings, with a large concentration in the department's capital. The majority of the universities offer degrees in the humanities, with a deficit in the exact sciences.

Although there are many courses on offer, the quality of education is still low, and there is a great lack of infrastructure and adequate timetables. This can be seen, considering the low number of degrees accredited by the National Agency for Evaluation and Accreditation of Higher Education (ANEAES, in Spanish) in Table 35, compared to those offered by the various universities, in Table 36.

Table 35 – Universities, district and careers offered (original names)

University	Careers
Facultad de Ciencias Veterinarias UNA/ Subsidiary Concepción	Veterinary
UNC – Universidad Nacional de Concepción (distritos de Concepción, Horqueta, Yby Yau, Loreto)	Dentistry, Agronomy, Agribusiness Administration, Agricultural Administration, Commercial Engineering, Business Informatics, Public Accounting, Administration, Medicine, Education Sciences, Social Communication, Psychopedagogy, Social Work, Applied Mathematics and Civil Engineering.
Universidad Nacional de Asunción/Facultad de Enfermería y Obstetricia Concepción	Nursing and the Obstetrics
Universidad Católica Nuestra Señora de la Asunción - Campus Concepción	Business Administration, Law, Accounting and
Uninorte/Concepción	Business Administration, Rural Administration, Accounting Sciences,
Universidad San Carlos (Horqueta)	Law, Notary Public, Commercial Engineering, Psychology and
UPAP – Universidad Politécnica y Artística del Paraguay. Concepción Horqueta	Nursing, Midwifery, Law, Education Science, Psychology, Physical Education, Art Education, Accounting, Business Administration, Electronic Engineering, Industrial Engineering, Architecture Kinesiology and Physiotherapy, Medicine, Criminalistics, Criminology, Pharmacy, Nutrition and University Education
UTCD – Universidad Técnica de Comercialización y Desarrollo. Concepción Loreto	Environmental Engineering, Kinesiology and Physiotherapy, Sports Science. Education Sciences, Nutrition, Psychology, International Trade and University Didactics

University	Careers
Horqueta	
UTIC – Universidad Tecnológica Intercontinental Concepción Horqueta	Computer Systems Engineering, Accounting, Administrative Sciences, Education Sciences, Computer Systems Analysis and Nursing
Universidad Autónoma San Sebastián Concepción Horqueta	Agronomy, Physical Education, Education Sciences, Law, Public Notary, Computer Systems Analysis, Production, Business Administration, Agricultural Administration, Accounting, Commercial Engineering, Nursing, Nutrition, Veterinary Medicine, University Didactics and Thesis Tutoring.
Concepción	Nursing/Kinesiology/Physiotherapy, Pharmacy/Radiology/Chemistry and Pharmacy/Clinical Laboratory, Nutrition/Psychology/Obstetrics, Biochemistry
Universidad Privada del Guairá Horqueta Vallemí Yby Yau	Law, Agronomy and Accounting

Source: Prepared by the external consultant Lic. Caren Kremer and team.

According to ANEAES, the following careers are qualified:

Table 36 – Careers accredited by ANEAES, department of Concepción

University	College	Career
UNC – Universidad Nacional de Concepción	Agricultural Sciences	Agronomic Engineering
	Agricultural Sciences - Horqueta	Agricultural Administration
	Humanities and Educational Sciences	Educational Sciences
	Dentistry	Dentistry
	Health Sciences	Medicine
	Economic and Administrative Sciences	Public Accounting
UNA – Subsidiary Concepción	“Instituto Dr. Andrés Barbero”	Nursing
	College of Veterinary	Veterinary
UCA – Campus Concepción	Accounting, Administrative and Computer Science	Public Accounting
		Business Administration
	Law and Diplomatic Sciences	Law
UTIC – Universidad Tecnológica Intercontinental	Health Sciences - Horqueta Headquarters	Nursing

Source: Elaborado por la consultora externa Lic. Caren Kremer y equipo según datos de la ANEAES, 2019.

In line with the professional orientation (and probable employment) in the department of Concepción, the veterinary career at the UNA received the highest number of students enrolled in 2017, doubling the number of students enrolled in nursing and accounting. The data can be seen in Table 37.

Table 37 – Enrolled in Concepción – Year 2017

University/College	Career	Enrolled	Period of time
UNA - Facultad de Ciencias Veterinarias	Veterinary	440	6 years
UNA - Instituto “Dr. Andrés Barbero”	Nursing	215	5 years
	Obstetrics	97	5 years
UCA – Facultad de Ciencias Jurídicas	Law	172	6 years
UCA - Facultad de Ciencias Contables, Administrativas Y Económicas	Accounting Sciences	213	5 years
	Administrative Sciences	95	5 years
UCA – Facultad de Ciencias de la Educación	Teaching in Higher Education	61	1 year (Specialization)

Source: Elaborado por la consultora externa Lic. Caren Kremer y equipo según datos de la DGEEC, 2017.

Table 38 presents the number of graduates in a range of 4 years.

Table 38 – Number of graduates in Concepción according to university, faculty, career years 2013 to 2016

University/College	Career	Number of graduates			
		2013	2014	2015	2016
UNA - Facultad de Ciencias Veterinarias	Veterinary	58	57	58	63
UNA - Instituto “Dr. Andrés Barbero”	Nursing	24	50	25	60
UCA – Facultad de Ciencias Jurídicas	Obstetrics	n/d	n/d	16	17
UCA - Facultad de Ciencias Contables, Administrativas Y Económicas	Legal Sciences	n/d	n/d	16	15
	Accounting Sciences	n/d	n/d	9	14
UCA – Facultad de Ciencias de la Educación	Administrative Sciences	n/d	n/d	15	17
	Educational Sciences	n/d	n/d	11	15
	Social Work	n/d	n/d	37	33

Source: Prepared by the external consultant Lic. Caren Kremer and team according to DGEEC data, 2017.

Educational institutions in DIA

According to the Municipal Development Plan of each municipality (2016), Concepción has 60 educational institutions in urban areas and 50 in rural areas; Belén has 3 educational institutions in urban areas and 22 in rural areas; and Horqueta has 20 educational institutions in urban areas and 113 in rural areas. In Loreto, the Local Health Plan provides for 9 national schools and 32 basic schools.

In the Department of Concepción, professional training courses are provided by the government through the SINAFOCAL and the SNPP. In 2018, according to its management report, SINAFOCAL gave nine courses on various subjects, benefiting 234 men and 142 women. In the Northern Zone (Concepción, San Pedro, Amambay, Canindeyú) 33 courses were given that year, constituting 7.7% of the total number of courses given in the country.

9.3.4.1.5.3 Health

This section presents statistical data related to the population of the Project's Indirect Influence Area, in order to measure the demand for health services. Next, information related to the services available in the Project's DIA is provided.

In Concepción and San Pedro, in 2018, a little more than 50% of women showed up for a medical consultation, while the average drops to 46.5% in Amambay. With respect to men, the averages remain below 50% in the three IIA departments, with the lowest average in Amambay and the highest in San Pedro.

Table 39 presents data related to the health status of the population in each department, recording whether they presented themselves for at least one medical consultation, either due to illness or accident, during 2018.

Table 39 – Total population, by department, gender and health status (%) Year 2018

Department, gender and health status	Concepción		San Pedro		Amambay	
	Men	Women	Men	Women	Men	Women
Total	124.338	123.357	225.411	199.370	80.534	86.478
Sick/Accident (%)	44,1	51,2	46,6	51,1	39,5	46,5
Healthy (%)	55,9	48,8	53,4	48,9	60,5	53,5

Source: DGEEC. EPHC 2017-2018

According to data from the 2017 statistical yearbook, there were 214 hospital beds in the Department of Concepción. In 2015, 70,842 medical and dental consultations were made at the IPS, and in 2016, a total of 70,477.

In 2018, 1,154 deaths were recorded, of which 17% were due to diseases of the circulatory system; 11.6% were due to tumors; 9.4% to diseases of the respiratory system; 7.9% to various types of accidents; and 7.4% to cerebrovascular diseases. The remaining deaths were for other reasons. 61.3% of the deaths were recorded in persons over 60 years old. According to MSPBS records, in 2017 there were 29 deaths from motorcycle accidents in the Department.

On the other hand, according to data from the DGEEC, only a small proportion of the population of the Department of Concepción has health insurance, either private or from the IPS. Thus, while records indicate a slight increase to 16.52 per cent coverage in 2015, in recent years for which data are available the trend remains at less than 15 per cent of the population. However, the records indicate relatively high percentages of the population who came to consult for illness or accident. Table 40 provides data in this regard.

Table 40 – Main health indicators of the population of Concepción per year in % and absolute value o

	2003	2004	2015	2016	2017
In percentage					
Population with health insurance coverage (1)	12,02	13,94	16,52	14,2	14,72
Access to health (2)	63,79	53,03	79,5	78,4	71,48
In absolute terms					
Population with health insurance coverage (1)	23.898	28.069	39.146	34.139	35.936
Access to health (2)	15.337	21.299	55.999	82.696	92.788

(1) Includes IPS and other insurance.

(2) Includes the sick or injured population who consulted.

Source: DGEEC. Permanent Household Survey 2003-2004-2015-2016-2017

In the district of Concepción and neighboring areas, the Volunteer Fire Department of Concepción is the entity that helps people who have suffered various types of accidents. However, according to conversations held with the entity's representatives, this type of service could be affected by the lack of budget, since they have difficulty covering the cost of these.

After that is presented the main findings of “Indigenous Component Study: 2nd Phase” elaborated by Natan Foundation, related to health.

In terms of health, alcoholism is a predominant issue at the country level. According to data provided by MSPBS (2016), 50.9% of the population consumes alcoholic beverages and 24% consume it excessively. Harmful alcohol consumption affects both consumer and family health, becoming a social problem that triggers economic damage to society and the state. Although the impact assessment did not identify the existence of alcoholism among indigenous families, it cannot be assumed that it does not exist; therefore, it is a factor that should be added to any health and wellness program directed to these communities, since alcoholism can cause physical and social damage and is a risk factor for other conditions such as violence against women and traffic accidents.

In the field was observed that rural indigenous communities have serious difficulties in accessing health centers to receive quality medical and dental care for reasons such as distance, quality of roads, and lack of vehicles.

Adolescent pregnancy is a common denominator in indigenous communities, especially in rural areas, where pregnant girls and adolescents must give birth to their children in the same communities, putting mothers and their children at risk. According to data collected on the baseline of this birth study, 11% of babies were stillborn or died before their first month of life. 89% of babies are born in their indigenous community and do not have adequate hygiene and health conditions, nor the necessary professional staff to reduce the risk of accidents during childbirth to ensure the well-being of the mother and baby.

Young women reported using natural contraceptive methods based on "yuyos" or native herbs because they have to travel long distances to reach health centers and because of the lack of quality sexual education. However, the rate of children per woman is 3.97 children in the communities within the DIA. In addition, some women report having 9 to 10 or even 12 children, indicating that the contraceptive methods they use have a low

level of efficacy. Likewise, the non-use of contraceptive methods such as condoms increases the risk of contracting sexually transmitted diseases (STDs). According to the MSPBS (2016) only 3.76% of indigenous people usually use condoms in their sexual relations.

The high number of children per family and the limited capacity to provide adequate food for all of them has a direct impact on the nutrition of the children and the overcrowding in which many families live, perpetuating the cycle of poverty in which the vast majority of indigenous families find themselves.

It is important to note that the increase in population density in the city of Concepción, the economic growth of the department and the conditions of vulnerability in which many indigenous children and adolescents live, suggest that some of them could be at risk of child sexual exploitation. Britos (2002) found some characteristics related to the profile of children and adolescents at risk of child sexual exploitation, which is: be underage, having at least 4 younger siblings, dropping out of school, difficulty in finding employment, alcohol consumption, tobacco use, and drug use, among others. According to the information gathered in the fieldwork, specifically in the rural sector, the need for security and the high school dropout rate of children and adolescents indicate that many of the underage children are working on the farm from a very early age, which could be accentuated if there is no proper control and monitoring of the hiring practices of PARACEL's suppliers in its value chain.

The care of children and adolescents is a priority for any public or private project, so it is recommended that PARACEL allocate specific efforts to prevent the development of exploitation and abuse of children in all its forms, with emphasis on the prevention, and mitigation of sexual exploitation, human trafficking and labor exploitation.

9.3.4.1.5.4 Safety and justice

This section contains information on security in the Project IIA. It first provides data related to violence and criminality, then details on justice and the institutions involved in the processes. More information about that will be presented later.

The content on crime and victimization in this section was taken from the Atlas of Violence and Insecurity in Paraguay (2018), which collects and analyzes objective data on insecurity from National Police records between 2010 and 2017; and from the National Victimization Survey 2017. Information is collected at the departmental level in some cases, when clarified as such, all other data mentioned correspond to the northern zone comprising Concepción, San Pedro and Amambay.

The rate of intentional homicides recorded per 100,000 inhabitants between 2010 and 2017 in the Department of Concepción was 18.85, while the hidden figure for crimes (the portion of crimes reported by victims in the National Victimization Survey that are not recorded by the institutions responsible) in the northern region is 71.4%. All three departments have declining rates of homicide registration, yet it is the region with the highest homicide rate in the country. Table 41 presents data for the three departments of the IIA, for the period 2010-2017.

Table 41 – Rate of intentional homicides per hundred thousand inhabitants, by department, years 2010-2017

Homicides	2010	2011	2012	2013	2014	2015	2016	2017
Concepción	27,3	25,24	22,64	27,42	20,56	18,99	17,05	18,85
Amambay	85,37	78,1	86,78	78,73	67,03	77,86	82,17	70,53
San Pedro	16,79	16,17	15	13,83	13,11	14,41	13,99	7,63

Source: Atlas of Violence and Insecurity in Paraguay - 2018.

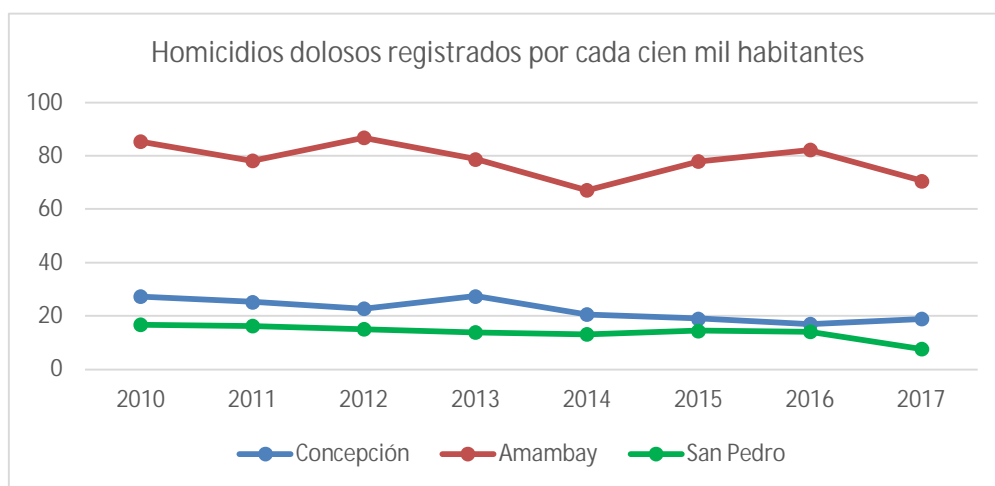


Figure 8 – Evolution of the number of intentional homicides per hundred thousand inhabitants in the departments

Source: Prepared by the external consultant Lic. Caren Kremer and team with data from the Atlas of Violence and Insecurity in Paraguay – 2018.

In terms of property offences, they have declined in all three departments. Compared to 2010, in 2017 Concepción had a 40% decrease, although in 2013 it had a much higher peak than the average for those years. As for Amambay, they decreased by 50% in 2017 compared to 2010; however, in 2011 there was a higher peak. The same situation occurred in the department of San Pedro in relation to the percentage decrease in punishable acts and the peak recorded, as shown in Table 42.

Table 42 – Property offences, by department, years 2010-2017

Property offences	2010	2011	2012	2013	2014	2015	2016	2017
Concepción	141,76	138,28	134,79	171,36	104,09	106,35	118,09	82,76
Amambay	315,94	475	357,45	335,6	265,57	146,93	148,27	165,39
San Pedro	155,63	190,98	130,52	120,05	121,94	135,81	108,56	75,3

Source: Prepared by the external consultant Lic. Caren Kremer and team with data from Altas de la violencia e inseguridad en Paraguay - 2018.

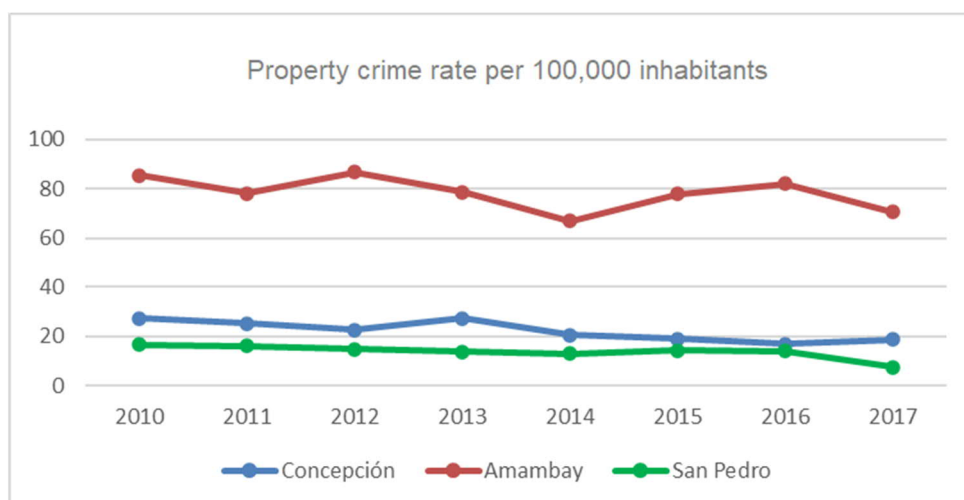


Figure 9 – Property crime rate per 100,000 inhabitants in the departments

Source: Prepared by the external consultant Lic. Caren Kremer and team with data from *Altas de la violencia e inseguridad en Paraguay* - 2018.

With regard to victimization of the population, in the northern zone (i.e., the three departments of the IIA), 18.2 per cent of the population has been the victim of crimes against the home, with burglary being the most recurrent event. With regard to the victimization of crimes against persons, extortion is the most frequent event with 18%. The highest percentage is observed in the victimization of corruption with 97.3%.

9.3.4.1.5.5 Infrastructure and the accessibility

This section describes the main access routes to the Project's Area of Influence. The information is organized in the following three sections: ports, airports and road infrastructure.

Main ports on the Paraguay River

The Paraguay River is one of the access routes to the Department of Concepción; and to the area prospected for the industrial component of the project. The Local Health Plan of Concepción indicates that the following ports are located along its banks, north of Concepción:

- Concepción Port
- Vallemí Port
- Risso Port: port Calero, produce lime.
- Fonciere Port: It is characterized by an important viewpoint and a large house dating from 1927.
- Max Port: Port “Tres Ollas” (Three Waves). Currently a cattle establishment, in front of Puerto Pinasco.
- Itapucumí Port: Used by the cement and lime factory, in front of Puerto Pinasco.

- Puerto Arrecife: With dangerous reefs during the river's descent, it is ideal for dorado fishing.
- Abente Port: Livestock port of estancias, near the Napegue stream.
- Pagani Port: Today abandoned.
- Negro Port: Used by estancias.
- Algesa Port: Used for loading and unloading of cargo and freight.
- Old Port: Used for embarkation of passengers and minor cargo.
- Itapuá Port: North of Puerto Fonciere, used by caleras.
- Guyrati Port: Used by the lime factory, located about 10 km from the Itacuá Port.

Although the Concepción Municipal Development Plan states that "despite having a port, river traffic has declined compared to its beginnings", a large part of the region's production of limestone products and grains is moved through the ports. Another company that has bet on the waterway is Frigorífico Concepción, which has invested in private ports to facilitate and reduce the cost of transporting livestock. In addition, the Paraguay River and its ports are a means of transport, communication and trade used by the inhabitants of the riverside communities located north of Concepción, which are often isolated by the rains.

Airports

In the Department of Concepción, there are 2 airports with limited infrastructure and which are rarely used:

- Airport "Tte. Cnel. Carmelo Peralta" – City of Concepción
- Airport "Dr. Juan Plate" - San Lázaro.

On the other hand, there are several airstrips located in the IIA, mainly in farming installations.

Road Infrastructure

For more than 50 years, the road network of Paraguay was composed of 12 national routes, the departmental and municipal. In May 2019, the Ministry of Public Works and Communications (MOPC) has classified and restructured the conformation of the National Road Network, increasing the number of national routes to a total of 22, as can be seen in Figure 12.

According to information published by the MOPC⁴¹, the road network in the department of Concepción totals 3,213 km of national, departmental and local roads and routes, 19% of which are paved. In San Pedro, the road network reaches 5,806 km, of which 18% are paved, and in Amambay, there are 2,666 km of road network, of which 12% are paved. These data are provided in Table 43.

⁴¹ Available at: <https://www.mopc.gov.py/mopcweb/index.php?cID=769> examined on January 23th 2020.

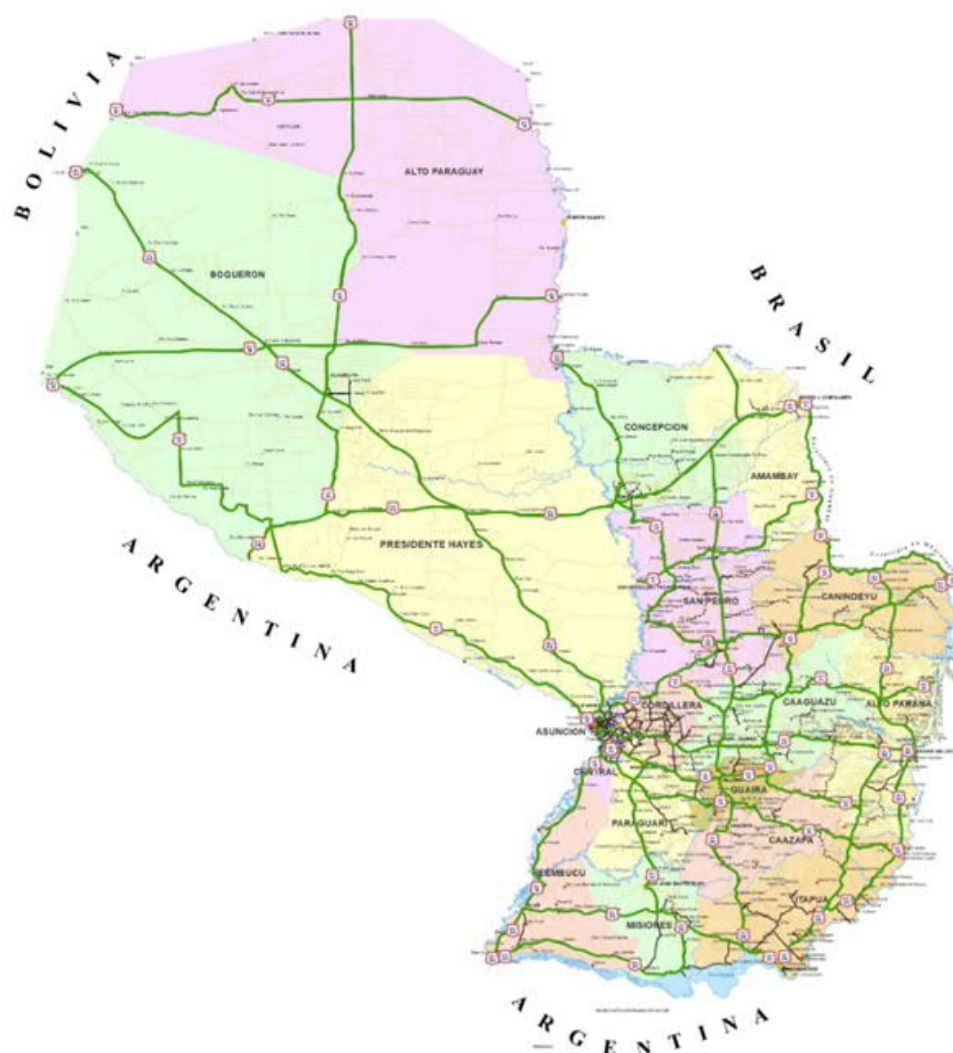


Figure 10 – National Road Network

Source: MOPC - Road Planning Department

Table 43 – Road network by department by type

Type of road	CONCEPCION		SAN PEDRO		AMAMBAY	
	Paved (km)	No Paved (km)	Paved (km)	No Paved (km)	Paved (km)	No Paved (km)
National	383,73	20,52	583,68	116,97	207,37	134,92
Departmental	97,8	327,51	268,54	193,45	40,03	343,58
Local	134,88	2248,16	199,13	4444,05	62,85	1877,04
Type of road	3213		5806		2666	
% paved	19%		18%		12%	

Source: MOPC - Road Planning Department (data from July 2019)

As can be seen in figure 12, the following three national routes pass through the Project IIA:

Route PY05: From EAST to WEST, with a length of 577 km It begins in the city of Pedro Juan Caballero (Amambay), located on the border with Brazil; it crosses the department of Concepción via the city of Concepción; it crosses the Paraguay River via the Nanawa Bridge and continues in the department of Villa Hayes until it reaches Fortín Pilcomayo, on the border with Argentina.

Route PY22: From South to North, with a length of 424 km. It starts in San Estanislao (San Pedro) in the junction with Route PY03; passes through the cities General Aquino, Villa del Rosario, San Pedro del Ykuamandiyú; enters the department of Concepción by the city of Belén, passes through Concepción, Loreto, San Alfredo and ends in San Lázaro.

Route PY08: From South to North, with a length of 588 km. It starts in Coronel Bogado (Itapúa), at the junction with Route PY01, passes through the departments of Caazapá, Guairá, Caaguazú, enters San Pedro through San Estanislao: continues to Yby Yau in Concepción and then to Bella Vista Norte in Amambay.

Figures 13 and 14 show in more detail the road network of the department of Concepción, indicating the type of paving of the roads and routes.

On the other hand, several routes and local roads link the locations of the Project's IIA, some of which are currently undergoing improvements in the framework of the National Program of Local Roads and Bridges, executed by the MOPC in most of the country's departments. In the IIA, this program proposes interventions to improve bridges and roads according to the summary provided in Table 44 below⁴².



Figure 11 – National Routes in the IIA

Fuente: MOPC – Road Planning Department

⁴² MOPC/DGSA-BID. Preliminary Environmental Impact Assessment. Local Roads Improvement Program - Eastern Region (PRL-1084). 2015.

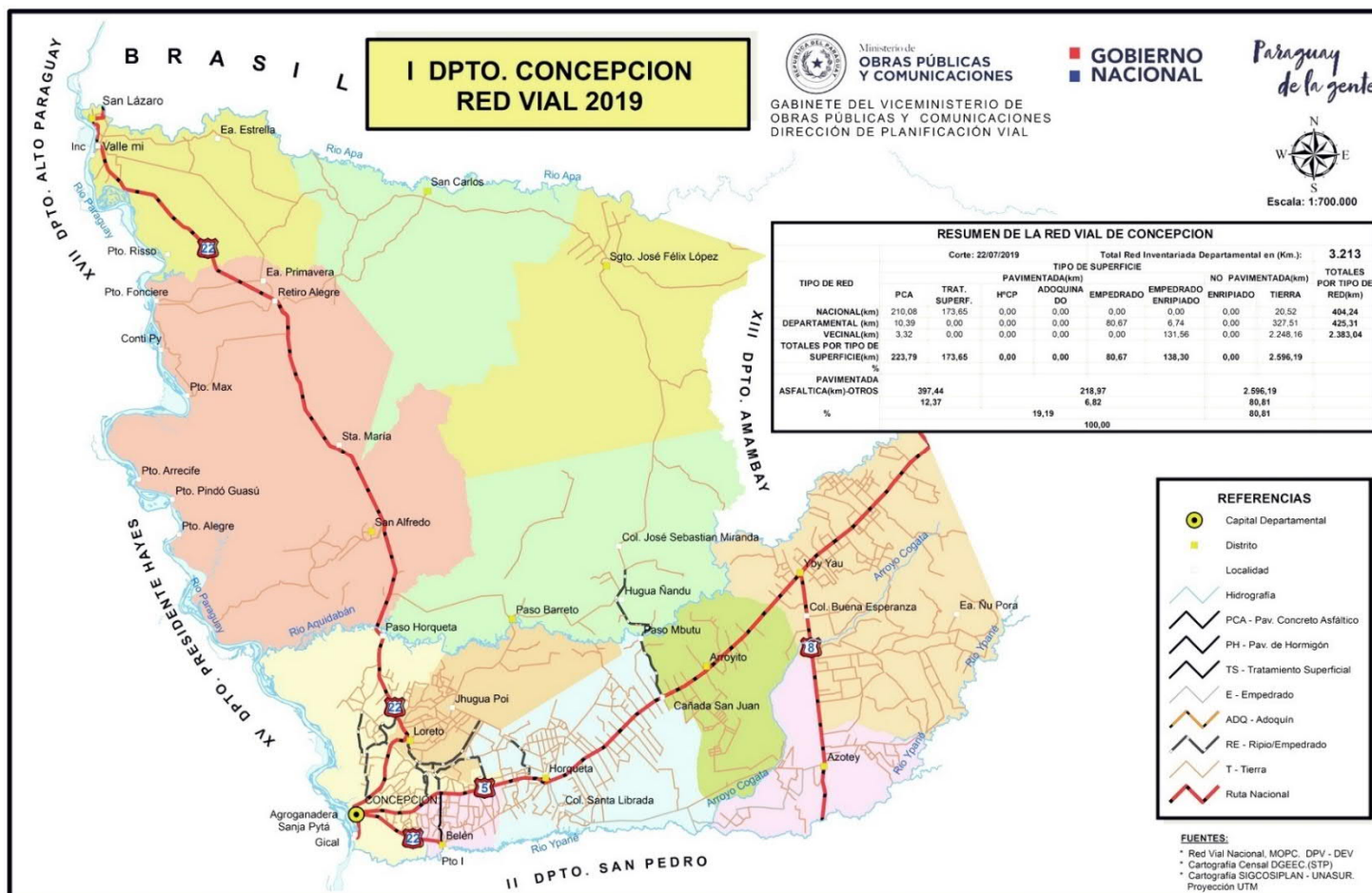


Figure 12 – Road network in the department of Concepción

Fuente: MOPC – Dirección de Planificación Vial

Table 44 – Bridges and roads being improved in the IIA

Department	Bridges		Roads
	Bridges (number)	Longitude (M.L.)	
Concepción	11	119	Concepción
San Pedro	11	200	San Pedro
Amambay	8	86	Amambay

Source: MOPC

Figure 15, extracted from the Preliminary Environmental Impact Study of the Program, shows the works and their location, in the department of Concepción.

With the execution of these works on access roads in the department, it is possible to perceive an increase in road connectivity in the intervention areas, especially in the areas where gravel roads were transformed into asphalt roads. This allows for an increase in traffic, including cargo trucks, and a reduction in transfer times.

With respect to the Project's DIA, more specifically in Concepción, the MOPC is carrying out construction, improvement and maintenance activities of the access roads; in addition to building bridges and water systems in support of the communities. According to information provided by the MOPC's Road Planning Directorate, the main works in progress in the Project's Area of Direct Influence are those detailed in Table 45.

CONCEPCIÓN				
ORIGEN - DESTINO	Largo (m)	Ancho (m)	Tipo	Coordenadas UTM
Paso Barreto-Cruce X	30,0	4,0	PM	21K464281 7456246
RUTA V KM 21 - LAS PALMAS	7,0	3,0	PM	21K471782 7419193
CURUZU ÑU - ROBERTO L. PETIT	6,0	4,0	PM	21K458340 7430807
COSTA PUCU - MBOCAYATY	12,0	3,0	PM	21K459379 7425970
CONCEPCIÓN - MARIA AUXILIADORA	6,0	5,0	PM	21K460058 7412237
RUTA V - CALLE 12 NORTE	5,0	4,0	PM	21K508322 7439014
	6,0	4,0	PM	21K512919 7433374
RUTA V - CALLE 9 NORTE	20,0	3,0	PM	21K508006 7429573
RUTA V - CALLE 20 NORTE	6,0	4,0	PM	21K524506 7444456
	10,0	4,0	PM	21K526683 7441681
YBY YAU - COL. MEDALLA MILAGROSA	11,0	4,0	PM	21K551330 7458412
TOTAL	119,0			

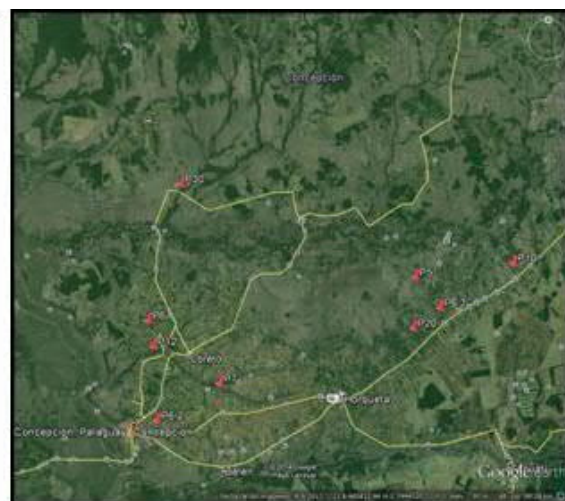


Imagen Satelital - Puentes Departamento de Concepción.

Figure 13 – Description of road works and their coordinates in the department of Concepción

Source: MOPC

Table 45 – Current infrastructure works in the project's DIA (2019)

Type	Current works	Longitude
Asphalt Paving	Section Concepción - Puerto Vallemi and Access to Concepción (1,5 km) and Variante (4,75 km)	6,25 km
Asphalt paving on cobblestone	Section Horqueta - Ypané River (Tacuatí) (Lot 1)	39 km
	Section Route 5 - Jhugua Ocampos - Ykua Jhovv - San Blas. 5th Tanda. Lot 3	17,56 km
	Section Loreto - Las Palmas - San Blas - Route 5. 5th Road Management Band. Lot 6.	15,1 km
Rehabilitation and maintenance contract	Road 3. Route PY05 Section Concepción - Pozo Colorado Km 372+260 to Km 416+222. Lot 3	44 km
Rehabilitation and maintenance	Route PY05. Section: Concepción - Yby Yauí (109 km). Lot2	109 km
Sanitary sewage works	Construction of sanitary units for communities benefiting from the sanitary sewerage project for cities in the Eastern Region	
Treatment plant	Wastewater collection and treatment systems and improvement of the drinking water system for the city of Horqueta	

Source: MOPC- Dirección de Planificación Vial

9.3.4.1.5.6 Means of Transportation

This section includes descriptions of the main means of transport available to the population of the Project's Area of Direct Influence: river, air and land transport.

River transport

The Paraguay River is navigable by vessels of greater draught, on the stretch from the confluence with the Paraná River to Asunción; on the stretch from Asunción to Corumbá (Brazil) and passing through all the ports of the Department of Concepción, medium-sized vessels can navigate⁴³. As already presented, it is largely used by vessels transporting grain, lime, cement and livestock. Its tributaries, the Apa, Aquidabán and Ypané rivers, are navigable only by small boats⁴⁴.

The ship Aquidaban is considered an important means of transport, especially for the most isolated areas. This vessel transports products for sale and passengers between Concepción and Bahía Negra. It has a weekly frequency, leaving on Tuesdays from Concepción and the trip lasts 3 days out and 3 days back. It makes stops at all the ports in the department of Concepción and several riverside communities to offer its goods and to allow passengers to board and disembark.

Some boats offer their services for recreational purposes (trips and fishing), departing from Concepción: Boat Ten Caten, Boat Seven Cabrillas, Boat Santa Filomena, Freshwater Yacht, Yacht Cayman, Yacht El Dorado.

⁴³ MOPC-OPS/OMS. Update of the Paraguayan Water and Sanitation Sector Analysis. 2010.

⁴⁴ Municipal Development Plan. Concepción

Air Transport

The Military Air Transport Service (SETAM) is authorized to carry out flights for the transport of passengers; and has the resolution of approval of the current price list. The planned route includes departures from Asunción to Concepción, Puerto Casado, Vallemí, Fuerte Olimpo and Bahía Negra, with 2 weekly frequencies. This service was authorized by Resolution in April 2019, and there are no statistics available.

The lack of adequate airport infrastructure could be a factor in the lack of growth in this service segment in the Department of Concepción.

Terrestrial transport

The city of Concepción is relatively well connected by land with other major cities in the northern region of the country, and with Asunción. In general, transport companies only provide services to towns and cities located on national routes, without entering communities far from them. Table 46 lists the transport companies that provide daily services to other cities from Concepción.

Table 46 – Land transport companies from and to Concepción

Destination / Origin	Transport companies
Asunción	Norte Poty SRL
	NASA
	La Ovetense
	La Santaniana
Pedro Juan Caballero	Ciudad de Concepción S.A.
	Transporte y Turismo Ligero SRL
Vallemí	NASA
	Transporte y Turismo Ligero SRL

Source: Prepared by the external consultant Lic. Caren Kremer and team

The transport companies that provide services on the route to Vallemí also ensure the transport of passengers between Concepción and Loreto. While the companies that go to Asunción (by Route PY05) and Pedro Juan Caballero provide services to the inhabitants of Horqueta. With regard to the connection with the city of Belén, a local company called Puerto Ybapobo provides services to that city through Belén.

The city of Concepción has not had any urban public transport services (buses) for several years now. According to local digital media "motorcycles have displaced the company that was dedicated to this area a decade ago"⁴⁵.

In fact, most of the people who live in the Department of Concepción travel by motorcycle. This can be verified by simple observation on a tour of the city of Concepción and the surrounding districts. This preference for motorcycles is also evident in the number of vehicles available. The following table provides a summary of the number of authorized vehicles in the three departments of the IIA.

⁴⁵ Concepción Noticias. <http://www.concepcion-py.com/2016/05/concepcion-esta-sin-transporte-urbano.html>

Table 47 – Number of authorized vehicles by type, according to department (2017)

Department	Total	Motorcycle	Automobile	Vans	Trucks	Buses	others
Concepción	33.852	20.079	2.589	2.127	1.227	132	7.698
San Pedro	46.765	18.197	4.617	3.765	2.461	214	17.511
Amambay	49.475	26.030	6.105	2.918	1.538	160	12.724

Source: DGEEC, Anuario Estadístico, Año 2017.

In Concepción, almost 60% of the authorized vehicles are motorcycles, far exceeding the number of cars and vans (14%). The trend is similar in San Pedro and Amambay.

9.3.4.1.5.7 Information and Communication Technologies (ICTs)

This section presents information related to the population's access to Information and Communication Technologies (ICTs). First, statistical data on Internet access are presented, then cell phone and/or personal computer ownership, and finally data on telephone line access.

According to data from the Permanent Household Survey, less than half of the population of 10 years or more in Concepción had access to the Internet in 2017, the percentage is even lower in San Pedro (almost 38%). The population of Amambay had the most access with almost 65%.

Table 48 – Population of 10 years old or elder by gender, according to internet use (%)

	Concepción			San Pedro			Amambay		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Total	186.627	86.734	99.893	330.995	172.399	158.596	127.915	62.230	65.685
Used	46,05	47,07	45,17	37,63	39,16	35,96	64,61	62,57	66,55
Not used	53,95	52,93	54,83	62,37	60,84	64,04	35,39	37,43	33,45

Source: DGEEC. Permanent Household Survey 2017

As it can be seen in table 49, almost the totality of the internet accesses was made from a cell phone. Secondly, "at home" is indicated with slightly higher percentages than "at work". This use preference is common to all three departments and to both genders.

Table 49 – Population of 10 years old or elder who used the Internet by gender, according to place of access (%)

	Concepción			San Pedro			Amambay		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Total	85.946	40.826	45.120	124.537	67.503	57.034	82.648	38.936	43.712
At home	9,31	(*)	10,75	8,06	(*)	8,67	18,58	19,97	17,35
At work	9,14	(*)	(*)	6,88	(*)	(*)	14,89	17,12	12,9

In educational institution	8,14	(*)	(*)	4,76	(*)	(*)	7,34	7,82	6,91
At someone else's house	5,81	(*)	(*)				5,04	(*)	(*)
In a community access location							3,2	(*)	(*)
Through a cell phone	97,07	97,55	96,63	98,65	97,74	99,72	98,35	98,32	98,37

Source: DGEEC. Encuesta Permanente de Hogares 2017

The above figures are directly related to the ability of households to access durable goods, especially mobile phones and computers, notebooks or similar equipment. According to data from 2017, in Concepción, 96.63% of households have a cell phone and 11.88% have a computer/notebook, while 9.35% have access to the Internet⁴⁶. In San Pedro 95.97% of households have a cell phone; 8.62% have a computer and 6.83% have access to the Internet.⁴⁷ In Amambay 98.46% of households have a cell phone; 24.79% have a computer (7.25% tablet or similar) and 18.60% have access to the Internet⁴⁸.

With regard to telephone line connection in Concepción 5.4%⁴⁹ of households have a fixed telephone line while in San Pedro the figure is 4.21% and 11.45% in Amambay.

9.3.4.1.5.8 Media

This section presents the main means of communication available in the Project's IIA, and those in the Department of Concepción.

According to data reported by CONATEL in 2017, there are 8 licensed commercial FM broadcasting stations and 5 licensed AM broadcasting stations in the Department of Concepción. There are also 13 TV broadcasting stations in the department. Table 50 presents the data corresponding to the 3 departments.⁵⁰

Table 50 – Number of broadcasting stations and TV services, according to department. Year 2017

	Concepción	San Pedro	Amambay
Broadcasts Radio FM	8	9	8
Broadcasts Radio AM	5	2	4
Broadcasts TV stations	13	11	6

Source : CONATEL. Note PR N. 1138/2017

⁴⁶ DGEEC. Tríptico Encuesta Permanente de Hogares – EPH 2017 – Departamento Concepción – Agosto 2018

⁴⁷ DGEEC. Tríptico Encuesta Permanente de Hogares – EPH 2017 – Departamento San Pedro – Agosto 2018

⁴⁸ DGEEC. Tríptico Encuesta Permanente de Hogares – EPH 2017 – Departamento Amambay – Agosto 2018

⁴⁹ DGEEC. Resultados Anuales Departamentales – EPHC 2017-2018.

⁵⁰ National Telecommunications Commission CONATEL. PR Note N. 1138/2017. Received by the House of Senators on 07/07/2017

The following tables 51, 52 and 53 include details of the main media in Concepción, according to type of media:

Table 51 – Broadcast FM radio stations - department of Concepción

	Code	Station	Licensee	Frequency (MHz)	Location	N Decree / Resolution	Date (D/M/Y)
1	ZPV 36	Ita Porá FM	Integración S.A	98,9	Vallemí	587/00	01/09/2000
2	ZPV 45	Aquidabán	María R. Cristaldo Leguizamón	100,5	Concepción	3881/94	25/05/1994
3	ZPV 48	Los Ángeles FM	Liz Naida Giménez Ramos	89,9	Horqueta	1077/2002	03/09/2002
4	ZPV 65	Continental FM	Cesar Raúl Coelho de Souza Ibarra	95,3	Horqueta	9084/91	04/04/1991
5	ZPV 184	Norte Comunicaciones	José Alberto González Mármol	94,5	Concepción	397/99	09/09/1999
6	ZPV 478	Kaagata Publicidad 100.3 MHz	Nilda Concepción Canale de Silva	100,3	Yby Yauú	1692/2004	02/12/2004
7	ZPV 509	GlobalMix FM	José Adalberto Pavón	95,9	Concepción	901/2010	26/08/2010
8	ZPV 510	La Favorita FM	Noelia Rocío Irala Insfrán	93,3	Yby Yauú	901/2010	26/08/2010

Table 52 – Broadcasts radio stations AM – department of Concepción

	Code	Station	Licensee	Frequency (MHz)	Location	N Decree / Resolution	Date (D/M/Y)
1	ZP 8	Radio Concepción	Sergio Enrique Dacak	1380	Concepción	1290/89	27/06/1989
2	ZP 37	Radio Yby Yauú	Reichardt	1360	Yby Yauú	29291/88	20/07/1988
3	ZP 74	Radio Regional AM	Myryan Stella Bareiro de Denis	660	Concepción	1138/2012	25/08/2012
4	ZP 29	Radio Vallemí	Industria Nacional del Cemento	1450	Vallemí	1290/89	27/06/1989
5	ZP 42	Radio Guyra Campana	Guyra Campana SRL	1420	Horgueta	1290/89	27/06/1989

Table 53 – TV Broadcasting Services – department of Concepción

	Code	Station	Licensee	Frequency (MHz)	Location	N Decree / Resolution	Date (D/M/Y)
1	ZPD 277	Rep. Telefuturo - Ch 3+	Repetidora	TV Acción S.A.	Yby Yauú	10089/95	12/08/1995
2	ZPD 272	Rep. Telefuturo - Ch 9+	Repetidora	TV Acción S.A.	Concepción	10089/95	12/08/1995

	Code	Station	Licensee	Frequency (MHz)	Location	N Decree / Resolution	Date (D/M/Y)
3	ZPD 315	Rep. Red Guarani - Ch 18	Repetidora	Tevedos S.A.	Concepción	1292/2008	24/12/2008
4	ZPD 294	Est. Base Canal 40 TV Concepción - Ch 40	Estación Base	Televisión Concepción S.A	Concepción	577/2006	17/05/2006
5	ZPV 927	Rep. SNT Cerro Corá - Ch 11	Repetidora	Televisión Cerro Corá S.A	Concepción	15858/92	21/12/1992
6	ZPD 683	Rep. SNT Cerro Corá - Ch 12+	Repetidora	Televisión Cerro Corá S.A	Vallemí	177/2011	03/02/2011
7	ZPD684	Rep. SNT Cerro Corá - Ch 13	Repetidora	Televisión Cerro Corá S.A	Yby Yau	177/2011	03/02/2011
8	ZPV 914*	Rep. EI 13 - Ch 7	Repetidora	Unicanal S.A.	Concepción	9948/91	18/06/1991
9	ZPV 910*	Rep. EI 13 - Ch 10	Repetidora	Unicanal S.A.	Vallemí	9948/91	18/06/1991
10	ZPD 675	Rep. Paravisión - Ch 4+	Repetidora	Paravisión S.A	Vallemí	177/2011	03/02/2011
11	ZPD 651	Rep. Paravisión - Ch 5	Repetidora	Paravisión S.A	Concepción	12938/96	12/04/1996
12	ZPD 676	Rep. Paravisión - Ch 8+	Repetidora	Paravisión S.A	Yby Yau	177/2011	03/02/2011
13	ZPD 299	Rep. La Tele - Ch 4-	Repetidora	Hispanoamérica TV del Paraguay S.A	Concepción	790/2007	20/07/2007

With regard to the written press, all national newspapers are available in Concepción, San Pedro and Amambay, including the following: ABC, Ultima Hora, La Nación, Crónica, Popular, Hoy and 5 días.

As for local digital media in DIA, it can be mentioned:

Table 54 – Local digital media in DIA

Name	Link
Concepción al día. Revista interactiva de la Perla del Norte	http://www.concepcion-py.com/ ; https://www.facebook.com/concepcionaldiapy/
Concepción Digital. Periodismo Digital Creativo	https://www.concepciondigital.com/
Concepción informa	https://www.facebook.com/pages/category/Media-News-Company/Concepci%C3%B3n-Informa-
Horqueta Digital	https://www.facebook.com/HorquetaDigitaldeNoticias/
Horqueta Informa	https://www.facebook.com/pages/category/Media/Horqueta-Informa-

Source: Prepared by the external consultant Lic. Caren Kremer and team

No digital media were found for Belén and Loreto.

9.3.4.1.5.9 Tourism services and accommodation

This section presents information about available tourist services and rental capacity of the Project's Area of Influence.

For the development of the information on rental capacity, data has been obtained from the Ministry of Tourism of the Government and SENATUR (National Ministry of Tourism). The Department of Concepción has several tourist attractions that, according to the Local Health Plan (2014), contribute as an important source of income.

The city of Concepción preserves its historic center and a barracks from the time of the War of the Triple Alliance, both of which are witnesses to past eras, as well as the Fort of San Carlos, on the Apa River, from the colonial era. The Kurusu Isabel oratory, near the departmental capital, is a place of pilgrimage.

The region has countless rivers and streams that offer the possibility of water sports, fishing, sailing and beaches. Numerous spas have settled down in the area. In the crystal-clear Tagatiya stream and in the Aquidaban River, ecotourism services are offered. Some boats offer river tourism services on the Paraguay River, especially for trips and fishing. There are establishments that offer tourism of stay (camping, cavalcades, camping etc.); in addition, of the use of beaches and lagoons in their properties. In Vallemí, tours are offered to visit the characteristic caves of the place, while it is possible to visit the hills of San Luis and Paso Bravo.

According to official records obtained from the Secretary of Tourism of the Government, in the department of Concepción, there are 16 providers of tourist services, in addition to the accommodation whose majority offers gastronomic services. These can be classified as follows: 3 gastronomic establishments, 6 travel and transport agencies, 4 tourist guides and 3 that offer other services. In recent years, SENATUR has promoted a program of Tourist Inns, registering 2 in Concepción: Posada Doña Preta (20 beds) and Posada Isabel (60 beds), both in Vallemí. As for the rental capacity of the DIA, the results presented in Table 55 are as follows:

Table 55 – Facilities/installations, rooms and beds in DIA, by district

District	Number of installations	Number of rooms	Number of beds
Concepción	20	476	960
Belén	3	25	52
Horqueta (1)	5	22	43
Loreto	2	18	52
Total	30	541	1.107

Source: Ministry of Tourism, Government of Concepción; SENATUR. Prepared by the external consultant Lic. Caren Kremer and team

(1) No data: 3 establishments; (2) No data: 1 establishment

(*) Data from Vallemí and Yby Yaú are added (partial)

9.3.4.1.5.10 State presence

This item presents the public institutions that have a presence in the department of Concepción and in the districts of DIA. It also includes a list of instances of citizen participation attended by State representatives.

In the following table 56, the institutions with a presence in the department of Concepción are listed, marking those that also have a presence in the municipalities of the DIA.

Table 56 – Public institutions with a presence in the municipalities (original titles in Spanish)

Institutions	Concepción	Belén	Loreto	Horqueta
Gobernación	X			
Secretaría del Ambiente de la Gobernación	X			
Secretaría de Turismo de la Gobernación	X			
Secretaría de Salud de la Gobernación	X			
Ministerio de Agricultura y Ganadería (MAG)- Dirección de Extensión Agraria y Ganadera (ALAT)	X	X	X	X
Oficina Regional, Ministerio de Industria y Comercio (ORMIC)	X			
Ministerio de Salud Pública y Bienestar Social (MSPyBS), Primera Región Sanitaria (Concepción)	X			
Ministerio de Educación y Ciencias (MEC), Coordinación Departamental de Supervisiones Educativas / Supervisiones	X			
Ministerio de Urbanismo, Vivienda y Hábitat (MUVH), Agencia Regional N° 6	X			
Municipalidad	X	X	X	X
Junta Municipal	X	X	X	X
Consejería Municipal por los Derechos del Niño, Niña y Adolescente (CODENI)	X	X	X	X
Ministerio de Justicia (MJ), Penitenciarias	X			
Ministerio de Hacienda (MH), Subsecretaría de Tributación	X			
Ministerio de Obras Públicas y Comunicaciones (MOPC)	X			
Ministerio de Desarrollo Social (MDS)	X	X	X	X
Ministerio de Industria y Comercio (MIC)	X			
Ministerio de Justicia (MJ)	X			
Circunscripción Judicial, Juzgados de Paz	X	X	X	X
Ministerio Público (MP) o Fiscalía	X			X
Tribunal Superior de Justicia Electoral (TSJE)	X			
Registro Civil	X	X	X	X
Registro Electoral	X	X	X	X
Policía Nacional, Comisarías	X	X	X	X
Fuerzas Militares: 4° Regimiento de Infantería y Hospital Militar	X			
Instituto Nacional de Desarrollo Rural y de la Tierra (INDERT)	X		X	X
Servicio Nacional de Calidad Vegetal y de Semillas (SENAVE)	X			X

Institutions	Concepción	Belén	Loreto	Horqueta
Servicio Nacional de Calidad y Salud Animal (SENACSA)	X	X		X
Servicio Nacional de Erradicación del Paludismo (SENEPA)	X			
Servicio Nacional de Saneamiento Ambiental (SENASA)	X			X
Servicio Nacional de Erradicación del Paludismo (SENEPA)				X
Instituto Forestal Nacional (INFONA)	X			
Oficina Regional de Pesca del Ministerio del Ambiente y Desarrollo Sostenible (MADES)	X			
Centro Regional Ambiental del del Ministerio del Ambiente y Desarrollo Sostenible (MADES)				X
Dirección de Educación Agraria (DEAg), Escuela Agrícola de Concepción	X			
Servicio Nacional de Catastro	X			
Dirección Nacional de Aeronáutica Civil (DINAC)	X			
Instituto de Previsión Social (IPS), Hospital Regional	X			X
Administración Nacional de Electricidad (ANDE)	X			X
Empresa de Servicios Sanitarios del Paraguay S.A. (ESSAP)	X			
Compañía Paraguaya de Comunicación (COPACO)	X	X	X	X
Correo Paraguay	X	X	X	X
Universidad Nacional de Concepción (UNC)	X		X	X
Universidad Nacional de Asunción (UNA)	X		X	
Banco Nacional de Fomento (BNF)	X		X	X
Crédito Agrícola de Habitación (CAH)	X		X	X
Fondo Ganadero (FG)	X			
Administración Nacional de Navegación y Puertos (ANNP)	X			
Dirección Nacional de Aduanas	X			
Servicio Nacional de Promoción Profesional (SNPP)	X			

Source: Local Health Plan, Municipal Development Plan Prepared by the external consultant Lic. Caren Kremer and team.

In addition, different instances of citizen participation have been created with the participation of State representatives, which are listed in table 57.

Table 57 – Citizen participation instances, with the participation of State representatives

Agency	Concepción	Belén	Loreto	Horqueta
Consejo de Desarrollo Municipal	X	X		X
Consejo Regional de Salud	X			
Consejo Local de Salud	X	X	X	X
Consejo Distrital de Educación	X			

Local Health Plan, Municipal Development Plan Prepared by the external consultant Lic. Caren Kremer and team.

The Municipal Development Council is an instance of citizen participation, where the interaction of the public, private and civil society sectors is established, where joint actions are coordinated, articulated and implemented, for the benefit of the community. Seven working groups were set up for the municipalities of Concepción, Belén and Horqueta: Production, Health, Environment, Public Safety, Children and Adolescents, Infrastructure, Education.

9.3.4.1.6 Land Use

This chapter contains information on land use in the Project's Area of Indirect Influence and in districts of the department of Concepción.

Taking into account the agricultural vocation of the area, which has a direct relationship with the economy. Economy; where specific data related to the farms and their productive uses are presented, among others. In order to give clarity on the topic of land use, some tables already included in the section on economy are repeated here, which refer to farms and their uses. As in many other cases, the information cannot always be compared, due to differences in the survey methodology; however, it contributes to the analysis.

The predominant activity in the area, livestock, occupies three quarters of the department's territory according to the publication "Concepción, características demográficas y socioeconómicas, 2002", occupying 5% of the EAP, while only 4% of the total area is used for agriculture, which occupies more than 38% of the EAP. The forest area represents 17% of all land in the department, according to data from the Agricultural Sampling Survey carried out in 2002 by the Directorate of Agricultural Censuses and Statistics of the Ministry of Agriculture and Cattle Raising (Pereira, 2008).

According to the Agricultural Sampling Survey (2002), cited by the publication "Concepción, características demográficas y socioeconómicas", 76% of the territory used for livestock is used for natural and implanted pastures, 17% is natural or cultivated forest and the rest is temporary and permanent crops, is fallow or has other uses. Pereira mentions that the publication "Territory and Population" points out that there are 54 Brazilian-owned farms totaling an area of about 100,000 hectares in the district of Concepción. He also indicates that there are about eight estates with almost 50,000 hectares in the department.

The 2008 Agricultural Census includes data related to the number of farms, according to use per department and the number of hectares according to use per department, as shown in tables 58 and 59 ⁵¹.

Table 58 – Land according to its use in number of properties, by department as of 2008

Department	Number of farms with land	Farms with Permanent Temporary Crops and Vegetables	Farms with natural or cultivated pasture	Properties with natural woods or forest plantation.	Farms with fallow and resting land	Farms with land for other uses
Concepción	17.377	15.285	10.071	6.414	7.485	15.583
San Pedro	45.875	42.889	23.866	18.468	24.154	40.784

⁵¹ El análisis de esta información se realizó en el apartado sobre economía.

Amambay	4.795	3.969	2.726	2.454	1.745	3.261
Total, Estimated IIA	68.047	62.143	36.663	27.336	33.384	59.628

Source: National Agricultural Census 2008. Prepared by the external consultant Lic. Caren Kremer and team.

Table 59 – Land according to its number in terms of surface area, by department as of 2008

Department	Total surface(ha)	Farms with Permanent Temporary Crops and Vegetables	Farms with natural or cultivated pasture	Properties with natural woods or forest plantation.	Farms with fallow and resting land	Farms with land for other uses
Concepción	1.619.416	71.431	1.218.911	233.300	50.394	4.538
San Pedro	1.739.232	321.156	909.500	276.656	81.091	150.828
Amambay	1.217.077	134.925	806.876	224.785	28.567	21.924
Total, Estimated IIA	4.575.725	527.512	2.935.287	734.741	160.052	177.290

Source: National Agricultural Census 2008. Prepared by the external consultant Lic. Caren Kremer and team.

According to Palau (2019), analyzing the report of the Statistical Synthesis Agricultural Production 2017-2018 prepared by the Ministry of Agriculture and Livestock (MAG in Spanish), it can be seen that the hectares destined for soybean cultivation in Concepción total 40,355 ha. Corn occupies 8,222 ha, sugar cane 321 ha and rice 51 ha. Peasant family agriculture covers 21,443 ha, of which some 11,000 ha are used for cassava cultivation.

With regard to protected areas, the Municipal Development Plan of Concepción of 2016 mentions the following:

- Serranía San Luis, with an area of 70,000 hectares.
- Itapucumí, with an area of 45,000 hectares.
- Estrella de Concepción, with an area of 2,400 hectares.
- Laguna Negra, with an area of 10 hectares, is in danger of extinction.

The district of Concepción has 8,490 km². The Municipal Development Plan (2016) mentions that, according to the DGEEC Atlas, the land to the north and east of the department, in the proximity of the Apa and Paraguay rivers, is high and with some isolated hills of relative elevation. The center and north are of low and flat topography, with extensive pastures destined to the shepherding, which are alternated with wooded sectors. The southern part has higher lands. In the district of Concepción, the land is high, slightly sloping, with forests of timber trees, used for carpentry and construction.

With regard to the distribution of land by district, according to data from the 2008 Agricultural Census, Concepción is the district with the largest number of farms and surface area, followed by Yby Yaú and Horqueta. It is worth mentioning that the areas of these two districts were modified after the Census, due to landslides and the creation of new districts. It is also worth noting that the vast majority of farms are managed by a single producer in the four districts of DIA, as well as in the entire department of Concepción. Table 60 presents data on this subject.

Table 60 – Land distribution by district, department of Concepción

Districts of the Department of Concepción	Number of Farms	Total Surface	Farm management				
			Single producer	Two or more associated producers (informal)	A legally constituted company or partnership	State	Others
Concepción	4.214	924.385	4.083	61	59	2	9
Belén	1.479	16.080	1.421	57	1	-	-
Horqueta	7.075	195.727	6.870	183	17	1	4
Loreto	2.062	41.560	2.032	28	2	-	-
San Carlos del Apa	86	62.146	77	9	-	-	-
San Lázaro	219	56.161	199	19	1	-	-
Yby Yauí	2.242	323.357	2.127	74	35	1	5

Source: National Agricultural Census 2008. Prepared by the external consultant Lic. Caren Kremer and team.

The dominance of a single producer in all farm management strata is verified, either through the use of family labor or contracted as laborer's day.

Public Colonies ⁵²

According to Rojas and Areco (2017), from 1891 to 2010, 61 colonies have been formed, totaling 388,247 hectares with 16,519 lots (almost 5,000 in the district of Concepción according to data provided by the local office); constituting 7% of the total number of lots authorized in the country. The average number of hectares per lot is 24. These colonies constitute 21% of the departmental territory. Of the 61 settlements, 36 per cent are in Horqueta, 23 per cent in the district of Concepción, 18 per cent in Loreto and the rest in the other districts. Table 61 presents a summary of the data for the Public Colonies formed between 1891 and 2010.

Table 61 – Public colonies formed between 1891 y 2010

Department	Number	(area) hectare	Lots	Average
Concepción	61	388.247	16.519	24
San Pedro	143	562.247	38.768	15
Amambay	42	176.605	8.626	20

Fuente: Elaborado por Rojas y Areco, 2017.

Rojas and Areco (2017) conclude: "The changes most frequently observed in the colonies, between the time of their formation and the present, were: 1) a reduction in the area of the colonies; 2) a significant increase in the number of plots in them; and 3) a sharp fall in the average size of the plots and the consequent growing smallholdings, moving away from the basic area required, as established in the Agrarian Statute".

⁵² Peasant colonies (or settlements), legally recognized by the National Institute of Rural Development and Land (INDERT), the official body in charge of land policy in the country.

There are also the so-called "communal fields"; that is, areas for free common use by the community, this for productive purposes. These can be set up in colonial agricultural settlements (whether official or private), as described in Chapter IV of Law 1863/02 establishing the Agrarian Statute.

During the work of information collection in field, inhabitants of the localities near the zone prospected for the installation of the plant, mentioned to belong to groups that have communal fields, this in the communities of Curuzu Ñu and Mbocayaty (item 9.3.4.2.5.3: Economic activities and income).

9.3.4.1.7 Water resource use

This section presents information on water resource use in the Project's Area of Influence. Considering that the topic was already covered in previous items, general data on household use is provided, and other uses of the resource are incorporated.

In the document "Uses and governance of water in Paraguay", prepared by UNDP (2016), it is mentioned that the department of Concepción is located on the Quaternary aquifer, using 60% of it to cover the needs of its inhabitants. The other 40% is through surface water.

With regard to domestic water use, according to the Environmental Statistical Compendium (2017), Concepción has an ESSAP provider and 837 from SENASA at the departmental level. ESSAP has 7,572 connections; while SENASA has 19,624. There are also 6,689 connections corresponding to other providers. ESSAP takes water from the Paraguay River to supply its users.

With regard to sanitary sewerage, ESSAP is the only one providing this service in the capital of the department with 3,691 connections, which constitutes approximately 7% of the total population of the department and 20% of the district of Concepción. The rest of the department does not have this service. The population supplied with drinking water is 37,860 through ESSAP, 83,937 through SENASA and 34,114 others. On the other hand, the population sanitized by ESSAP is 18,455, which covers approximately 10% of the total of the department.

The evolution of drinking water connections has been from 5,246 in 2008 to 7,572 in 2017, an increase of more than 44% in less than ten years. This meant that the number of people with a drinking water supply rose from 26,230 to 37,860 during the aforementioned period. Connection to the sewerage network increased from 2,104 in 2008 to 3,691 in 2017, a 75% increase. The population benefited rose from 10,520 to 18,455 people.

The waters of the Paraguay River are also used for the operation of local industries that are supplied by the river. This is the case of Frigorífico Concepción, both in the meat industry and in the tannery. This industry takes water from the river, makes it drinkable in its own treatment plant, uses it, reconditions it through a decontamination process and returns it to the river. The Belén meat packing plant uses the waters of the Ypané to carry out its operations.

Similarly, fishermen use the river as a livelihood. There are two fishermen's associations in the city, one of which is inactive. The Nanawa Professional Fishermen's Association has 25 members and sells its fish at the roundabout at the entrance to the city.

Also, as mentioned above, the river is an important communication route, as ships, boats and barges ply its waters to reach various locations such as Puerto Pinasco, Puerto

Casado, Vallemí, Fuerte Olimpo, transporting food, fuel and passengers. The ship Aquidabán makes regular trips once a week from Asunción to Bahía Negra.

Regarding the recreational use of water resources, there are currently 18 spas, 5 of which are authorized by MADES. Taking into account the high temperatures in the country, an increase in the number of spas in the area can be observed annually. In some cases, these spas do not meet the optimal conditions for those who use them and, as mentioned, they do not have the corresponding authorization from the MADES either. Table 62 lists the spas.

On the other hand, from Concepción, there are options within the city to make trips for walking and fishing. The Ten Caten, Siete Cabrillas and Santa Filomena boats are some of those offering this service. These are private services available for those interested.

Table 62 – Resorts in the department of Concepción

Number of resorts	District	Qualified by MADES
2	Belén	1
7	Concepción	0
4	Horqueta	1
4	San Alfredo	2
1	Yby Yau	1
Total: 18	5 districts	5 qualified

Source: Prepared by the external consultant Lic. Caren Kremer and team with information provided by the Ministry of Tourism of the Government

On the Aquidabán River in Paso Horqueta, 40 km from Concepción, on the road to Vallemí, there are public beaches. On the same river, there are also recreational areas in Paso Barreto (65 km from Concepción); and Paso Urundey, district of Horqueta, which is about 15 km from the route Bernardino Caballero, in km 70.

In Vallemí, there is a municipal waterfront on the Paraguay River. Likewise, 4 km away from the city, the Apa River offers a huge sandy area that is used by visitors.

The Tagatiyá stream, located in the district of San Alfredo, is one of the major tourist attractions of the department. It runs on a calcareous base and allows visitors to see the bottom through its transparent waters.

9.3.4.1.8 Ecosystem Services

Ecosystem services are the benefits that people, including businesses, derive from ecosystems. Ecosystem services are organized into four types: (i) provisioning services, which are the products people obtain from ecosystems; (ii) regulating services, which are the benefits people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the nonmaterial benefits people obtain from ecosystems; and (iv) supporting services, which are the natural processes that maintain the other services.

IFC PS 4, on “Community Health and Safety”, establishes that the decline or degradation of natural resources, such as adverse impacts on the quality, quantity and availability of fresh water, can cause risks and impacts related to the health of the communities.

Regarding this ecosystem service, it is worth to mention that, during field surveys, many people have expressed the use of water resources for recreation (bathing, beach, fishing), highlighting the Aquidabán river. Likewise it is common in the region to practice fishing, both for sale and for self-consumption (for example, the towns of Paso Barreto, Paso Mbutu, Islería).

Details regarding ecosystem services are within the complete report produced by the Fundación Natan, presented in the Plantations ESIA, social baseline chapter.

9.3.4.2 Direct Influence Area (DIA)

This section describes the main features in terms of demographic, social, cultural and economic indicators of the districts that make up the project's DIA; referenced in item 9.3.2.3 of this study.

In order to organize the existing information; the content was structured in two sections:

- a. Summary of district characteristics in DIA In order to complement the quantitative records already indicated in the section on the characterization of the IIA referring to the DIA.
- b. Summary of microterritories identified in the DIA from the communication routes that lead to the prospected property area. It will also be possible to access elements of the consultation process with key actors as central contributions to the characterization of the territory.

It is important to highlight that, for the characterization of the districts studied for DIA, 3 main sources have been taken into account (Local Health Plan 2014-2016 of each district, Municipal Development Plan and the DGEEC) as no other updated bibliographic sources are available.

9.3.4.2.1 Belén District

General Characterization

The city of Belén, in the department of Concepción, was founded on August 23, 1760, by Francisco José Sánchez Labrador y Hernández S.J. It is located 21 km from the departmental capital.

It is located on the banks of the Ypané River. It borders the districts of Concepción and Horqueta to the north, the municipality of San Pedro to the south, the district of Horqueta to the east, and the district of Concepción to the west. Its main road accesses are Route V General Bernardino Caballero and Route III Elizardo Aquino and a bridge located over the Ypané River ⁵³.

As mentioned, it is located 21 km from the city of Concepción and 437 km ⁵⁴ of the nation's capital. It has an area of 215 km², distributed in rural and urban areas. In 1917, a colony was created, corresponding to 433 lots and 7408 hectares ⁵⁵.

⁵³ Bethlehem Municipal Development Plan. Department of Concepción. 2016. Available at <https://www.cird.org.py/institucional/documentos/PDM%20Belen.pdf>

⁵⁴ Road distance, from the country's capital by Ruta 9 Don Carlos A. López

⁵⁵ Rojas, L. y Areco, A. (2017). Las Colonias Campesinas en el Paraguay.

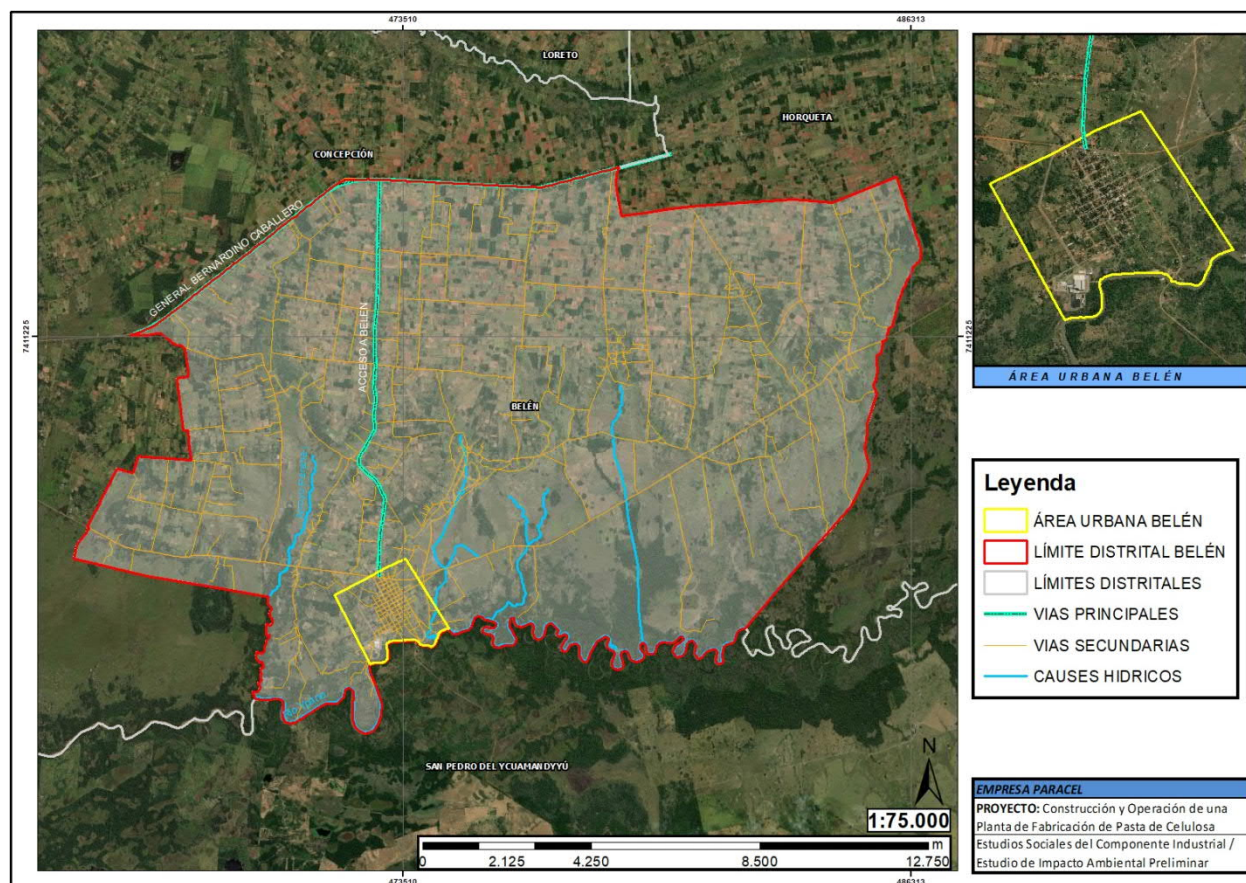


Figure 14 –Belén district Map

Table 63 – Additional information about the Belen District

Population	With regard to the population, the projection for 2019 is 13,014 inhabitants (6,766 men and 6,248 women) and for 2020 is 13,215 inhabitants (6874 men and 6,341 women) ⁵⁶ . Of these, 73 inhabitants are indigenous (39 men and 34 women) from rural areas. ⁵⁷
Economic activity	The main economic activities are agriculture (fruit, yerba mate), industry, meat processing, tanning, commerce and forestry.
Tourism	For the exploitation of tourism, the city of Belen has five particularities that characterize it, Belen is the point where it crosses the tropic of Capricorn in the country; the large houses with colonial architecture that remain in the city; the spas located on the banks of the Ypané River, Pororó and Paso Pedroso; ecological tourism and stay and the Jesuit Ruins of Purutue Ka'í ⁵⁸ located in Paso Urundey far 3.5km to north on the way to Horqueta.
Health	The district health service is organized as follows: 1 Belén Health Centre, 1 USF, 1 SOS Village Maternal and Child Centre (gynecological care, childbirth, general

⁵⁶ DGECC. Dpto. Concepción. Población estimada y proyectada, según distrito, sexo y grupos de edad, 2000-2025. Available at: <https://www.dgeec.gov.py/vt/default.php?publicacion=2>

⁵⁷ DGECC. III Censo Nacional de Población y Viviendas para Pueblos Indígenas, 2012. Available at: <https://www.dgeec.gov.py/default.php?publicacion=33>

⁵⁸ Plan de desarrollo municipal Belén. Departamento de Concepción. 2016. Available at: <https://www.cird.org.py/institucional/documentos/PDM%20Belen.pdf>

	medical clinic, laboratory and pharmacy), 5 Medicine Kits, 1 Private Family Medicine Clinic, 2 Empirical Midwives, Naturalists. ⁵⁹
Education	The district has access to 3 educational centers located in the urban area and 22 in the rural area ⁶⁰ .
Clean Water and Energy	Drinking water service is provided by urban and rural sanitation boards and electricity by the National Electricity Administration (Administración Nacional de Electricidad, ANDE in Spanish).
Drainage system	In the urban area, modern toilets with septic tanks predominate, there is no sewage system or network, and in the rural area common toilets or latrines predominate.
Collection / disposal / waste treatment	They do not have garbage collection service, the way to dispose of the garbage is by burning or burying it.



Figure 15 – Photo of route of access to the city



Figure 16 – City of Belen: representation of indigenous culture

9.3.4.2.2 Loreto District

⁵⁹ Plan Local de Salud de Belén, Departamento de Concepción 2014-2016. Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Belen.pdf

⁶⁰ Plan Local de Salud de Belén, Departamento de Concepción 2014-2016. Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Belen.pdf

General Characterization

The city of Loreto was founded on December 10, 1792 by the Jesuits. It is located 20 km from the city of Concepción and 437 km from Asunción.⁶¹ It borders the districts of Horqueta, Belén and Concepción. The city can be reached by routes III Elizardo Aquino, V Bernardino Caballero and Coronel Franco-Chaco. It has an area of 996 km². Organized in 31 rural companies and 4 urban districts⁶². From 1964 to 1981, 11 colonies were created, corresponding to 1969 lots and 46,323 hectares.⁶³

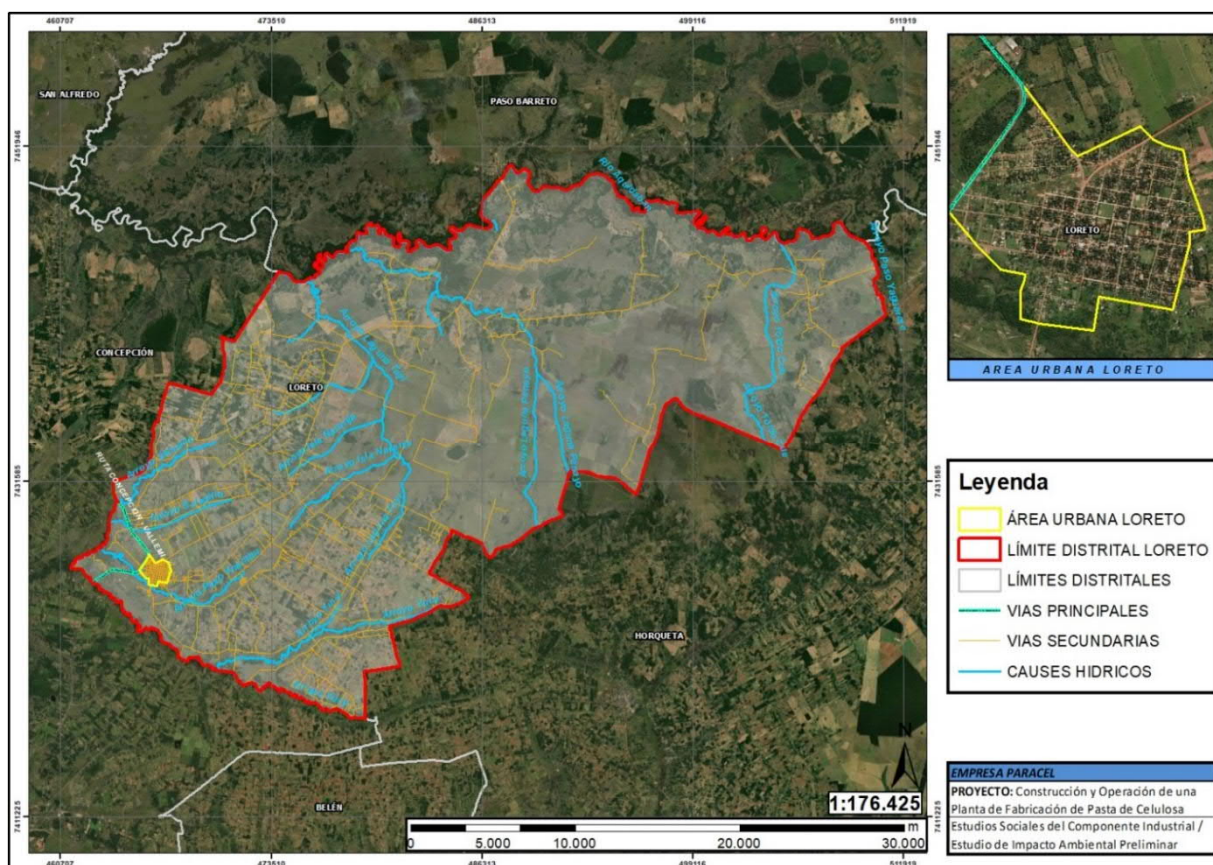


Figure 17 –Loreto district Map

Table 64 – Additional information about the district of Loreto

Population	As for the population, the projection for 2019 is 18,791 inhabitants (9,973 men and 8,818 women) and for 2020 is 18,879 inhabitants (10,034 men and 8,846 women) ⁶⁴ .
Economic activity	The predominant economic activities are small-scale agriculture (sesame, watermelon, melon, manioc, vegetables, etc.), production for local and departmental consumption ⁶⁵ .

⁶¹ Road distance, from Asunción by Pozo Colorado.

⁶² Plan de Desarrollo Municipal Loreto. Departamento de Concepción. 2016. Available at: <http://www.municipalidadloreto.gov.py/wp-content/uploads/2014/11/plan-de-desarrollo-distrital-loreto2016.pdf>

⁶³ Rojas, L. y Areco, A. (2017). Las Colonias Campesinas en el Paraguay.

⁶⁴ DGEEC. Dpt. of Concepción. Estimated and forecasted population, by district, gender and age groups, 2000-2025. Available at: <https://www.dgeec.gov.py/vt/default.php?publicacion=2>

⁶⁵ Plan de Desarrollo Municipal Loreto. Departamento de Concepción. 2016. Disponible en <http://www.municipalidadloreto.gov.py/wp-content/uploads/2014/11/plan-de-desarrollo-distrital-loreto2016.pdf>

	cattle raising, construction (handicrafts, fabrics, painting on canvas), wood industries, shops, fairs, etc. ⁶⁶
Tourism	In the district, the places taken into account to visit as tourist sites are the spas, giant statues in the squares, church, Aquidaban River and streams and the house of prayer dedicated to the Virgin of Tuparendá ⁶⁷ . The panorama of the city is complemented by the large old houses and rural cottages. In one of them, the trophies of the Mcal. José Félix Estigarribia ⁶⁸ .
Media and transport	They have fixed telephone and internet service by the Paraguayan Communications Company (COPACO), as well as mobile telephone and internet access by private companies. Air and cable channels. AM and FM radios (community and commercial radios). The district does not have local transportation service, but they do use interurban and long-distance transportation and private means. The main access routes are Route V General Bernardino Caballero, Route III General Elizardo Aquino and Coronel Franco-Chaco. There is also a branch of the Paraguayan National Post Office (DINACOPA).
Health	In Loreto they have 1 Health Center, 2 Health Posts, 1 USF, 1 Dispensary, 1 Social Pharmacy, 6 Private Pharmacies and 15 Empirical Midwives.
Education	In the municipality there are 9 national schools and 32 basic schools.
Clean water and energy	The drinking water used in the area comes from the sanitation boards. They have electric power service.
Drainage system	The District does not have a drainage network. Only 16% in the urban area have modern toilets with a septic tank and septic chamber and 72% in the rural area use a latrine.
Collection / disposal / waste treatment	According to data from the institutional interviews, the municipality has a municipal dump, a part of the urban zone has access to collection service and in the rural zone they dispose by burning or burying.



Figure 18 – Access to Loreto

⁶⁶ Plan de Salud de Loreto (Loreto Municipal Health Plan) Department of Concepción. 2016. Available at:

https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Loreto.pdf

⁶⁷ Loreto Health Plan. Department of Concepción. 2016. Available at:

https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Loreto.pdf

⁶⁸ Loreto Municipal Development Plan. Department of Concepción. 2016. Available at

<http://www.municipalidadloreto.gov.py/wp-content/uploads/2014/11/plan-de-desarrollo-distrital-loreto2016.pdf>



Figure 19 –Loreto City

9.3.4.2.3 Horqueta District

General Characterization

The city of Horqueta was founded on May 10, 1793, by Juan Manuel Gamarra and Andrés Salinas. It is located 50 km from the city of Concepción and 434 km from Asunción ⁶⁹, 172 km from Punta Porá (Brazil) It borders the districts of Loreto, Concepción and the Aquidaban River to the north, the Ypané River to the south, the Yby Yaú district to the east, and the districts of Concepción and Belén to the west. It has an area of 2,925 km² distributed in urban and rural areas⁷⁰. From 1917 to 2001, 22 colonies were created, corresponding to 6,957 lots and 124,391 hectares ⁷¹.

⁶⁹ Road distance, from Asunción on the Transchaco Route and Route 5 General Bernardino Caballero

⁷⁰ Horqueta Municipal Development Plan. Department of Concepción. 2016. Available at:

<https://www.cird.org.py/institucional/documentos/PDM%20Horqueta.pdf>

⁷¹ Rojas, L. y Areco, A. (2017). Las Colonias Campesinas en el Paraguay.

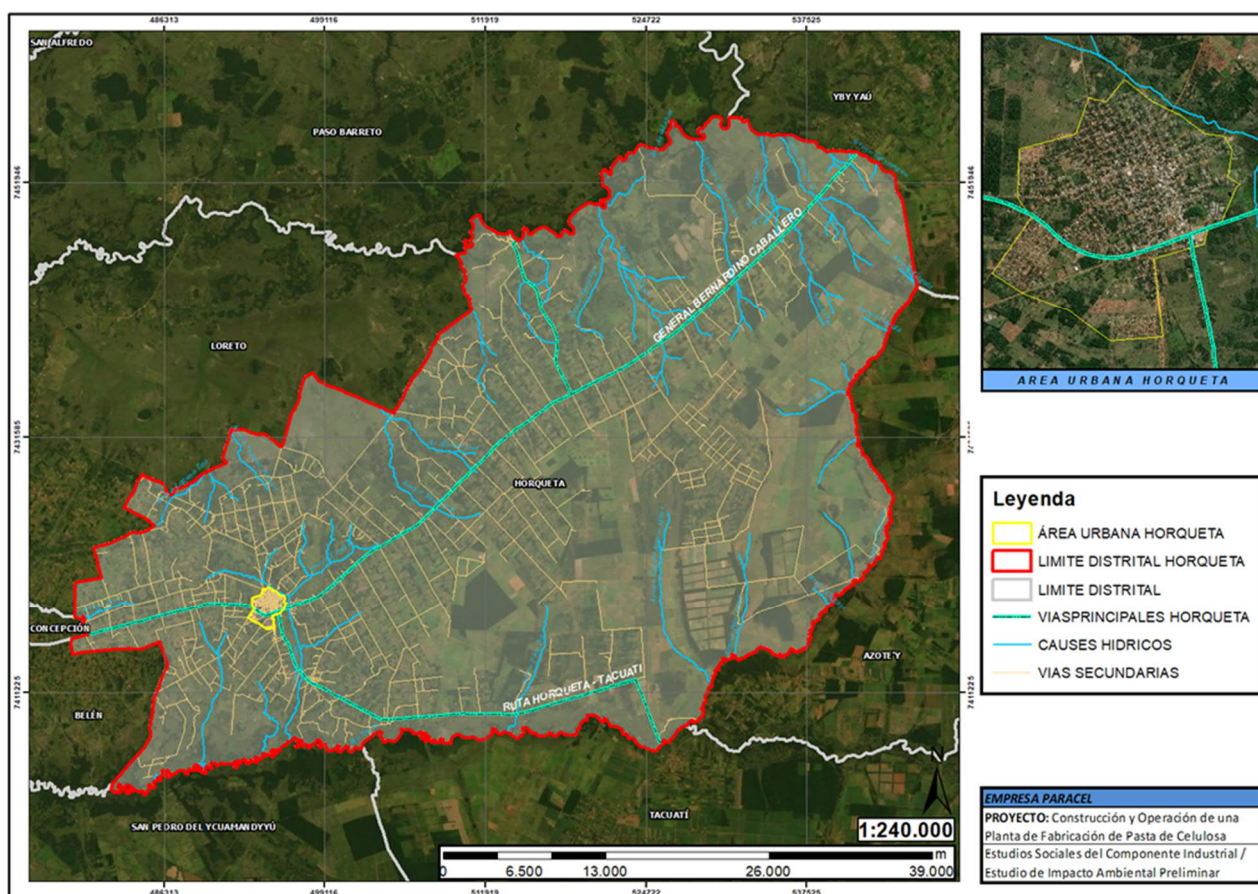


Figure 20 – Horqueta district Map

Table 65 – Other information about the District of Horqueta

Population	The population is forecasted to reach 62,008 by 2019 (32,152 men and 29,856 women) and 62,664 by 2020 (32,477 men and 30,187 women). ⁷² Of these, 339 inhabitants are indigenous (162 men and 177 women), all from rural areas. ⁷³
Economic activity	The main activities of the district are agriculture (ka'a he'ê, cotton, beans, manioc, corn, fruits, yerba mate), commerce and industry (agricultural products, cotton dismantle, oil, tanning), sawmills, forestry. ⁷⁴
Tourism	The district has the museum called Las Raíces de Horqueta, Luis Alberto del Paraná Museum (Radio Guyrá Campana), Virgen del Rosario Church, José Antequera and Castro Square ⁷⁵ and the white sand beaches on the banks of the Aquidabán River, Paso Horqueta and the Paso Horqueta Bridge ⁷⁶ .
Media and transport	According to information obtained in the institutional interviews, in Horqueta there is access to fixed telephony and internet services by the Paraguayan Communications Company (COPACO), as well as mobile telephony and internet access by private companies, there are air channels and cable channels and AM and FM radios (community and commercial radios).

⁷² DGECC. Dpt. Concepción. Estimated and forecast population, by district, gender and age groups, 2000-2025. Available at: <https://www.dgeec.gov.py/vt/default.php?publicacion=2>

⁷³ DGECC. III National Census of Population and Housing for Indigenous Peoples, 2012. Available at: <https://www.dgeec.gov.py/default.php?publicacion=33>

⁷⁴ Horqueta Local Health Plan. Department of Concepción. 2016. Available at: https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Horqueta.pdf

⁷⁵ Domestic tourism in Paraguay. Available at: <https://turismointernoparaguay.blogspot.com/2015/01/concepcion-atractivos-museos-y-centros.html>

⁷⁶ Horqueta Municipal Development Plan. Department of Concepción. 2016. Available at: <https://www.cird.org.py/institucional/documentos/PDM%20Horqueta.pdf>

	Currently there is no local public transport service, the means of transport used are inter-city or long-distance buses and private means of transport. The main accesses are Route V General Bernardino Caballero and Route III General Elizardo Aquino. There is also a branch of the Paraguayan National Post Office (DINACOPA).
Health	In the district there is the Horqueta District Hospital, 11 USF and 7 Health Centers. ⁷⁷ .
Education	According to the Municipal Development Plan (2016), the district has access to 20 urban and 113 rural educational institutions, corresponding to initial, basic, middle, public and private subsidized education. And higher education, public and private, with undergraduate and graduate degrees, in the following universities: Universidad Tecnológica Intercontinental (UTIC), Universidad San Carlos, Universidad Nacional de Concepción (UNC), Universidad Politécnica y Artística del Paraguay (UPAP). Also, the Institute for Teacher Training in Horqueta (IFD Horqueta).
Clean water and Energy	The drinking water used in urban and rural areas is the Agua Corriente system (80%) and the least used is well water (20%) ⁷⁸ . Access to electricity is provided by the Costa Romero Sub-Static, which processes the energy from the Itaipu Hydroelectric Power Plant for the entire north ⁷⁹ .
Drainage system	The District does not have a drainage network. Only 16 % in the urban area have modern toilets with septic tank and septic chamber and 72 % in the rural area use a latrine.
Collection / disposal / treatment of waste	Regarding the garbage collection service, although the municipality has a municipal dump, only a part of the urban area has access to the collection service and in the rural area they dispose by burning or burying ⁸⁰ .



Figure 21 – Photograph of Horqueta

9.3.4.2.4 Concepción District General Characterization

The city of Concepción is the capital of the Department. It was founded on May 25, 1773, by Colonel Agustín Fernando de Pinedo. It is located on the banks of the Paraguay River, with fluvial access (Port of Concepción), air (Airport of Concepción Lt. Carmelo Peralta) and land (Route V General Bernardino Caballero that connects with the other districts)⁸¹.

⁷⁷ Horqueta Local Health Plan. Department of Concepción. 2016. Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Horqueta.pdf

⁷⁸ Horqueta Local Health Plan. Department of Concepción. 2016. Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Horqueta.pdf

⁷⁹ Horqueta Municipal Development Plan. Department of Concepción. 2016. Available at <https://www.cird.org.py/institucional/documentos/PDM%20Horqueta.pdf>

⁸⁰ Horqueta Local Health Plan. Department of Concepción. 2016. Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Horqueta.pdf

⁸¹ Concepción Municipal Development Plan. Department of Concepción. 2016. Available at

It borders to the north with the municipality of San Alfredo, to the south with the districts of Belén and San Pedro, to the east with the districts of Paso Barreto, Belén and Loreto and to the west with the Paraguay River that separates it from the district of Presidente Hayes. It is located at a distance of 415km from the capital of the country. It has an area of 8,490 km² distributed in rural and urban areas. From 1918 to 2008, 14 colonies were created, corresponding to 4408 lots and 113,807 hectares ^{82 83 84}.

The urban area of the district of Concepción covers 16 neighborhoods and the rural area is made up of 16 companies ⁸⁵.

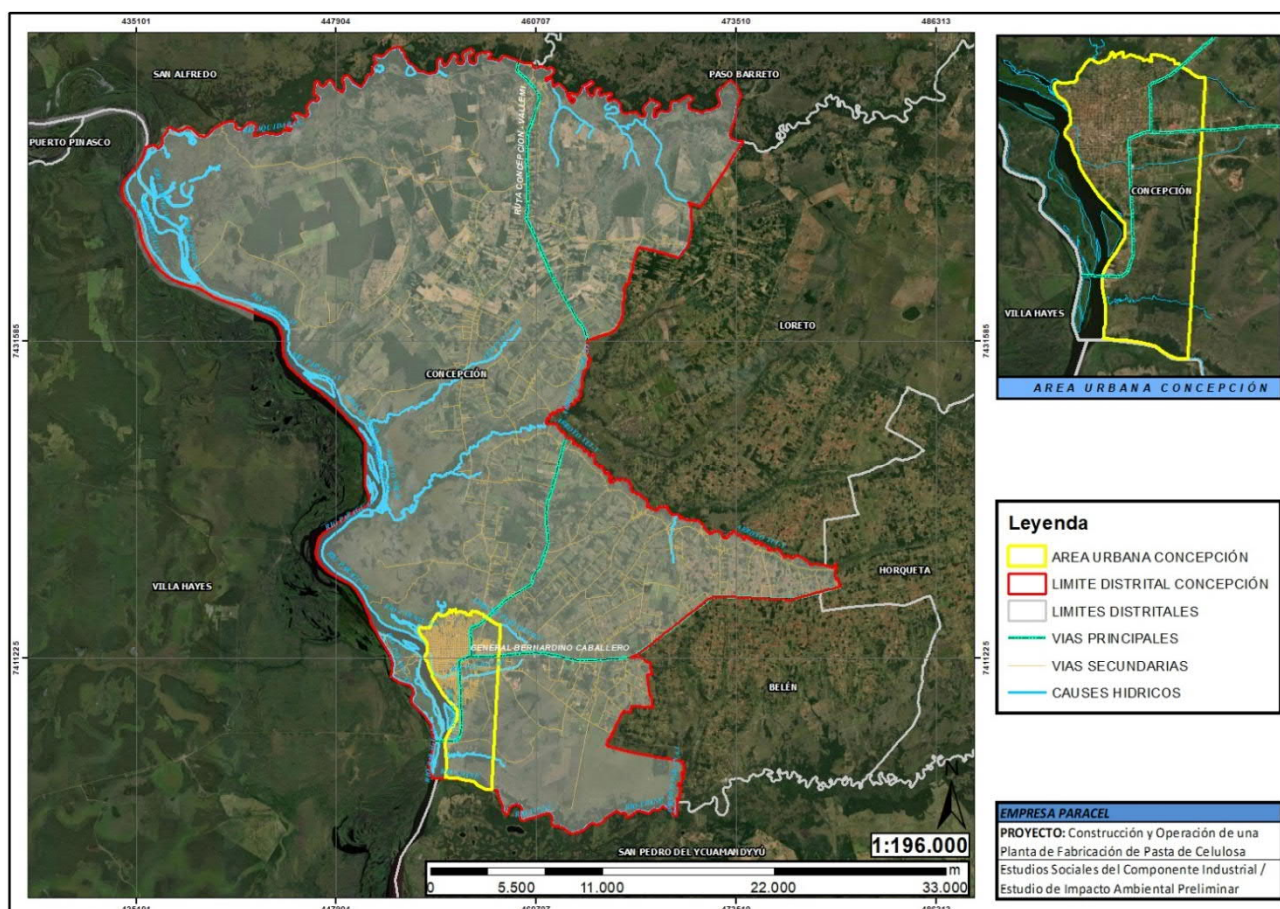


Figure 22 –Concepción district Map

Table 66 – Other information about the District of Concepción

Population	The population projection for 2019 is 85,876 inhabitants (43,306 males and 42,570 females) and for 2020 is 87,215 inhabitants (44,034 males and 43,181 females). Of these, 774 inhabitants belong to the indigenous population (407 men and 367 women), 393 in rural areas (206 men and 187 women) and 381 (407 men and 367 women) in urban areas (⁸⁶ and ⁸⁷).
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⁸² Road distance, by Route 9 Transchaco Carlos A. López - Pozo Colorado - Puente Nanawa Coronel Rafael Franco

⁸³ Concepción Local Health Plan, Department of Concepción 2014/2016. Available at: https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Concepcion.pdf

⁸⁴ Rojas, L. y Areco, A. (2017). Las Colonias Campesinas en el Paraguay.

⁸⁵ Local Health Plan, 2014

⁸⁶ DGECC. Dpto. Concepción. Estimated and forecasted population, by district, gender and age groups, 2000-2025. Available at: <https://www.dgeec.gov.py/vt/default.php?publicacion=2>

⁸⁷ DGECC. III National Census of Population and Housing for Indigenous Peoples, 2012 Available at:

Economic Activity	With regard to economic activity, the district is characterized by agricultural and livestock production, shops, public institution officials and industries. Among the main agricultural activities are the production of sugar cane, corn, sesame, pineapple and watermelon among others; among the livestock, cattle production in general and small livestock. Related to this last one, in the district there are important slaughtering plants, meat processing plants and leather shops ⁸⁸ . In addition, the port of Concepción, which is the main port of the city with the most commercial and people movement.
Tourism	In the city of Concepción, as part of the tourism, are located the Municipal Museum of the Cuartel de la Villa Real and the Diocesan and Historical Museum of Concepción, where there are still objects from the time of the Chaco War and the War of the Triple Alliance; the Locomotive that worked until 1960 ⁸⁹ and the Carlos Colombino House of Culture in Concepción ⁹⁰ where ancient objects are also preserved.
Media and transport	In the district there is access to fixed telephony and internet services provided by the Paraguayan Communications Company (COPACO), as well as mobile telephony and internet access by private companies, air channels and cable channels and AM and FM radios (community and commercial radios). There is no local public transport service, the means of transportation used are intercity or long-distance collective transports and as private means there are used motorbikes, cars and vans. In addition, the Port of Concepción and the Airport of Concepción "Tte. Colonel. Carmelo Peralta." are used. There is also the branch of the National Postal Directorate of Paraguay (DINACOPA) and private services such as MC Courier Agencia in Concepción, A.Y.A Correo Privado, J.F. Courier SRL.
Health	The health service is provided by the Ministry of Public Health and Social Welfare (MSPyBS) through the 1st Health Region of the country, there is the Regional Hospital Concepción, 14 Family Health Units (USF), 2 Community Dispensaries, 2 Health Posts, 1 Indigenous Mobile Unit and the Regional Hospital of the Institute of Social Forecasting (IPS). One can also provide private health service, like clinics, sanatoriums, offices, laboratories and pharmacies.
Education	According to the Municipal Development Plan of Concepción (2016), in the district there are enabled 60 educational institutions in the urban area and 50 in the rural area, corresponding to initial, basic, middle, public and private subsidized education. In terms of higher education, there is the National University of Concepción (UNC) with undergraduate and postgraduate degrees, and private ones, Universidad Católica Nuestra Señora de la Asunción (UC), the Polytechnic and Artistic University of Paraguay (UPAP), UniNorte Comunitaria de Concepción and the Universidad Tecnológico Intercontinental (UTIC).
Drinking Water and Energy	The drinking water service is provided by the Empresa de Servicios Sanitarios del Paraguay S.A. (ESSAP) and the Sanitation Boards, the electric power the National Electricity Administration (ANDE).
Drainage system	In the urban area, modern baths with wells or septic chambers predominate, but there is no sewage system or drainage network and latrines predominate in rural areas.
Garbage collection/ disposal/ treatment	In the urban area of the district, the garbage collection service is run by the municipality, not all neighborhoods have coverage and there is a municipal landfill. Health institutions have a system of collection and treatment of pathological waste, however, in the rural area, because they do not have garbage collection service or municipal landfill, the way to dispose of the garbage is by burning or burying.

<https://www.dgeec.gov.py/default.php?publicacion=33>

⁸⁸ Concepción Local Health Plan, Department of Concepción 2014/2016.

⁸⁹ Concepción Local Health Plan, Department of Concepción 2014/2016.

⁹⁰ SNC. Available at: <http://www.cultura.gov.py/2014/05/se-inauguro-la-casa-de-la-cultura-carlos-colombino-de-concepcion/>

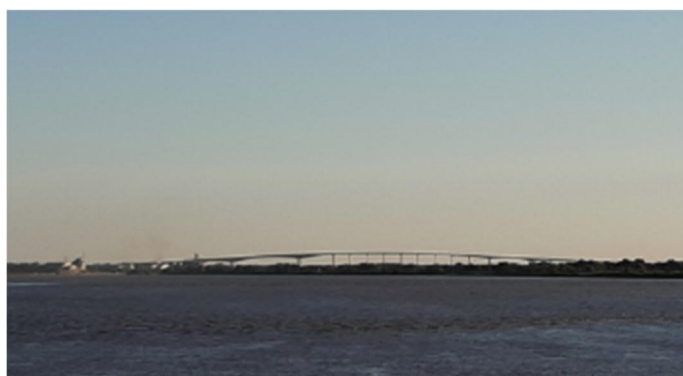


Figure 23 – Bridge “Nanawa”, on the Paraguay River, city of Concepción

9.3.4.2.5 Mapping, characterization and analysis of microterritories

9.3.4.2.5.1 Identification and presentation of microterritories

This section presents, as referred to in item 9.3.2.3: Description of the areas of influence, information related to the communities identified within an approximate 5 km radius around the area prospected for the construction of the plant.

It should be noted that taking into account the access roads located on the Vallemí-Concepción paved route, the peculiarity of the territory and the interconnections through the existing communication routes, it was considered pertinent to make a description of the microterritories that are within a 13 km radius around the project's property area, thus extending the 5 km cut initially defined.

Regarding this, the experience provided by field work during the information survey period allows the incorporation of some analysis categories to refer to aspects in terms of territory. The characteristics indicated here were gathered through community interviews and focus groups as part of the information gathering strategy. The data is built from the contribution of key actors in the area such as: representatives of neighborhood committees, productive committees, water, health and education committees, grassroots representatives of churches, young people and former residents of the area; in order to contribute elements from different representative groups of the population.

It should be noted that in view of the lack of systematized information regarding the boundaries and names of the communities located in rural areas of the district of Concepción, the territory was organized from the perspective of local actors.

It is pertinent to emphasize that the division presented in this section is an approximation based on the stories, the rescued perception and the observation records elaborated; covering aspects related to identity, cohesion, organization, common interests, communication channels, institutions, ways of life and other elements of significance for the inhabitants of the area.

In order to better visualize the system of relationships and the degree of interdependence, it was appropriate to subdivide the study zone into two micro-regions, based on the area of coverage assigned to the health units and the degree of proximity to the localities.

In this regard, it should be noted that the Family Health Units are formed under the assignment of a territory of responsibility; composed of "social micro-territories" (communities) in order to provide health coverage to a given population.

In accordance with the previous paragraph, the name of microterritories is acquired in order to name all those communities identified from the existing communication channels. Considering, those that are used to interconnect the communities and, on the other hand, those roads that lead to the prospected property area. The distribution of communities by micro-region determined for the purposes of this study is shown below.

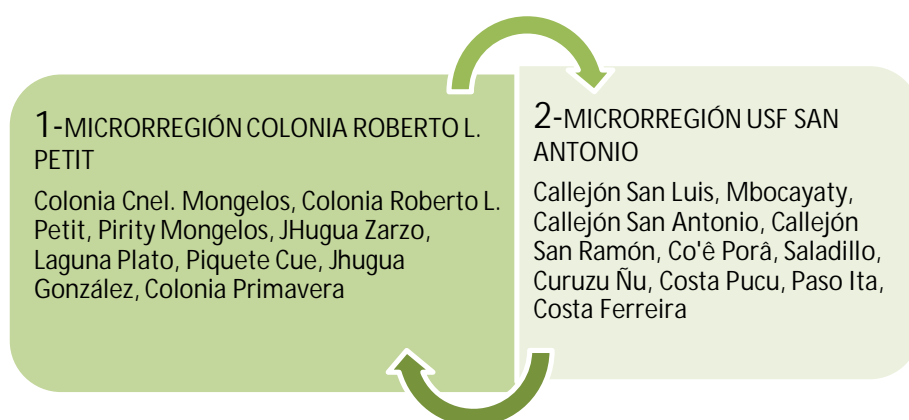


Figure 24 – System of relations and the degree of interdependence

The micro-regions cover an estimated total of 56,114 hectares. The community of Mbocayaty is the smallest and Laguna Plato the largest, according to data from the General Directorate of Surveys, Statistics and Censuses of 2012 referred to in the following figure.

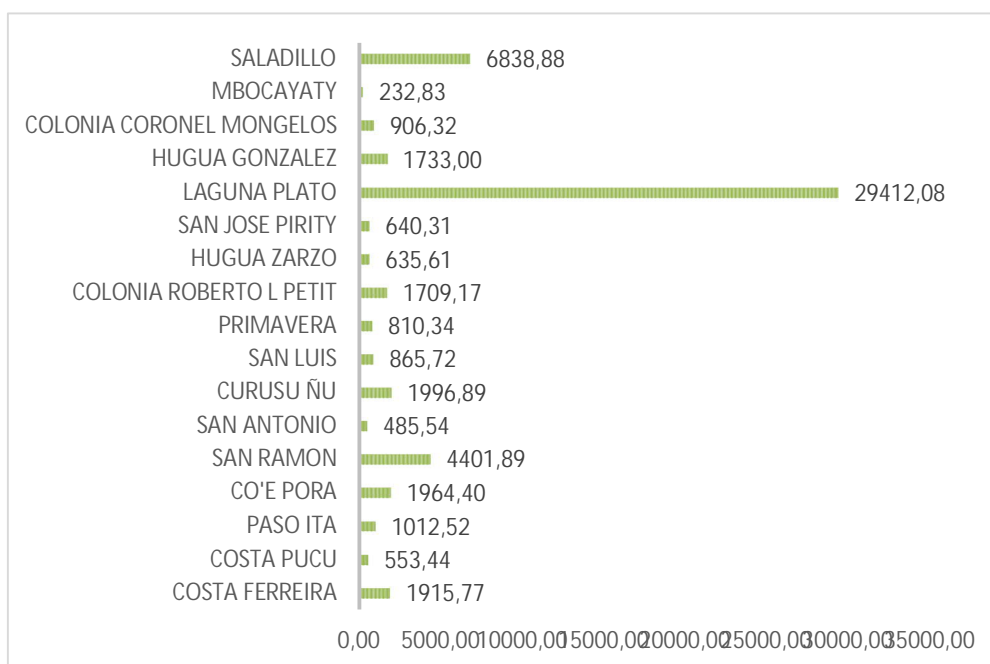


Figure 25 – Chart of dimensions in hectares of the microterritories of Concepción

Source: Elaborated from data of the General Directorate of Statistical Surveys and Census; year 2012.

In addition to the spatial dimensions, in terms of local capacities and available conditions, the following aspects were observed at the social and cultural level:

The presence of public institutions such as educational, health or security institutions are established by intervention zones. In other words, they are used by inhabitants of several micro-territories. In this sense, it is worth highlighting the following:

- These are the communities of Col. Roberto L. Petit, Callejón San Antonio and Jhugua González where the units that provide primary health care to a total of 4618 inhabitants are concentrated; except for the microterritories of Colonia Primavera and Costa Ferreira that belong to other health facilities.
- Although 83% of the microterritories have public schools, schools were only registered in the towns of Saladillo, Col. Cnel. Mongelós, Curuzu Ñu and Colonia Primavera.
- In terms of security, there is a police station in Colonia Roberto L. Petit and a police post in Laguna Plato

The internal roads are networks that link and interconnect the microterritories, make possible the exchange of products and access to the communities where the service institutions in health, security and education are concentrated. In addition, they provide links to paved roads and city centers.

In this sense, Saladillo and Costa Ferreira are the main communication routes used by the inhabitants of the area.

Organization and participation are aspects that give cohesion to the territory. It could be observed that all the communities have local commissions constituted and recognized. In addition, each micro territory has commissions that are activated

according to specific needs by defined area of action (water, health, education, roads and others) in order to improve the quality of life of the inhabitants.

Cases were also recorded where the productive committees of each community were linked or grouped into Associations, which in turn brought together committees from different localities, demonstrating a high level of exchange and participation.

Spaces for expression and social interaction based on recreational activities, sports meetings and celebrations of a festive, cultural and/or religious nature organized by the micro-territory where inhabitants from neighboring communities also participate.

These elements show that at the moment of naming the territory there are aspects, perceptions and behaviors that give the microterritories identified as part of a symbolic unit; evidencing the dynamism and integration of the area in multiple dimensions of daily life.

9.3.4.2.5.2 Characterization of each identified micro territory

Figure 28 shows the registration of 18 microterritories that are structured in this document according to areas of influence of the study. In addition, as a strategy for approaching the territory, the roads that interconnect the communities and lead to the prospected property area are referenced.

The microterritories are described from the observed spatial characteristics, the relations and interconnections established in the social and geographical environment and the perception of the key informants; providing qualities that confer a collective identity of population that can be visualized in more detail in the following paragraphs.

The information presented in this section is based on field records prepared from community interviews conducted with key references in the area, within the framework of the project's socio-economic characterization of the DIA.

It should be noted that the territory has the peculiarity of being a rural area, and in its entirety depends on the municipality of Concepción.

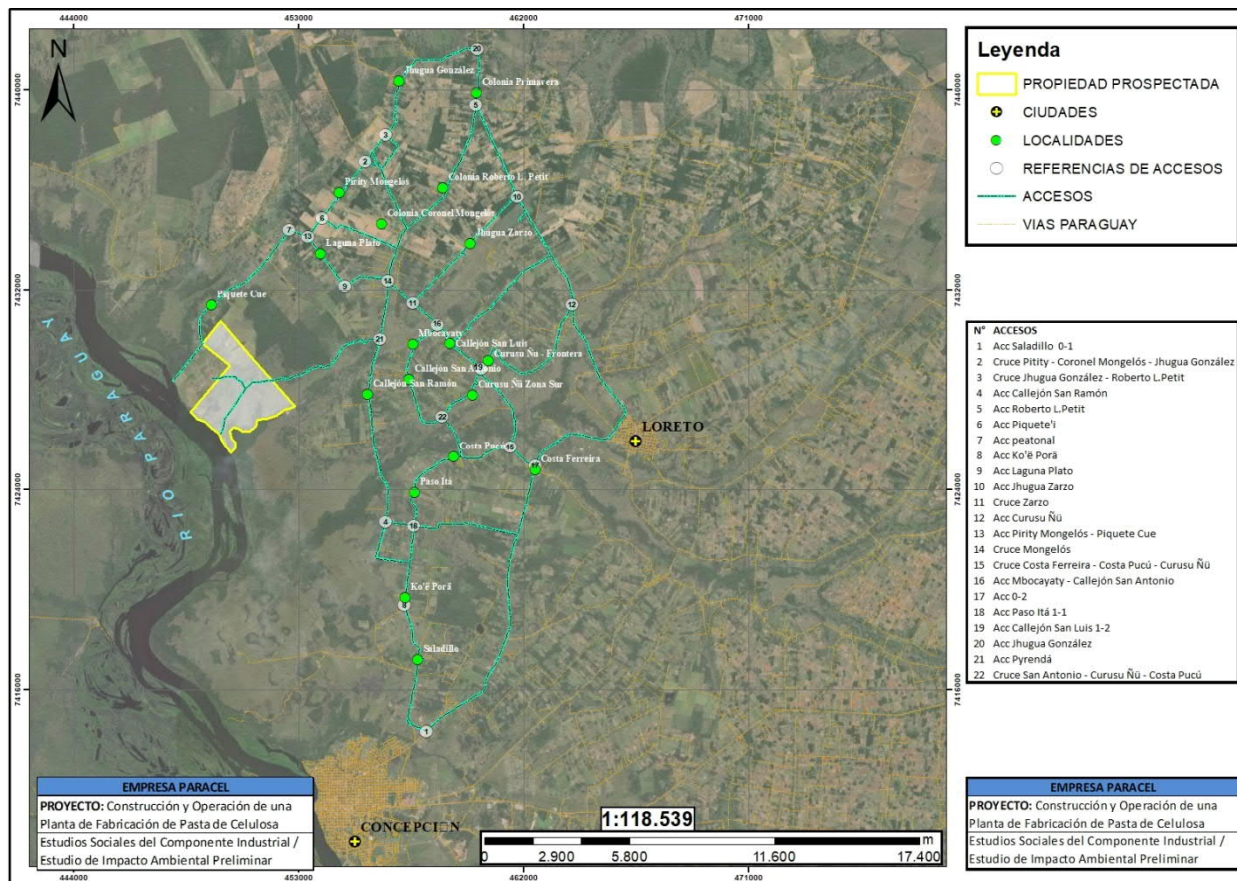



Figure 26 – Microterritories identified




The following table records information related to the mapped microterritories; which are expressed below according to the volume of data obtained by community in relation to:


- Year of establishment
- Approximate distance from the pulp mill (straight line distance),
- Approximate distance from the departmental capital (distance measured by route),
- Bordering microterritories,
- Access roads,
- Specificities and,
- Major holidays.

Table 67 – Summary description of identified microterritories

Microterritories	Description
 <p>Colonia Roberto L. Petit- Approximate distance from the pulp mill: 6, 81 km.</p>	<p>Approximate distance from Concepción: about 23 km from the departmental capital</p> <p>Bordering microterritories: Colonia Cnel. Mongelós, Mongelós Purity, Jhugua González, Jhugua Zarzo.</p> <p>Most used access roads to the community: From Concepción, through Saladillo, passing by San Ramón and an intersection known by the inhabitants as Mongelós crossing (Piquete Cue access).</p> <p>From Loreto, through Costa Ferreira, passing through Curuzu Ñu and Callejón San Luis.</p> <p>Used less frequently:</p> <p>Vallemí - Concepción paved route, Jhugua González access.</p> <p>Paved route Vallemí - Concepción, access Jhugua Zarzo.</p> <p>Particularities: This micro territory fulfills a function of focus or center for communities of the zone, since in this one they concentrate institutions of health, security and education and a horse race where they make races of horses.</p> <p>In addition, due to its location it is used as a meeting point for different community organizations.</p> <p>The construction of the USF is scheduled to be completed in 2021. Temporary attention is given to the ACPN premises located in the adjacent community of Colonia Cnel.</p> <p>Main celebration: Christ the King, celebrated on the third Sunday of November.</p>
 <p>Colonia Cnel. Mongelos Approximate distance from the industrial plant: 6,67km.</p>	<p>Year of establishment: It was established in 1921.</p> <p>Approximate distance from Concepción: It is located about 21km from the departmental capital.</p> <p>Bordering microterritories: Roberto L. Petit Colony, Purity Mongelós, Laguna Plato.</p> <p>Most used access roads to the community: The community of Colonia Coronel Mongelós is connected through local roads (all weather), being the most used accesses, the same ones indicated in the description of the community of Colonia Roberto L. Petit.</p> <p>Particularities: A street divides the towns of Colonia Cnel. Mongelós and Colonia Roberto L. Petit. The School and the College are located 500 meters from the 18th Police Station of the neighboring town.</p> <p>At organizational level they are adhered in favor of the request of distraction of Paso Horqueta; the same as other residents of neighboring communities.</p> <p>Main celebration: The 24th of September is celebrated the day of the Virgen de las Mercedes; Patron Saint of the community.</p>
 <p>Purity Mongelós Distancia aproximada con relación a la planta: 4,54 km</p>	<p>Approximate distance from Concepción: It is located approximately 25 km north of the capital of the department.</p> <p>Bordering microterritories: The adjacent communities are Colonia Cnel. Mongelós, Colonia Roberto L. Petit and Jhugua González.</p> <p>Most used access roads to the community: Mongelós Crossing, which joins the road from Callejón San Ramón to Saladillo (from Concepción), passing by Laguna Plato; and the Intersection between Colonia. Roberto L. Petit and Jhugua González.</p> <p>Special features: It is called Purity because there is a water pirizal in the area. About 45 families live there. The community has a school, which is attended by children from the area and neighboring communities such as Laguna Plato and Piquete Cue.</p> <p>Main celebration: San José, March 19th.</p>

Microterritories	Description
 <p>Jhugua Zarzo Approximate distance from the plant: 7,56km.</p>	<p>Approximate distance from Concepción: 23 km from the departmental capital Bordering microterritories: Roberto L. Petit Colony, Colonia Cnel. Mongelós, Callejón San Luis. Year of establishment: In 1950 the first six inhabitants settled in the area; it was recognized as a community in 1988. Most used access roads to the community: It can be accessed through the Vallemí-Concepción paved road; using the Callejón San Ramón local road, connecting with Saladillo from Concepción. Another alternative is to enter the town of Costa Ferreira, passing through the community of Curuzu Ñu and Callejón San Luis, until the intersection known as Zarzo crossing. Particularities: Approximately 25 houses and 50 families are registered. The area has a school until the 6th grade. Most of them continue their studies in the school of Cnel. Mongelós. Main celebration: Sagrada Familia, celebrated on the last Sunday of December. There are bullfights, lottery games, Mass, Baptism, First Communion, and a party.</p>
 <p>Laguna Plato Approximate distance from the plant: 3,43km.</p>	<p>Approximate distance from Concepción: It is located 22 km north of the urban area of the city of Concepción. Year of formation: It was formed approximately 100 years ago, as was the neighboring community of Piquete Cue. Bordering microterritories: Piquete Cue, Pirity Mongelós. Most used access routes to the community: One of the routes to access the area is through the Mongelós intersection that joins the road to the town of Callejón San Ramón with Saladillo (from Concepción); or through the intersection of Colonia Roberto L. Petit and Jhugua González, passing through Pirity Mongelós. Special features: Through the Pro-Health Commission, the creation of a Health Post was requested, and construction work is expected to begin in the course of 2020. Main celebration: December 8th Virgen de Caacupé.</p>
 <p>Colonia Primavera Approximate distance from the plant: 12,46km.</p>	<p>Approximate distance from Concepción: 28km from the departmental capital. Bordering microterritories: Jhugua González, Colonia Roberto L. Petit. This micro territory is located in the district of Concepción, approximately 14 km from the city of Loreto. Most used access roads to the community: it can access the community by the Vallemí - Concepción route or by entering the side of the 18th Police Station in Colonia Roberto L. Petit. Special features: In the area there is an average of 80 houses and a total of 250 people. They have educational institutions and receive medical attention in Paso Horqueta. Main celebration: San Miguel, September 29th.</p>
	<p>Approximate distance from Concepción: about 25 km from the departmental capital. Bordering microterritories: Mbocayaty, Curuzu Ñu, Jhugua Zarzo. Most used access roads to the community: From Loreto, by Costa Ferreira access, passing the Costa Pucu and Curuzu Ñu crossing. From Concepción, by access to Saladillo, passing by Co'ê Porâ crossing located in Callejón San Ramón - Paso Itá, Costa Pucu and Curuzu Ñu. From Concepción, by access to Saladillo, passing through Co'ê Porâ, San Ramón, the intersection known as Mongelós crossing (access to Piquete Cue), Colonia Roberto L. Petit and Jhugua Zarzo crossing. Special features: In the area there are approximately 60 houses. It has the</p>

Microterritories	Description
Callejón San Luis Approximate distance from the plant: 6,65km.	<p>peculiarity of gathering periodically the inhabitants of Tres Cerros, San Alfredo, Paso Barreto, Loreto, Mbocayaty, Jhugua Po'i, Concepción, Piquete Cue, Callejón San Ramón, Callejón San Antonio, Callejón San Luis, Laguna Plato, Potrerito and others; because they have a club of Lazo where meetings with groups of Laceros take place.</p> <p>At present, work is being done on the construction of a concrete bridge that will facilitate the connection with the Vallemi- Concepción route. This route is mostly used by residents of the communities of Callejón San Luis, Jhugua Zarzo, Colonia Roberto L. Petit, Colonia Coronel Mongelós, Pirity Mongelós and Jhugua González.</p> <p>Main celebration: On June 21st, the day of San Luis González is celebrated</p>
	<p>Approximate distance from Concepción: 28 km from the departmental city.</p> <p>Bordering microterritories: The adjacent communities are Colonia Roberto L. Petit, Pirity Mongelós and Colonia Primavera</p> <p>Most used roads: The main access to the community is the Vallemí - Concepción paved road. it can also be used the local road from Colonia Roberto L. Petit and Colonia Coronel Mongelós, which connects with Saladillo from Concepción.</p>
Jhugua González Approximate distance from the plant: 9,61km.	<p>Particularities: It is located approximately 5 km from the paved Vallemí-Concepción route.</p> <p>The area has a health post that offers health coverage to 134 families of the place.</p> <p>Main celebration: The 15th of November is the day of San Roque González de Santa Cruz.</p>
	<p>Approximate distance from Concepción: it is approximately 19 km from the city of Concepción.</p> <p>Bordering microterritories: Callejón San Antonio, Callejón San Luis, Callejón San Ramón.</p> <p>Year of formation: The first inhabitants populated the place more than 50 years ago.</p> <p>Bordering microterritories: Callejón San Antonio and Callejón San Luis, Curuzu Ñu.</p>
Mbocayaty Approximate distance from the plant: 6,10km.	<p>Most used communication routes: From Costa Ferreira, passing through Curuzu Ñü, on the way to Callejón San Luis.</p> <p>By the road of Callejón San Ramón that connects with the access Saladillo, from Concepción.</p> <p>Special features: It is located in the center of the neighboring communities of Callejón San Antonio and Callejón San Luis. Formerly there was a ranch belonging to Florinda Peña that was named Mbocayaty and served as a reference to get to the place. As time went by, it became part of the identity of the area, officially acquiring that name.</p> <p>At present, a total of 20 houses and 21 families are registered. In addition, there is a communal field with 68 hectares of extension that are used for cattle raising; and a total of 44 associates.</p>
	<p>Approximate distance from Concepción: 15 km from the city of Concepción.</p> <p>Bordering microterritories: Mbocayaty, Curuzu Ñu, Callejón San Ramón, Costa Pucu.</p> <p>Year of establishment: approximately 51 years ago.</p> <p>Most used communication routes: To enter the community from Loreto, by Costa Ferreira access, passing the Costa Pucu and Curuzu Ñü crossing.</p> <p>From Concepción, by access to Saladillo, passing by Co'ê Porã, San Ramón -</p>

Microterritories	Description
Callejón San Antonio Approximate distance from the plant: 4,76km.	<p>Paso Itá crossing, Costa Pucú and Curuzu Ñu.</p> <p>From Concepción, by access to Saladillo, passing through Co'ê Porâ, Callejón San Ramón, Mongelós crossing, Colonia Roberto L. Petit, Jhugua Zarzo crossing and Callejón San Luis.</p> <p>Special features: In the community there are a total of 52 families and 242 people. The micro territory is composed by an estimated total of 245 people. It is named Callejón San Antonio in honor of San Antonio de Padua. It has a USF that provides care to a total of 9 communities. They have a sub council of Health integrated by 3 representatives of each micro territory.</p> <p>Main celebration: June 13 is celebrated the day of San Antonio de Padua. The activities for that day consist of: procession, mass, sports activities, artistic festival and a dance party.</p>
 Paso Ita Approximate distance from the plant: 6km.	<p>Approximate distance from Concepción: about 10 km from the city of Concepción</p> <p>Borderline microterritórios: Costa Pucu, Co'ê Porâ, Costa Ferreira, Curuzu Ñu</p> <p>Most used routes of communication: From Concepción, entering through the community of Saladillo, passing through Ko'ê Porâ and the detour that connects with the community of Callejón San Ramón.</p> <p>-From Loreto, through Costa Ferreira access, passing the Curuzu Ñu crossing and the Costa Pucu community.</p> <p>Particulars: It is located in the center of the localities of Co'ê Porâ and Costa Pucu; and to 5km of USF of Callejón San Antonio. In the area there are approximately 60 families.</p> <p>Main celebration: Virgen de los Dolores, September 15th.</p>
 Costa Pucu Approximate distance from the plant: 6,67 km.	<p>Approximate distance from Concepción: It is located about 13 km from the city of Concepción.</p> <p>Bordering microterritories: The closest communities are Paso Itá, Callejón San Antonio, Curuzu Ñu and Costa Ferreira.</p> <p>Particularities: There are about 56 houses and an average of 200 people in the area.</p> <p>Most used communication routes: they are the same as those mentioned in the description of Paso Ita.</p> <p>Main celebration: Its inhabitants meet every 6th of May to commemorate the day of the Patron Saint Domingo Sabio.</p>
 Costa Ferreira Approximate distance from the plant: 9,86km.	<p>Approximate distance from Concepción: It depends institutionally on the municipality of Concepción and is located about 12 km from the capital of the department.</p> <p>Borderline microterritories: Curuzu Ñu, Costa Pucu.</p> <p>Most used roads: The community of Costa Ferreira is located on a paved road that links Concepción with Vallemí.</p> <p>The Access 0.2 is located in the community of Costa Ferreira.</p> <p>Particularities: Formerly known as Ferreira Cue. The first settlers settled in the area more than 100 years ago.</p> <p>It is a zone that counts on spas among them one of the most recognized, the Spas Paso Itá, with presence in the zone for more than 20 years.</p> <p>Main celebration: Santa Teresita, is celebrated on October 1st, there is a novena and a festival to celebrate.</p>

Microterritories	Description
 <p>Curuzu Ñu Approximate distance from the plant: 7,78km.</p>	<p>Approximate distance from Concepción: About 15 km from the city of Concepción.</p> <p>Bordering microterritories: It borders the microterritories of Costa Pucu, Callejón San Antonio, Mbocayaty and Callejón San Luis.</p> <p>Most used communication routes: From Loreto, through Costa Ferreira access, passing the Costa Pucu crossing.</p> <p>From Concepción, entering through the community of Saladillo, passing through Co'ê Porâ, Paso Itá and Costa Pucu.</p> <p>Particularities: It is divided in South and North zone; the second one is better known as Curuzu Ñu border. Both integrate a single water commission and there is a system that supplies both zones</p> <p>In the Southern Zone there is a communal field that has 660 ha for livestock and agriculture.</p> <p>Main celebration: San Pedro and San Pablo, June 29.</p>
 <p>Callejón San Ramón Approximate distance from the plant: 2,99km.</p>	<p>Approximate distance from Concepción: The micro territory is about 13 km from the capital of the department.</p> <p>Bordering microterritories: It borders the communities of Co'ê Porâ, Paso Ita and Callejón San Antonio.</p> <p>Most used communication routes: From Concepción through the community of Saladillo, passing through Co'ê Porâ; from Loreto through the community of Costa Ferreira, passing through Curuzu Ñu, Callejón San Luis, Cruce Jhugua Zarzo and the intersection known as Mongelós crossing; or through Costa Ferreira, passing through Costa Pucu, Paso Ita and San Ramón crossing.</p> <p>Special features: There are approximately 40 houses in the area. The school in the area has a schooling level up to the second cycle of basic schooling.</p> <p>Main celebration: The 31st of August the Patron Saint's festivity is celebrated in honor of San Ramón.</p>
 <p>Co'ê Porâ Approximate distance from the plant: 7,16km.</p>	<p>Approximate distance from Concepción: The community is about 6 km from the city of Concepción.</p> <p>Bordering microterritories: It borders the microterritories of Saladillo, Callejón San Ramón and Paso Ita.</p> <p>Most used communication routes: This micro territory is connected through local roads (all weather), being the most frequent</p> <p>From Concepción, by Saladillo.</p> <p>From Loreto, through Costa Ferreira, passing through Costa Pucu and Paso Ita.</p> <p>Special features: In the area there are approximately 150 families.</p> <p>Main celebration: Sacred Heart of Jesus; it is celebrated on the third Sunday of June.</p>
 <p>Saladillo Distancia aproximada con relación a la planta: 10,93km</p>	<p>Approximate distance from Concepción: it is located about 2 km from the departmental capital.</p> <p>Bordering microterritories: Co'ê Porâ</p> <p>Most used communication routes: it can allow to enter the community through two main routes: From Concepción by the paved route Concepción-Vallemí. From Loreto, using the access to Costa Ferreira, passing through Costa Pucu, Paso Ita and Co'ê Porâ.</p> <p>Particularities: It is called Saladillo because of the type of land; which has similar characteristics to the Paraguayan Chaco. It is one of the main routes used by the inhabitants of the area because it is less than 1 km from the route that connects Vallemí with Concepción.</p> <p>In the area there are approximately 90 houses with an average of 400 people in total.</p> <p>The community has a school, a college belonging to the Congregation of the Blue Sisters, a Recreational Center with swimming pools and a field used for</p>

Microterritories	Description
	soccer tournaments for women and men. People of all ages and from different communities participate in this activity in order to encourage their teams or to share with friends and neighbors. Main celebration: San José 19 of March.

1. Source: Elaboration based on data obtained from interviews with key actors in the microterritories.

Register of identified institutions and reference sites

This section intends to graphically demonstrate the institutions and sites of interest identified by each micro territory. In the study area, educational institutions, spas, water systems, cemeteries, police stations, churches and some open spaces such as squares and sports sites were observed.





The spas are places frequented by local residents and other cities as a space for recreation and leisure; some charge a minimum admission fee so that visitors can make use of the facilities.




In the area of Saladillo, the 20 de October field is used for football tournaments for both men and women. It is frequented by neighbors and residents of the surrounding areas.

In the area there are almost no squares; only San Pedro Square, located in the Curuzu Ñu area, was registered. It is mainly used by local people.

Next, a photographic registry of the identified sites is exposed.

Table 68 – Register of recreational spaces

Photograph registers	Recreational spaces	Micro territory
	Balneario Sin Colales	Callejón San Ramón
	Balneario Vy'a Renda	Callejón San Ramón
	Balneario la Familia	Costa Pucu
	Balneario Ita	Costa Ferreira

	Recreative Centre San José	Saladillo
	Cancha 20 de October (pool)	Saladillo
	Plaza San Pedro	Curuzu Ñu

In the area, some cemeteries were identified that, although they are located in a defined micro-territory, are generally spaces shared among the communities. Cemeteries were recorded in the microterritories of Co'ê Porâ, Callejón San Ramón, Callejón San Antonio and Jhugua González. Reference photographs are shown below.



Cementerio Curuzu Ñu



Cementerio Co'ê Porâ



Comisaria-Colonia Roberto L. Petit



Puesto Policial Laguna Plato

Figure 27 – Reference photographs

In terms of surveillance, there is a police post in Laguna Plato and a police station located in Colonia Roberto L. Petit with an area of intervention for the communities of Colonia Cnel. Mongelós, Purity Mongelós, Jhugua González, Laguna Plato, Piquete cue, Mbocayaty, Callejón San Ramón, Callejón San Luis, Callejón San Antonio, Jhugua Zarzo, Col.

Below, it is possible to visualize the geographical location of the sites of interest such as recreational spaces, water systems, educational and health units, churches and cemeteries.

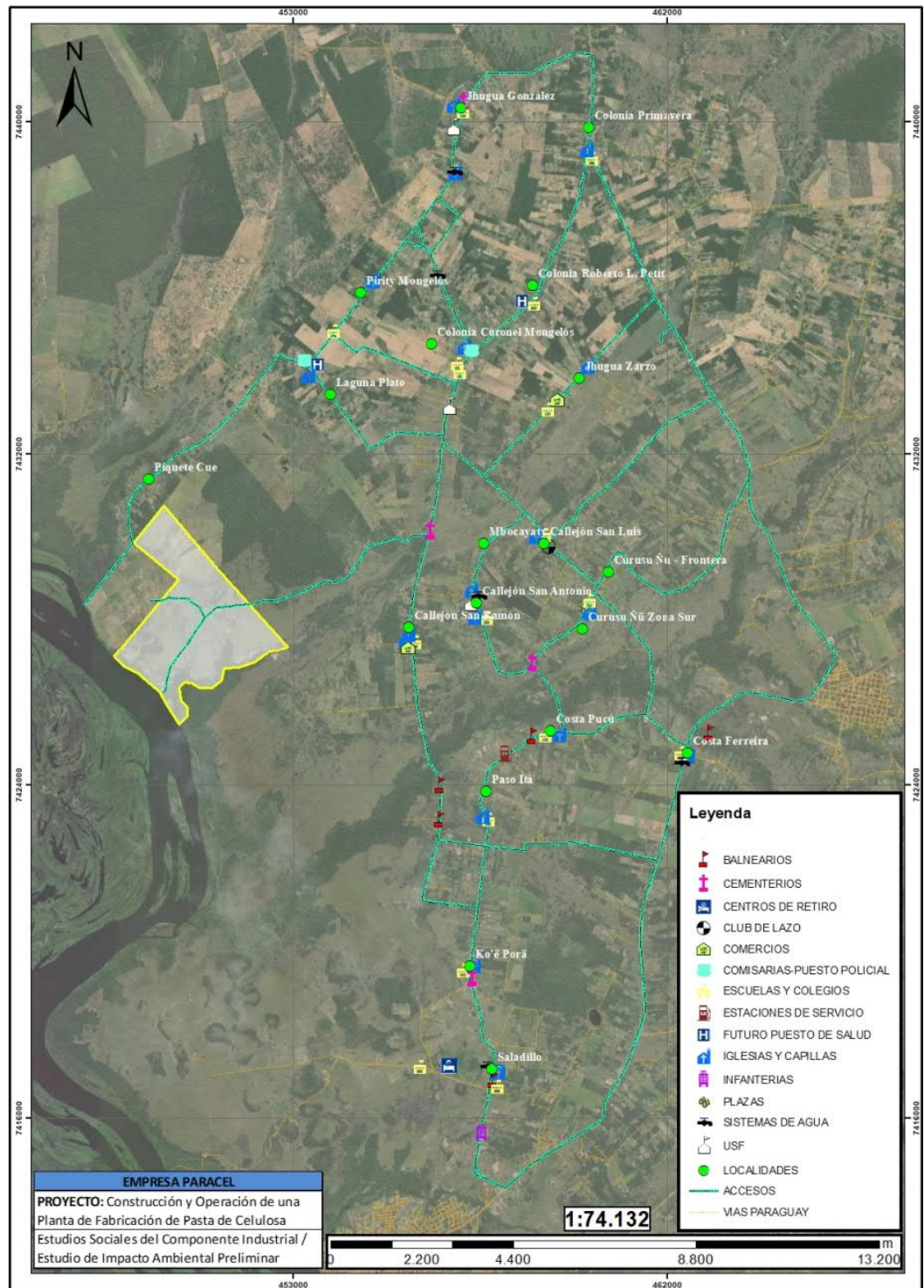


Figure 28 – Geographic location of institutions and sites of interest

9.3.4.2.5.3 Presentation of results generated from the field survey process

Population Density

According to projection data for the period 2020, the population of the district of Concepción is 87,215 inhabitants.

Based on the information obtained during the fieldwork carried out by the external consultant Lic. Caren Kremer and team, it became evident that in the microterritories there is a total of 4,866 inhabitants; corresponding to 5.58% of the estimated population according to the forecasted evolution.

Table 69 – Total population of microterritories in the district of Concepción

Micro region	Micro territories	Number of women	Number of men	Total General
1	Colonia Roberto L. Petit, Colonia Cnel. Mongelós, Pirity Mongelós, Jhugua Zarzo, Laguna Plato, Piquete Cue,	734	900	1.634 ⁹¹
	Jhugua González,	244	288	532 ⁹²
	Colonia Primavera	-	-	250 ⁹³
2	Callejón San Luis, Mbocayaty, Callejón San Ramón, Callejón San Antonio, Curuzu Ñu, Costa Pucu, Paso Ita, Co'ê Porâ y Saladillo			2.450 ⁹⁴
	Costa Ferreira	-	-	120
Obs. In addition, disaggregated data by gender were obtained for eight communities. Two of the three health units provided official data in greater detail. The table presenting general data is based on the perception of key respondents.				4.866

Source: Elaboration based on data obtained from interviews with key actors in the micro territories.

Homes and Lodgings

According to data provided by the key references of the health micro-regions and inhabitants of the micro-territories, there is a total of 661 dwellings in micro-region 1 which includes the micro-territories of Colonia Roberto L. Petit, Colonia Cnel. Mongelós, Pirity Mongelós, Jhugua Zarzo, Laguna Plato, Piquete Cue, Jhugua González and Colonia Primavera.

In the microterritories that form part of micro-region 1, no official data were obtained during the interview with the health reference in the area with greater detail by microterritories. Therefore, approximate data are presented based on the data provided by some inhabitants. Being the total 356 dwellings without data of the microterritories of Callejón San Antonio, Curuzu Ñu, Co'ê Porâ.

⁹¹ Entrevista referente Unidad de Salud de Colonia Roberto L. Petit. Fecha 17.01.2020

⁹² Entrevista referente Puesto de Salud Jhugua Gonzalez. Fecha 20.01.2020

⁹³ Entrevista referente Comisión Vecinal Colonia Primavera. Fecha: 20.01.2020

⁹⁴ Entrevista referente de Unidad de Salud Callejón San Antonio. Fecha 21.01.2020

Table 70 – Number of lodgings 2

Micro territories	Housing (Lodgings)
Callejón San Luis	60
Mbocayaty	20
Callejón San Ramón	40
Callejón San Antonio	-
Curuzu Ñu	-
Costa Pucu	56
Paso Ita	60
Co'ê Porâ	-
Saladillo	90
Costa Ferreira	30
Total	356

Source: Elaboration based on data obtained from interviews with key actors in the micro territories.

Services

Water system

Most DIA interviewees mentioned that all micro territories have a water system from the local sanitation board, as already mentioned in the characterization of the project's IIA. Many times the communities are left without water due to permanent power cuts in the area; without it, the motor cannot be started. To alleviate or prevent these shortages, cases were observed such as those of the USF in Callejón San Antonio, which has its own water reservoir (tank) that is used when there is a shortage; but it is supplied from the same community water source. There are only 2 villages that have a well⁹⁵. Others, such as the communities of San Luis, must travel to neighboring communities; or have water tanks; but this does not apply in all cases.

Waste treatment

In terms of final waste disposal, the description of the department of Concepción mentions that the majority of the population resorts to burning because they do not have waste collection services.

It could be observed that this statement is applicable to the microterritories of the project's DIA. In the following table it can be seen that 59% refer to the final treatment consisting of burning, 38% bury and on a smaller scale corresponding to 3% mention that they deposit their waste on the farm (this system is applied to organic waste).

⁹⁵ Entrevista referente de Salud. Fecha 21.01.2020

Table 71 – Treatment of Solid Waste

Micro territories	Incineration	Bury (digging)	Pull on the field
Callejón San Ramón	3	1	-
Callejón San Luis	2	1	-
Callejón San Antonio	1	1	-
Colonia Primavera	-	1	1
Costa Pucu	3	1	-
Jhugua González	1	1	-
Jhugua Zarzo	2	2	-
Co'ê Porâ	4	1	-
Curuzu Ñu	3	1	1
Laguna Plato	4	4	-
Mbocayaty	2	1	-
Pitity Mongelós	1	-	-
Colonia Cnel. Mongelós	-	1	-
Paso Ita	1	-	-
Colonia Roberto L. Petit	6	4	-
Saladillo	4	3	-
Costa Ferreira	1	1	-
Total	38	24	2

Source: Elaboration based on data obtained from interviews with key actors in the micro territories.

Also, vacant lots were identified near the city's urban radius that are used as garbage dumps in the absence of collection services in the area.



Figure 29 – Photograph taken in the micro territory: Saladillo on waste disposal

Sanitary landfill and rainwater drainage/sewerage system

There is no sanitary and/or rainwater sewerage for the disposal of sewage or waste; and a high percentage of households have latrines. This can be contrasted with the characterization of the IIA for the Department of Concepción and the results of the micro-territory interview processing in the IDA. In this sense, it can be observed that 43 percent refer to the use of latrines, 43 percent to cesspits, and 14 percent have a cesspit and/or septic tank for the disposal of sewage in the households.

Table 72 – Sanitary landfill or drainage system

Micro territories	Septic tank	Septic Chamber	Toilet vase
Callejón San Ramón	3	1	2
Callejón San Luis	2	-	2
Callejón San Antonio	1	-	1
Colonia Primavera	1	-	
Costa Pucu	2	1	2
Jhugua González	1	-	1
Jhugua Zarzo	2	1	1
Co'ê Porâ	5	2	3
Curuzu Ñu	3	1	3
Laguna Plato	2	1	5
Mbocayaty	1	-	2
Pirity Mongelós		-	1
Colonia Cnel. Mongelós	1	-	1
Paso Itá	1	-	1
Colonia Roberto L. Petit	4	3	5
Saladillo	4	-	4
Total	34	11	34

Source: Elaboration based on data obtained from interviews with key actors in the microterritories.

Communication channels

Considering the survey carried out, the most used roads indicated by the inhabitants are Saladillo, Costa Ferreira and San Ramon.

In the territory, it is possible to travel on local roads with gravel type paving in the areas of Saladillo, Callejón San Ramón, Paso Ita, Costa Pucu, Curuzu Ñu. Others, like the communities of Colonia Roberto L. Petit, Colonia Cnel. Mongelós, Mongelós Pirity, Laguna Plato, Mbocayaty, Callejón San Antonio and Jhugua González have dirt roads. As reported by the people interviewed, many of these roads are in poor condition. This means that on many occasions, the communities are isolated, especially during the rainy season, because the access roads become inaccessible.

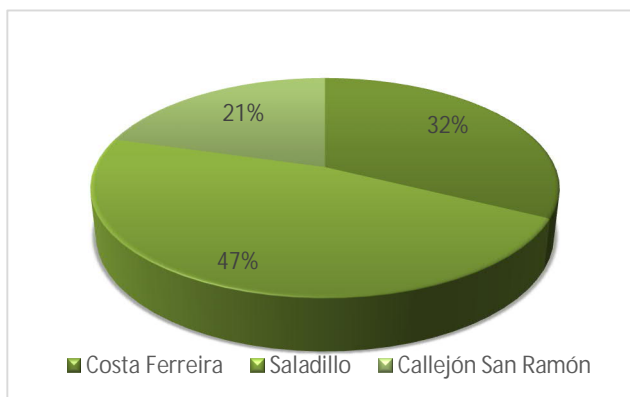


Figure 30 – Main Access roads

Source: Elaboration based on data obtained from interviews with key actors in the microterritories



Micro territory: Callejón San Ramón



Micro territory: Roberto L. Petit



Cruce Costa Pucu-Curuzu Ñu-Costa Ferreira



Micro territory: Callejón San Luis, desvío Mbocayaty

Figure 31 – Photographs of micro territories in the rainy season

Transportation

All of the interviewees stated that public transport has not been available in the area for approximately 15 years. This is due to the massive increase in the use of motorcycles to travel, which shows that it is the main means of transport used. The following is a reference photographic record at the district and micro territory levels of the DIA.



micro territory: Cruce San Ramón-Paso Ita



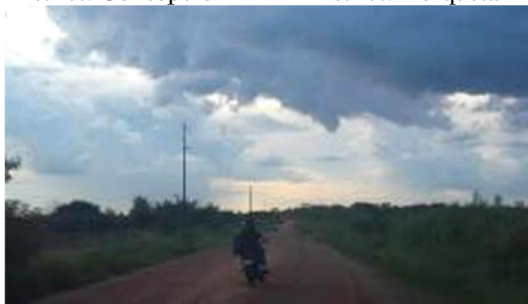
District: Concepción



District: Horqueta



District: Belén



micro territory: Saladillo

Figure 32 – Photographs of different places in the DIA

Use of technologies

As for the use of technologies, 53% said they have a cell phone, of which 47% have access to Internet connection, being the most used social networks Whatsapp and Facebook.

One of the problems identified by the inhabitants is the lack of signal in the area, which makes communication difficult. At the same time, they pointed out that it is necessary to install a network system to improve the service. The following table 73 is recorded by micro territory.

Table 73 – Use of technologies

Micro territories	Telephone	Internet	Whatsapp	Facebook
Callejón San Ramón	3	3	2	-
Callejón San Luis	2	1	2	1
Callejón San Antonio	1	1	1	1
Colonia Primavera	1	-	-	-
Costa Pucu	3	3	2	1

Micro territories	Telephone	Internet	Whatsapp	Facebook
Jhugua González	1	1	1	1
Jhugua Zarzo	1	1	1	1
Co'ê Porâ	5	5	4	4
Curuzu Ñu	3	2	2	2
Laguna Plato	4	3	5	4
Mbocayaty	2	1	2	2
Pirity Mongelós	1	1	1	1
Colonia Cnel. Mongelós	1	1	1	1
Paso Ita	1	1	1	1
Colonia Roberto L. Petit	5	5	3	2
Saladillo	4	4	4	4
Costa Ferreira	1	1	1	1
Total	39	34	33	26

Source: Elaboration based on data obtained from interviews with key actors in the micro territories.

Health services

In the area of study there are 3 health units that provide primary health care. They cover a total of 4516 inhabitants distributed in 16 micro territories.

The following table shows some of the main characteristics observed.

Table 74 – Health services

Category	Location	Micro territories	Population	Characteristics
USF	Colonia Roberto L. Petit	Colonia Roberto L. Petit, Colonia Cnel. Mongelós, Jhugua Zarzo, Laguna Plato, Pirity, Piquete Cue, y las estancias vecinas.	Total in the area: 1634 Women: 734 Men: 900 Children from 0 to 27 days: men 2 Children 28 days to 11 months: women 9, men 12 Children 1-4 years old: women 65, men 61 Children 5-14 years: women 147, men 186 Women from 15 to 49 years old: 340 Women from 50 to 64 years old: 100 Males 15-64 years old: 539 Men and women 65 years old and older: women 73, men 100	The FSU has 5 community agents; 1 auxiliary nurse, 1 graduate in Nursing and 1 doctor in Family Medicine. They are providing care at the ACPN headquarters while construction of the new facility is being completed.

Category	Location	Micro territories	Population	Characteristics
USF	Callejón San Antonio	Callejón San Luis Mbocayaty Callejón San Ramón Callejón San Antonio Curuzu Ñü Costa Pucú Paso Itá Co'ê Porâ Saladillo	2450 people (total)	20 years ago, it used to be a health center. For the last 10 years it has had the status of a Family Health Unit. This year the health council is being renewed, made up of sub-councils in each community. Each Sub-council of health has 2 to 3 members per community for representation. The USF has had 3 health agents for the last 4 months. In addition, there is 1 doctor for general medical care, 1 licensed nurse, 1 auxiliary nurse, 1 doctor for dental care.
Health Post (Centre)	Jhugua González	Jhugua González	Total: 532 Women: 244 Men: 288 Children from 0 to 27 days: men 1 Children aged 28 days to 11 months: women 2, men 2 Children 1-4 years old: women 23, men 14 Children 5-14 years old: women 54, men 51 Women from 15 to 49 years old: 129 Women from 50 to 64 years old: 26 Women 65 years and older: 22 Males aged 15-49 years: 161 Men 50-64 years old: 26 Men 65 years old and over: 21	The health post has a Licentiate in Nursing, a Community Health Agent and a Doctor (general services). The opening hours are from 8:00 a.m. to 7:00 p.m. and the days for home visits are Tuesdays and Thursdays. They are currently struggling to set up a Family Health Unit.

Source: Elaboration based on data obtained from interviews with key actors in the micro territories

Educational institutions

There are a total of 15 educational institutions, all corresponding to the basic school.

There are a total of 4 middle level educational institutions located in the microterritories of Colonia Primavera, Colonia Cnel. Mongelós, Saladillo and Curuzu Ñü.







The towns of Mbocayaty and Laguna Plato do not have educational institutions; those who, for reasons of proximity, go to the educational center closest to the community.







According to the Municipal Development Plan of Concepción (2016), referred to in previous paragraphs, there are 50 institutions located in rural areas. In this sense, the institutions registered in the micro territories represent 30% of the existing rural educational offer in the district.

The following table contains a list of educational institutions corresponding to the levels of basic school education and secondary education.

Table 75 – Educational institutions

Photographic registers	Micro territories	Educational institutions
	Callejón San Ramón	Elementary school n. 4918 “San Ramón”
	Callejón San Luis	Elementary school n. 4917 “Florinda Arce de Páez”
	Callejón San Antonio	Elementary school n.2583 “San Antonio de Padua”
	Costa Pucu	Elementary school n.1729 “Santo Domingo Sabio”
	Jhugua González	Elementary school n.4922, San Roque González de Santacruz

Photographic registers	Micro territories	Educational institutions
	Jhugua Zarzo	Elementary school “Don Juan Antonio Zaracho”
	Co'ê Porâ	Elementary school n.841 “Sagrado Corazón de Jesús”
 	Curuzu Ñu	Elementary school n.1722 “San Pedro” National High School "San Pedro"
	Pitity Mongelós	Elementary school n. 2582 “Defensores del Chaco”
	Colonia Cnel. Mongelós	Elementary school n.2080 “Concepción Macedo de Denis” Colegio Nacional Coronel Mongelós,

Photographic registers	Micro territories	Educational institutions
	Paso Ita	Elementary school “Virgen de los Dolores”
	Colonia Roberto L. Petit	Elementary school n.2670 “Cristo Rey”.
	Saladillo	School Inmaculada Concepción “Irene Carduz” (Centro de Formación)
	Saladillo	Elementary school n. 4909 “Don Trifón Echague”
	Costa Ferreira	Elementary school n.1729 “Santo Domingo Sabio”
	Colonia Primavera	Elementary school n.1721- Jesús Misericordioso National Highschool Jesús Misericordioso

Source: Elaboration based on data obtained from interviews with key actors in the microterritories.

Poverty

From the data referred to for the department of Concepción in terms of poverty, it can be seen that approximately 107,097 people are in a situation of poverty and 15,911 in a

situation of extreme poverty. Although the trend is towards the concentration of poverty in urban areas, the panorama for the rural sector is still a relevant indicator in quantitative and qualitative terms⁹⁶.

In this sense, the actors consulted in the micro territories pointed out aspects linked to social and economic problems. The following table shows data provided by key references of the studied micro territories. It presents the five main social problems, which are listed on a scale from 5 to 1, in order of highest to lowest priority.

Table 76 – Prioritization of social problems in the micro territories of the district of Concepción

Social and cultural issues	Priority 5	Priority 4	Priority 3	Priority 2	Priority 1	Total amount mentioned
Rustling (theft)	9	4	1	1	0	15
Access to education	2	-	1	3	1	7
Road unsafety	3	4	3	2	0	12
Uprooting	3	3	2	3	1	12
Emigration	2	3	-	1	1	7
Migration	5	5	4	3	4	21
Poverty	4	1	3	1	1	10
Insecurity/Theft	6	6	-	-	1	13

	Referenced on at least 3 levels of prioritization
	Referenced on at least 4 levels of prioritization
	Referenced in 5 levels of prioritization

Source: Elaboration based on data obtained from interviews with key actors in the microterritories

Considering the system in place, the main factors in order of priority can be seen to be: cattle (priority 5), insecurity/theft (priority 4), migration (priority 3), access to education, migration and uprooting (priority 2) and migration (priority 1).

According to the assessment scale, migration was mentioned as the main problem in priorities 3, 2 and 1, and was also mentioned in priorities 4 and 5.

Given this particularity, it is interesting to visualize the degree of significance and importance that a factor acquires, considering not only the frequency of appearance, but also the fact of being identified in the different levels of prioritization. For a better visualization, the data are arranged in the following table.

According to the established system of prioritization, the factors referred to in all instances are: migration, uprooting and poverty.

Cattle, road insecurity, access to education and emigration are mentioned in 4 of the three levels; and insecurity/theft is highlighted in 3 levels of prioritization.

⁹⁶ Ver ítem sobre Pobreza, Distribución, Necesidades Básicas Insatisfechas

Social Problems	Number of Levels	Total Quantity
Uprooting	5 levels	12
Migration	5 levels	21
Poverty	5 levels	10
Cattle	4 levels	15
Access to Education	4 levels	7
Road Insecurity	4 levels	12
Emigration	4 levels	7
Insecurity/theft	3 levels	13

Source: Elaboración en base a datos obtenidos de entrevistas a actores claves de los microterritorios

Regarding the social issues; in terms of quantification, they represent in order of importance the following: migration 22%, theft of cattle 16%, insecurity/thefts 14%, uprooting and road insecurity 12%, poverty 10%, access to education and emigration 7%.

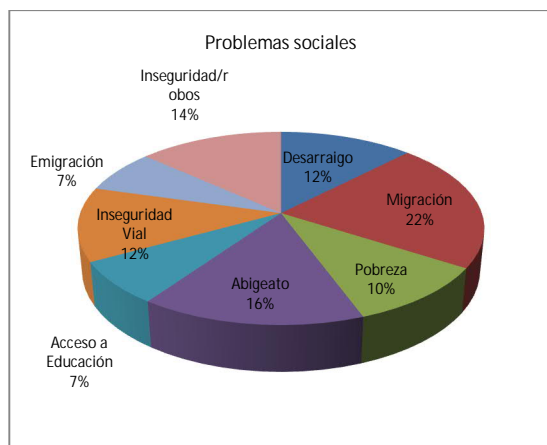


Figure 33 – Social issues

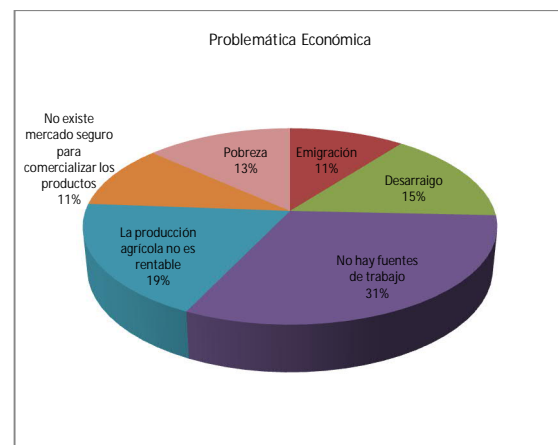


Figure 34 – Economic issues

Source: Elaboración en base a datos obtenidos de entrevistas a actores claves de los microterritorios

However, as economic problems are mentioned firstly the lack of sources of work (31%), followed by the lack of profitability of agricultural production (19%), uprooting (15%), poverty (13%) and fifthly the lack of a secure market to market the products and emigration (11%).

In both cases the form of valuation varies, but factors such as poverty, emigration and uprooting are referenced in the case of both social and economic problems. These factors refer to socio-historical aspects; therefore, they cannot be considered in isolation

but as phenomena with a greater or lesser degree of interdependence according to the level of observation that is set up.

Economic activities and income

The average income in the department of Concepción is almost 40% lower than in Amambay and 7.45% higher than in San Pedro as referred to in the IIA characterization item ⁹⁷.

Table 77 – Main economic activities

Economic Activities	Agricultura	Livestock	Comercio	Laborer / Changa
Callejón San Ramón	3	1	2	1
Callejón San Luis	2	2	1	2
Callejón San Antonio	1	1		1
Colonia Primavera	1		1	1
Costa Pucu	3	3	3	2
Jhugua González	1	1	1	1
Jhugua Zarzo	2	1	1	2
Co'ê Porâ	4	3	1	3
Kurusu Ñu	3	2	1	
Laguna Plato	3	5	2	4
Mbocayaty	2	2		
Pirity Mongelós	1	1		
Mongelós	1		0	1
Paso Ita	1	1		
Colonia Roberto L. Petit	7	7	4	3
Saladillo	3	3	3	2
Costa Pucu				
Costa Ferreira	1	1		1
Total	38	34	20	24

Source: Elaboration based on data obtained from interviews with key actors in the microterritories.

The economic activities identified in the area in order of importance are: agriculture, cattle raising, work as a day laborer/sweeper, and trade.

A small number of the population has access to permanent employment. Most of the inhabitants, both men and women, work in agriculture and livestock.

⁹⁷ See item on Poverty, Distribution, Unsatisfied Basic Needs

In the territory, there is a predominance of small-scale production destined to a greater extent for family consumption and a smaller percentage for sale. Establishments operating at a large-scale production level were also identified.

People who sell farm and orchard products report that the agricultural sector is not currently profitable compared to previous years, when crops such as sesame and tartar were sold at a better price and the loss of production due to bad weather and pests did not represent risks that were difficult to control.

It was also mentioned that low profitability is associated with the absence of a secure market for marketing, the high costs of moving production and the lack of sustained technical assistance from local government actors. Therefore, they point out the need for greater support from local authorities in terms of training and delivery of materials and inputs to work the land, in order to make the peasant family economy sustainable.

Considering the particularities observed in the field of agriculture and livestock. It is important to point out that the community of Curuzu Ñu has a communal field; that they are communal lands that operate under a system of solidarity contribution that is destined to improve the infrastructure of the place. At the moment they are 60 associates. The land was divided into lots in 1988, it has 60 hectares in total; where each member has his own wired lot. A fraction of the land is used for cattle raising and another for agriculture (farm and orchard).

This same system of community organization was observed in Mbocayaty. The land is used for cattle raising; therefore, the members use the land for breeding and grazing cattle.

Currently there are a total of 14 active members and 30 adherents. The active members must make a monthly contribution for maintenance and at the same time contribute to the cleaning of the land; the others are not obliged to contribute the stipulated amount.

On the other hand, 21% refer to the fact that a large fraction of the population is dedicated to working as day laborer's or doing piecework, which consists of remuneration for activity or service rendered and is generally linked to an occupation system based on the informal economy. The average daily wage is 65,000 to 75,000 guaraníes. In many cases they face precarious working conditions that are accepted in order not to fail to generate income. Among these are the fact that they work for more than 8 hours, must do other work in addition to what has been agreed, and are not paid the full amount established; among other things, they are part of a sector that is doubly vulnerable.

Under this logic, the work in the neighboring estancias and/or in the Chaco is grouped. They consist of the development of tasks for a defined period of time of one day or even months; which does not necessarily translate into a definitive change of residence. Among the activities they carry out are: fencing, painting, land cleaning, animal care, carpentry, sowing, among others. This is a predominantly male activity, both young and old.

While men are employed on the estates, women are left to take care of the home and raise the children. In addition, they are the ones who raise small livestock, sell the production from their gardens and farms and others that are usually offered at the fairs organized in squares or the market in the urban area of Concepción or are sold house to house to the neighbors in the area.

Other items that are grouped under this category are: the collectors, those who are dedicated to the sale of coal, logs (wood for firewood).



Figure 35 – Logging collectors - Callejón San Ramón



Figure 36 – Cattle farming

Some 17% mentioned trading as the main activity in the area; this is the fourth most pointed out aspect. In the microterritories, it is possible to observe the existence of small commercial and service enterprises such as: pantries, butcher shops, fuel supply centers, motorbike workshops, tire shops, hairdressing salons. Within the framework of the characterization of the DIA, some reference photographs are exhibited.



Figure 37 – Micro territory Curuzu Ñu



Figure 38 – Micro territory Colonia Coronel Mongelós



Figure 39 – Micro territory Co'ê Porâ



Figure 40 – Micro territory Pirity Mongelós

Most of these businesses are family businesses, in which household members (children, adolescents and adults), both women and men, have some degree of participation in the development of specific tasks such as: customer service, purchase of supplies and goods to restock the premises, collection and cleaning of the place, among others.

Since the money collected by families is part of their daily sustenance, even though the people who collaborate in the tasks receive no remuneration, they do have some degree of participation in the development of specific tasks, such as: customer service, purchase of inputs and merchandise to restock the premises, collection and cleaning of the place, among others.

Another activity identified in the area, but little referred to is fishing, both for consumption and for sale. The most popular area for fish extraction is Piquete Cue, where there is a road that connects to the river and is frequently used by local people and those living further away.

In the community of Laguna Plato there are four families whose economic activity has been fishing for several generations. They have been fishing, distributing and selling fish for more than 40 years. These families go to the riverside sites located on the grounds of Estancia Santa Clara and San Diego; in the community of Piquete Cue, for fish extraction and other times they cross the river in the direction of Isla Santa Bella to fish. For sale they have a variety of fish such as Surubi, Mandi'i, Boga, Pacu, Carimbata, Mangú; among others. Costs are stipulated in relation to weight and species. For example, the cost of Surubi per kilo is 20,000 gs.

Migration

According to Pereira, in his text “Departamento de Concepción. Riqueza y desigualdad social”, approximately 40% of the people who migrated between 1997 and 2002 went to the Central Department, 16% to Asunción and 12% to Amambay. She also states that *"the emigration from the department of Concepción has a woman's face. 57 of every 100 migrants ... were women"*⁹⁸.

⁹⁸ Pereira, Hugo. “Departamento de Concepción. Riqueza y desigualdad social”. Available at: <https://revistascientificas.una.py/index.php/RE/article/view/714>

The migratory trends identified in the microterritories have similar characteristics to those mentioned in the previous paragraph, taking into account some particularities such as those mentioned in the following paragraphs.

The women who migrate mainly in Asunción and Concepción are mostly domestic workers and are seeking access to higher education and economic support for their families. The majority of women who migrate to Spain and Argentina also work as domestic workers, childcare workers and elderly people.

Previously, they sent remittances to the country more frequently. The crisis and the increase in the cost of living are factors that influence the amount and frequency of sending money. Many people no longer return to their home territory because the countries where they live offer better conditions and access to basic services.

Many young people migrate before completing their secondary education, work on the estancias in the Chaco because their parents cannot afford to pay for their studies and/or their families require higher incomes to survive.

9.3.4.3 Characterization of Directly Affected Area (DAA)

As mentioned in item 9.3.2.3 of the section Description of the Project's Areas of Influence, the study considers as part of the DAA, the social units and communities located in the immediate surroundings of the area prospected for the installation of the plant, within a radius of 1 km.

In this section, on the one hand, a description of the characteristics of the area as a result of direct observation and records prepared within this framework is made, and on the other hand, socio-economic information related to the social units identified will be presented. Both in the DIA and in this area the perception of the inhabitants regarding the undertaking was surveyed. The results obtained have been included in item 9.3.5: Survey of Social Perception.

It is important to highlight that there will be no displacement due to the project implementation, not even to the transmission line.

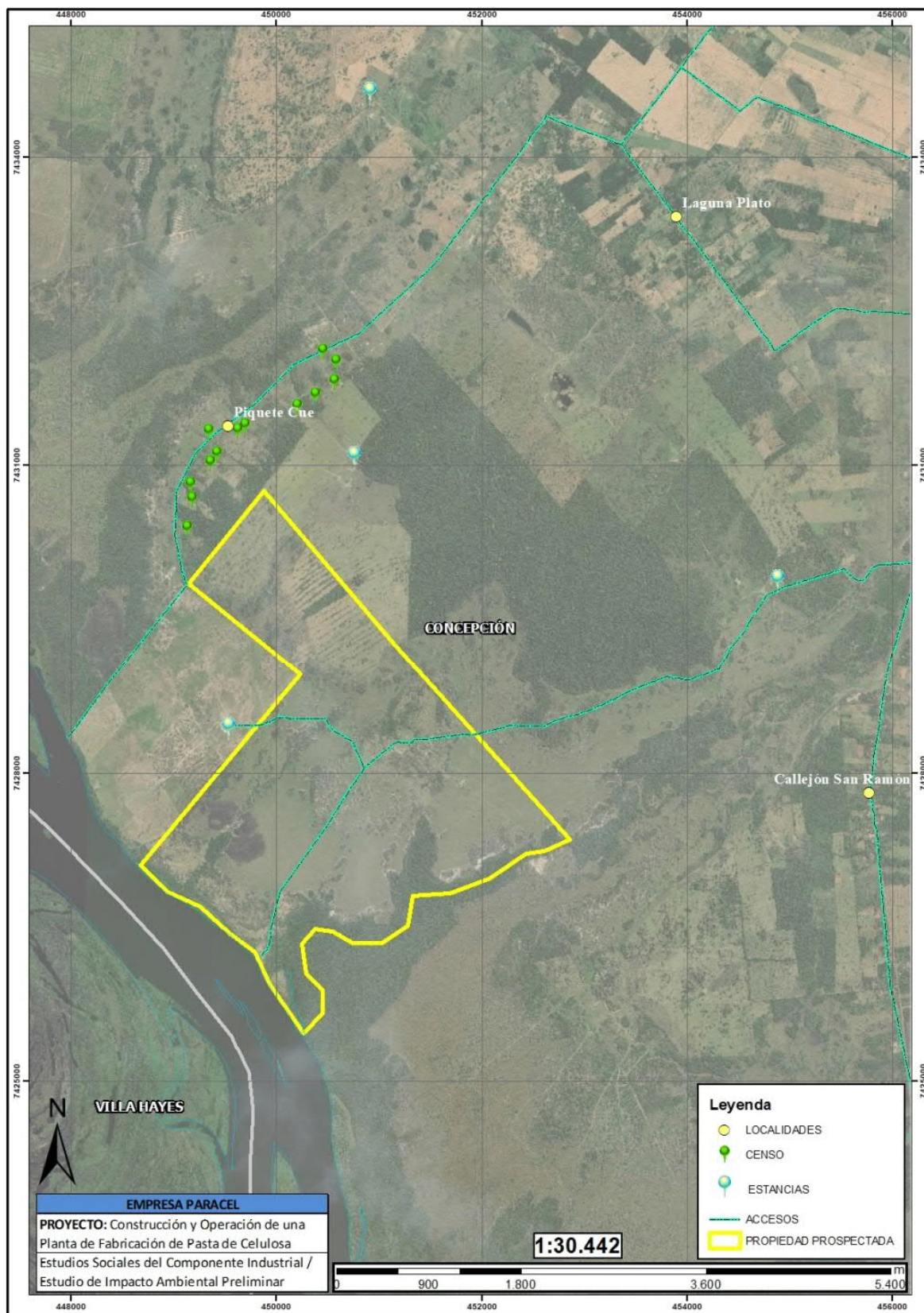


Figure 41 – Limits of Directly Affected Area (DAA)

Features of DAA

Taking into account the distance defined for the definition of the DAA, the information was collected in a micro territory called Piquete Cue, where 13 social units could be visited. These were located along approximately 3 km, mostly on the left side of the road (as this is the highest area) and at a distance of approximately 0.36 km to 1.49 km from the property area.

Likewise, as mentioned, it was possible to observe that there are ranches in the territory that are outside the radius of analysis established for the study. However, given the particularity of using the same access roads and being social units adjacent to the enterprise, it was decided to include them as part of the sample to be consulted during the process.



Figure 42 – Entrance by Piquete Cue

Source: Photographic record of field work. Consulting team. Concepción. January 2020.

Considering the complexity of obtaining information from secondary sources and taking into account the variants indicated in previous paragraphs, two alternatives were determined to access precise information that would make it possible to characterize the area and survey social perception, consisting of:

Methods

- Application of a socio-economic census to units within a 1 km radius;
- Application of semi-structured interviews to owners or managers of the estancias bordering the prospected area.

In the case of dwellings, 12 of the 13 units identified were counted because one of the owners was not there during the survey stage (for travel reasons). The persons consulted stated that the heads of household were 11 women and 10 men.

Seven establishments were identified, predominantly livestock farmers, and four interviews were held, three of which were with the managers or administrators and one with the owner of the establishment.

Two access routes to the community were also observed. One of the roads is located next to the Pirity Mongelós school; and has an exit to the curve before reaching the access gate to the San Diego ranch. This access road is frequently travelled on foot or by motorcycle due to its narrow.



Figure 43 – Access roads to the community

Source: Photographic record of field work. Consulting team. Concepción. January 2020.

Another way to access Piquete Cue is through the road that connects with the community of Laguna Plato. The road is located next to Police Station n. 6 in the aforementioned town and is used by smaller vehicles like motorcycles, cars, vans, and small trucks. It is also traveled on foot by residents and used for transporting and grazing animals, since one of the livelihoods of the area is small-scale cattle farming.

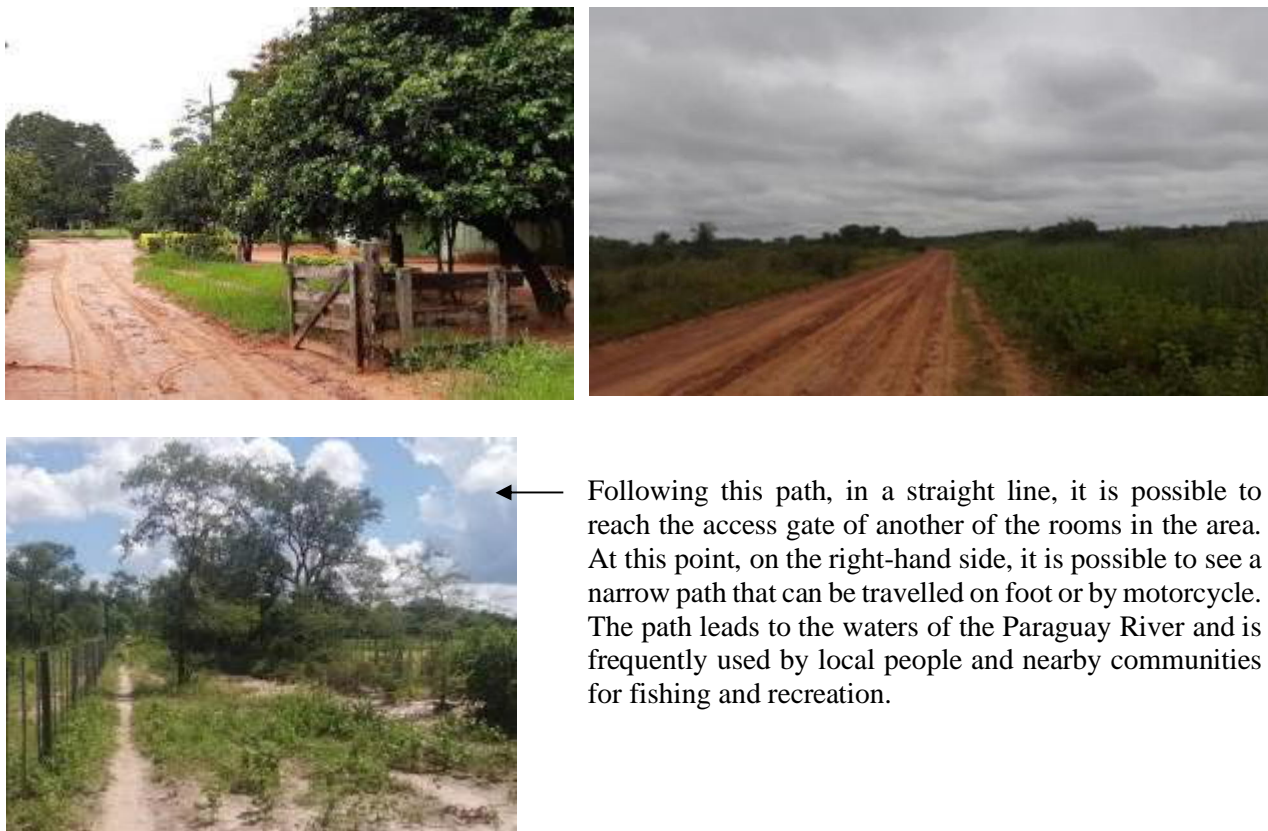


Figure 44 – Access roads to community

Source: Photographic record of field work. Consultant team. Concepción. January 2020

According to the inhabitants, the community has been in existence for more than 100 years. The families listed in the census stated that they had been established in the area for a minimum of six years and that they were between the ages of six and 94. They also mentioned that they live in their homes as indicated in the following table:

Table 78 – Time of establishment in the structure

Time of establishment in the structure	number	percentage
0 to 10 years	8	66,67%
11 to 20 years	1	8,33%
21 to 50 years	2	16.67%
51 to 80 years	1	8,33%
TOTAL	12	100%

Source: Socio-economic census, January 2020

Of the total of 12 families in the census, 8 declared that they had taken root between the ages of 0 and 10, 2 families with roots between the ages of 21 and 50, 1 of which had the most years of roots (between 51 and 80); and 1 family with roots between the ages of 11 and 20.

With regard to the characteristics of the structures visited, it can be stated that they are all family dwellings; 50% of them carry out productive activities for self-consumption and 50% are dwellings that also have a business and/or some productive activity for sale.

The predominant economic activity in the area is livestock farming. The families registered in Piquete Cue work mainly on nearby farms (several on the Cerrito farm), and also produce milk, cheese and raise animals for their own consumption and/or sale.

It could be observed that there are 2 cases (16.67%) in which the condition of the structure is good; and the majority, that is; 10 of 12 (83.33%) have the regular structure, considering the construction materials that predominate in the unit and the condition in which they are found. With respect to tenancy, the vast majority claimed to be owners, specifically 11 and 1 case in which the dwelling was ceded. When asked if they have another property in the area, 10 of them stated that they have only the property visited, and 2 people have said that they have another property (Concepción, Barrio San Roque and in Coronel Mongelós).



Regular housing conditions



Good condition housing

Figure 45 – Common houses in the DAA

Although it was observed that more than one dwelling is located on the same property, the people surveyed stated that only one family lives in each dwelling, this in its totality.

Number of persons living in the house

A particularity revealed during the census is that, of the 13 families identified, only one belongs to a different family group. As regards the number of persons living in the dwelling, as can be observed in the following table, there are cases in which the dwelling is inhabited by only one person, unlike others in which there are 7 persons.

Table 79 – Number of people per house

Number of people per house	Number of families	Percentage
1 Person	2 families	16,67%
2 persons	1 family	8,33%
3 Persons	3 families	25,00%
4 Persons	3 families	25,00%
5 Persons	1 family	8,33%
6 Persons	1 family	8,33%
7 Persons	1 family	8,33%
TOTAL: 43 personas	12	100%

Source: Socio-economic census, January 2020

Table 80 – Number of people per age group

Under 18 years old	Adults 18 to 64 years old	Adult over 65 years old	Women	Men	Total
14	21	8	22	21	43

Source: Socio-economic census, January 2020

No cases of pregnant women and people with disabilities were recorded. When asked about people with a chronic illness in the family and residing in the home, they commented on 2 cases.

Number of people working / looking for work currently

When consulted on this point, they mentioned in full 16 family members who currently have some kind of employment, either outside the home or developing economic activities within it (7 women and 9 men), they also commented that there are women who work exclusively as housewives (4) and 11 people, family members living in the homes visited who are currently looking for work.

Access to basic services

When it comes to access to services, it was possible to reveal that with respect to:

Electricity: 100% of the families in the census (12) have electricity.

Clean/drinking water network: Although the majority of the department's population, according to the permanent household survey, has accessed drinking water supply services via SENASA and/or the local sanitation board between 2017 and 2018 ⁹⁹, in the case of Piquete Cue's houses, none of them has a drinking water network and the

⁹⁹ item 9.3.4.1.2.3: Hogares, vivienda.

main source of water that the members of the household drink is the well. Practically no family carries out any treatment, except for one of them (applies product - bleach after the rains). The distance from where it is drawn is less than 10 blocks in all cases.

The water that the members of the household drink arrives, in 25% (3 of 12) by pipe inside the house, 50% (6 of 12) has pipes outside the house, but inside the land. 8.33% (1 of 12) have a well inside the land and 16.67% (2 of 12) through the neighbor.

The water that results from this source is used, in 100% of the cases, for drinking, food preparation, laundry, personal hygiene and cleaning of the house.

Table 81 – water distribution to population

The drinking/clean water arrives by	Housing	%
Pipe system inside the house	3	25
Piping outside the house but inside the property	6	50
From neighborhood	2	16,67
Well inside the property	1	8,33
TOTAL	12	100

Source: Economic Census, January 2020

Solid waste disposal

Regarding solid waste disposal, burning is a method used by the majority (11), not exclusively, but it is evident that this is still a deeply rooted practice, in accordance with the departmental level, as indicated in item 9.3.4.1.2.3 of the present study that mentions burning as the main form of waste disposal, besides highlighting that only a third of the population of Concepción has access to garbage collection services. In the DAA there are also cases (8) where waste is buried, and in a smaller proportion, thrown in a vacant yard/vacant lots, street and/or recycled. No family has a municipal collection service.

Similarly, the lack of availability of sewage, considering that no family in the census has such a network, reflects what is happening at the departmental level, since only 6.55% of households have access to the sewage network in Concepción ¹⁰⁰.

The census has also revealed other aspects related to access to services, such as:

- Access to telephone service 100%;
- 58.33% access to the Internet, that is, 7 families out of the 12 that took part in the survey and;
- The absence of public transport service in the area. The communities in the area (such as Piquete Cue) mainly use motorcycles as a means of transport. There is only one road that is used by its inhabitants to move to other communities in the area, and from there to other access points to other parts of the district and department, also for the transfer of animals.

¹⁰⁰ item 9.3.4.1.2.3 Hogares, vivienda.

Access to health services

According to the census people, the community does not have health services in the place, so they must go to the nearest health posts or centers to receive medical attention. Based on the information referred to, the following data are obtained:

- 8,33 % (1 of 12) mentioned that they attend the Health Centre in the city of Loreto; located 25 km from the community;
- 8,33 % (1 out of 12) mentioned that they attend the Health Centre of Concepción; located about 40 km from the community;
- On the other hand, 91.67% (11 of 12) of the population studied attends the Health Post in Colonia Roberto L. Petit which is located between 9 and 17 km; (approximately one hour by motorcycle).

Access to education

At the time of the census, family members who are currently in school were consulted as to their academic level, the educational institution they attend, and the distances travelled to attend, among other things. It was stated that 13 people were attending educational institutions, 11 at the primary level, 1 at the secondary level and 1 at the tertiary level. The majority attend public educational institutions (11), 8 people attend the Defensores del Chaco school in the town of Pirity Mongelós, 1 person attends the Coronel Mongelós school and 2 people attend the Concepción Macedo de Denis school in the town of Colonia Cnel. Mongelós, finally 1 person attends the Rosa Mística Institute and 1 person attends the Don Bosco school, both in the city of Concepción. The distances traveled daily vary between 1 km and 10 km (primary and secondary school) and 25 km (tertiary level).

Existing neighborhood organizations/commissions in the community







The totality of the people registered responded that there is no organization in the community of Piquete Cue. However, 3 people commented that they belong to an organization, as indicated in the following table, they are not in Piquete Cue.







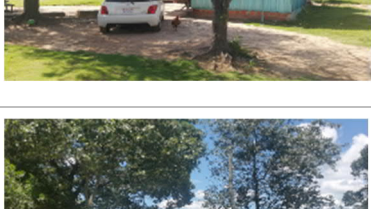
Member of any organization	Number	Percentage
Yes (Asociación Karape de Laceros and Comisión pro Centro de Salud Laguna Plato)	3	25%
Does not belong to any organization	9	75%
Total	12	100%

Source: Socio-economic census, January 2020

Finally, by way of a summary of the characteristics surveyed for each dwelling located in the DAA, the following table is presented, containing the location, data on roots, number of people living in the unit, employment situation and the photographic record of each one of them:

Table 82 – Summary matrix of Piquete Cue homes and their characteristics

Family	Coordinates	Features registered	Photographic records
1	-57.497371, - 23.234877	- Roots: 6 years of being in the roots of the structure - Persons residing in the home: 2 adults and 1 child under 18 - Employment status: 1 employed and 2 looking for a job	
2	-57.496780, -23232404	Roots: 32 years of roots in the structure Persons residing in the dwelling: 2 adults, 1 person over 65 and 1 child under 18. Employment status: 3 people in employment and 0 looking for work	
3	-57.496887, - 23.230906	- Roots: 11 years of rooting in the structure - Persons residing in the home: 2 adults and 2 children under 18 - Employment status: 1 employed person and 2 job seekers	
4	-57.495075, - 23.229251	- Roots: 5 years of rooting in the structure - Persons residing in the home: 2 adults, 1 person over 65 and 2 children under 18 - Persons residing in the dwelling: Employment status: 1 person employed and 0 looking for work	
5	-57.494401, - 23.228139	- Roots: 74 years of roots in the structure - Persons residing in the dwelling: 1 adult and 1 person over 65 - Employment status: 1 employed and 1 looking for work	
6	-57.495193, - 23.226429	- Roots: 7 years of rooting in the structure - Persons residing in the dwelling: 1 person over 65 years old in employment	

7	-57.492462, -23.226415	Roots: 10 years of rooting in the structure Persons residing in the home: 2 adults and 1 child under 18 Employment status: 1 employed and 1 looking for work	
8	-57.491872, -23.225842	Roots: 10 years of rooting in the structure Persons residing in the home: 2 adults and 1 child under 18 Employment status: 2 employed and 0 looking for work	
9	-57.48687, 23.22382	Roots: 8 years of rooting in the structure Persons residing in the dwelling: 1 person over 65 years old without employment (not looking for)	
10	-57.485053, -23.222897	It was not registered	
11	-57.48345, 23.22187	Roots: 3 years of rooting in the structure Number of people living in the house: 2 adults, 2 people over 65 and 3 children under 18 Employment status: 4 employed and 2 looking for work	
12	-57.483039, -23.220062	Roots: 50 years of rooting in the structure. People living in the house: 3 adults, 1 person over 65 and 2 children under 18 Employment status: 1 employed person and 2 job seekers	
13	-57.48425, -23.21912	Roots: 10 years of rooting in the structure Persons residing in the home: 3 adults and 1 child under 18 Employment status: 3 employed and 1 looking for work	

Source: Prepared by the external consultant Lic. Caren Kremer and team based on the information collected in the field. Concepción- 2020.

Ranches in the DAA

As mentioned at the beginning of this chapter, seven estancias were identified adjacent to the area prospected for the construction of the plant - Estancia Zapatero Cue. Four interviews were carried out to register and characterize these; only one of them involved an interview with the owner; the other consultations were carried out with the authorized personnel, who were responsible for or administrators of the plant. Information was obtained from 5 establishments because one of those consulted is the administrator of two of the existing estancias.

Considering the above, data on the estancias visited are mentioned in terms of location, extension of the territory, personnel and main activities carried out. The following general characteristics may be considered from the records obtained:

- Most of the access gates to the rooms are located in the Piquete Cue area;
- One of the establishments rents a fraction of the area prospected for the installation of the plant. The predominant activity is large-scale cattle raising, although some are also dedicated to agricultural production;
- The ranches have permanent personnel and others are hired for specific tasks for determined periods of time. The average number of permanent workers is between 4 and 20, and the maximum number of personnel hired per product is 35;
- The property with the largest extension of land has 5,850 ha and the one with the smallest proportion has a total of 600 ha.

Specific data from each establishment as indicated by the interviewees is presented below:

The Pyrenda farm has 4 permanent workers and other people are hired for specific jobs. Its production line is cattle raising and it leases a total of 1,200 ha. The closest health post for those living in the area is in Colonia Roberto L. Petit and the school is in the Mongelós Pirity community.

The estancia Irene Carduz is currently owned by the Blue Sisters. The property originally belonged to the person whose name the estancia bears who donated such lands to the organization in 1945. Since then, they have devoted themselves to carrying out social works in the community. The estancia has a total area of 5,850 hectares starting from the first curve located in Saladillo. The Calaverita stream divides the property in the southern limit of the land.

A fraction of the land is used for agriculture for the production of corn, cassava and another for livestock: there is a total of approximately 880 heads of cattle, they also have pigs and are dedicated to raising poultry. There is also a religious technical school and a boarding school for children between 15 and 18 years old. They have a total of 16 workers on a permanent basis and 6 people are hired for specific jobs on a daily basis. There are 4 land tenants; 3 of them are engaged in small livestock farming (between 10 and 15 heads) and 1 of them in large scale with 1600 heads of cattle.

Estancia Cerrito has a total of 600 ha, bordering Estancia Zapatero Cue and as mentioned by its owner it leases 900 ha of it for cattle raising. There are 7 permanent workers from Paso Barreto and Concepción.

Estancias San Diego Agroganadera and San Miguel belong to the same owner. Estancia San Diego Agroganadera has 5,000 ha of land and Estancia San Miguel has 2,400 ha of

land. Both estancias border the Cerrito and Zapatero Cue estancias. San Diego has a total of 20 permanent workers; and San Miguel 5 and both indirectly employ in different seasons approximately 35 people.



Ranch Pyrenda



Entrance in the ranch Irene Carduz

Figure 46 – Ranches in the area



Entrance in the ranch San Miguel



Ranch Cerrito

Figure 47 – Ranches in the area



Ranch San Diego

Figure 48 – Ranch in the area

9.3.4.4 Cultural heritage

This section presents the main content and findings of the "Cultural Heritage Report", prepared by the external consultant Mr. Enrique Bragayrac, specialist in cultural heritage and team.

9.3.4.4.1 Synthesis of the main findings

The evaluation of the state of the cultural heritage, had as objectives the recognition of the cultural assets (archaeological, architectural, historical, ethnographic, etc.) present in the area of the project (including the districts of Concepción, Loreto, Belén, and Horqueta); the individualized evaluation of the impact that its execution could cause on these assets and the design of corrective measures directed to the suppression or attenuation of such impact, seeking the compatibility of the conservation of the cultural heritage and the execution of the project involved in it.

The methodology and fieldwork were based on the location of the project area (DAA), adjacent to the Paraguay River, with two land accesses, with extensions of livestock enterprises, and with small agricultural communities. Due to the characteristics of the study site, with areas differentiated by their current and natural uses, it was impossible to work through quadrants, due to the ruggedness of some places, wire fences, and the gallery forest with flooded soils of difficult access. For this reason, the planialtimetric control by areas and observation points was based on the natural and anthropic systems present (Map 12) in the DAA's limits, which are well delineated, with defined surfaces at the territorial level and satellite mapping.

The superficial archaeological characterization was carried out extensively throughout the DAA, in order to monitor the potential direct and indirect impacts on the cultural landscape and identify the heritage values at risk, through sampling and observation points in the areas identified in the field, which are: agricultural area (1,322 ha), forest cover (1,531 ha), herbaceous (1,586 ha), and water (438 ha). The field documentation was carried out by arbitrarily selected field observation points (georeferenced), recording those sectors of the land that offered natural (erosion areas), cultural or other special features.

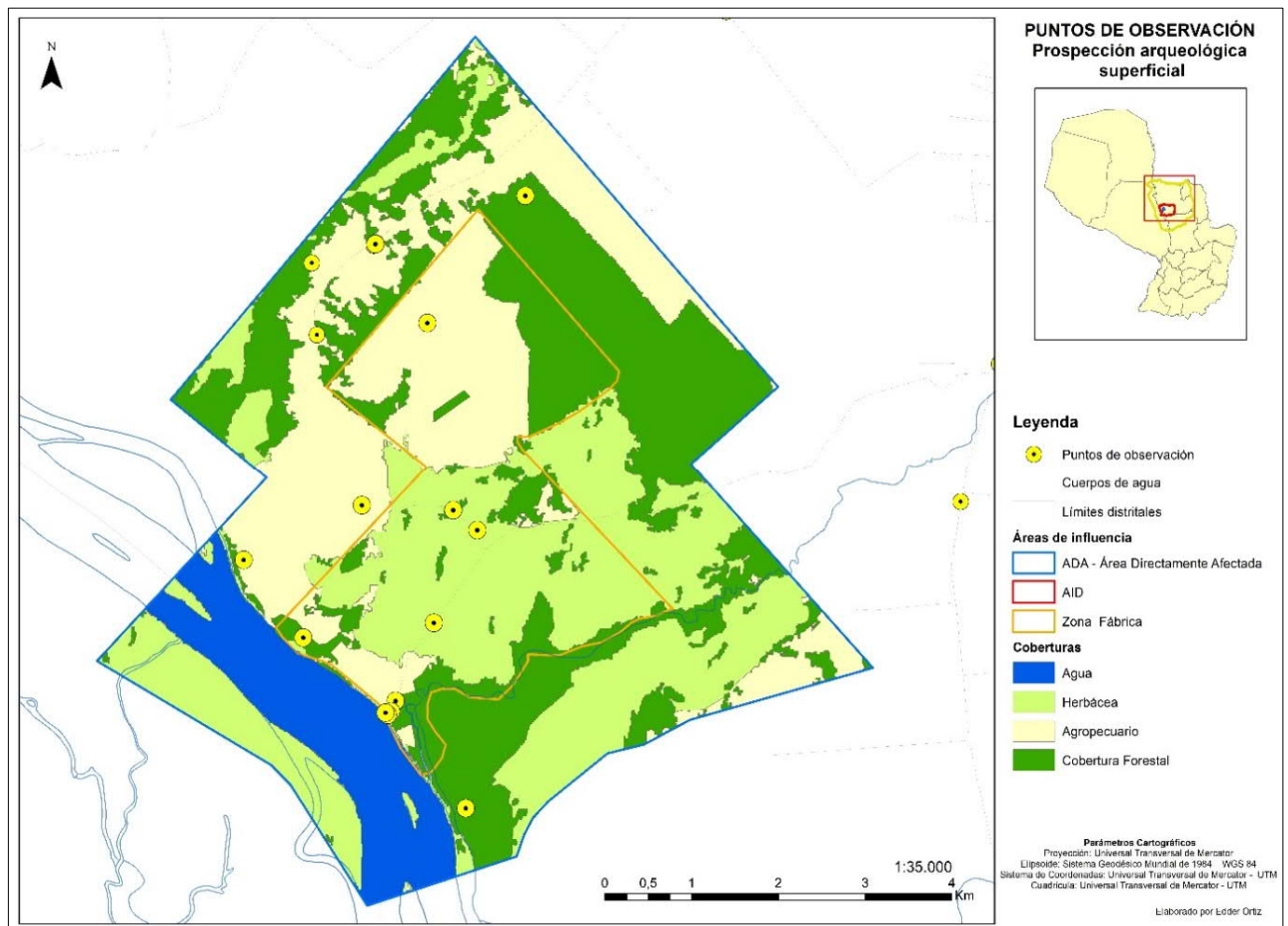
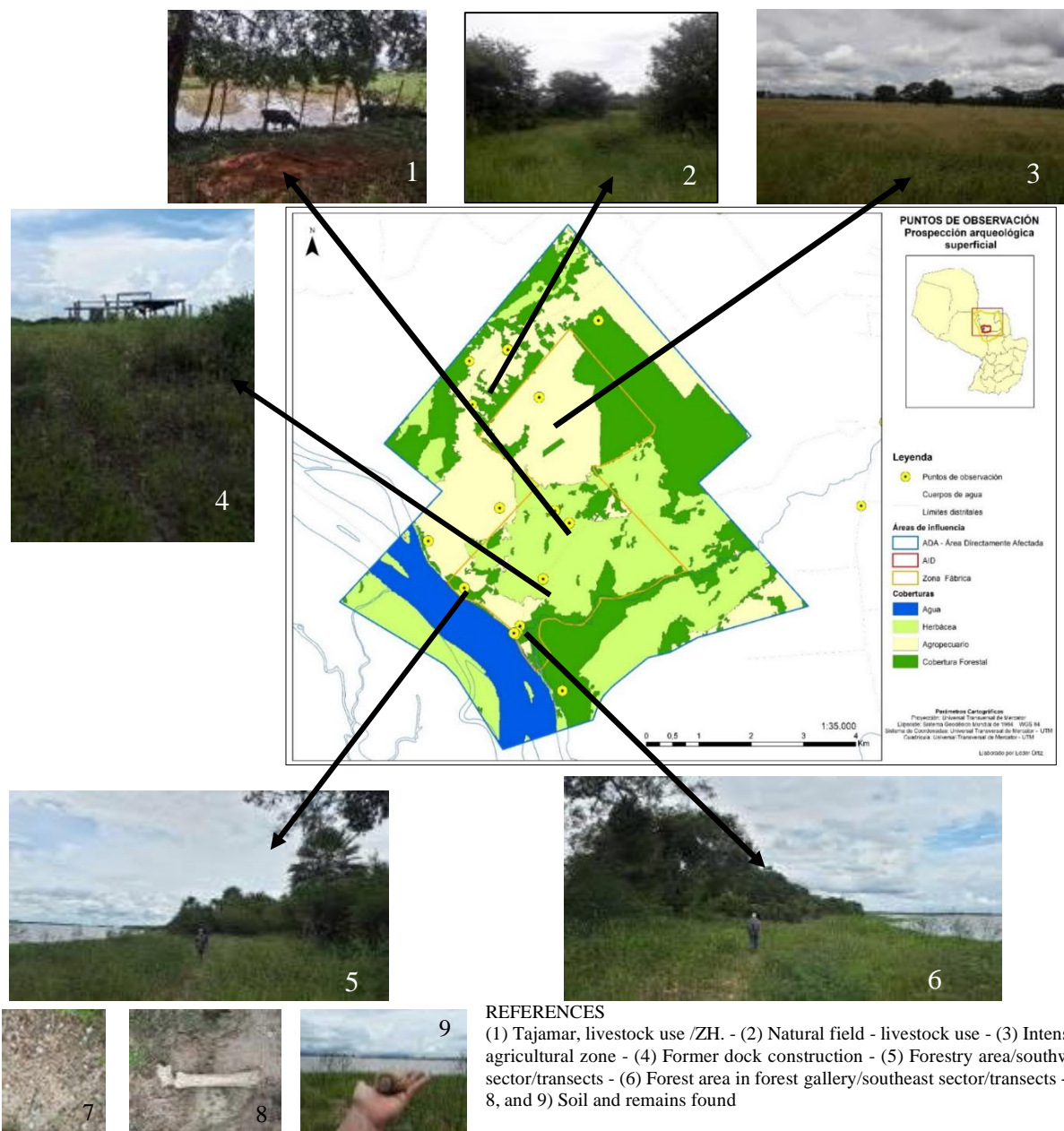


Figure 49 – Map of DAA

In the first campaign, the northern and northwestern sectors were evaluated, showing the most relevant anthropic transformation, with extensive livestock areas. The second campaign evaluated the southern and southeastern sectors, taking the Paraguay River as the limit, with greater relevance near the gallery forests formed by water courses, forest cover in its environment and the river. Since it is an undisturbed area, with natural runoffs in its beds, its dynamics leaves surfaces with cultural evidence in dragging and outcrops of contexts, which is not the case in this entire natural system, since no surface evidence was found to indicate a historical occupation and/or other relevant cultural elements. The DAA is released because it does not present superficial contexts of archaeological remains present.



NOTE: After the completion of the cultural heritage study, the current boundaries of the prospected property were updated over the same area, without representing changes for the evaluation and results of the present analysis.

Figure 50 – Reference areas categorized and presented in spotted layer formats

For the project's DIA and IIA, a quantitative inventory was made of the cultural heritage present, characterized by exceptional and particular architecture from a historical period. For the territorial registration of movable/tangible heritage, geographic coordinates, obtained through the Avenza Map application, were used to identify and create categorized reference points and presented in layered formats with points referring to the registered immovable heritage and adjusted to the cadaster.

For the dating of archaeological sites in similar contexts along the Paraguay River, current research validates and complements these links; and indicates the presence of pre-Hispanic societies along the entire length of the Paraguay River, with radiocarbon dating from ca. 100 BC to ca. 300 AD for the Pantanal Tradition (Lamenza, 2015). Reports of rock art findings in the project area are mentioned for the site called Barrero

Guaá, near Gamarra-cué, a site located at the headwaters of the Tagatiyá stream (AII), department of Concepción (Díaz-Pérez, 1904). It is also important to note reports of paleontological remains (Báez Presser, et al. 2004), for flora (fossil vegetables: fern and conifer woods - Itapucumí Group), as well as fauna.

From a primary assessment, based on the secondary information available, it is possible to affirm the importance of a deep-rooted cultural territory, with local testimonies that are alive and present in its experiential imagination. With regard to the potential impacts generated, specifically with regard to cultural heritage, it can be noted that it will be significantly affected (intangible or immaterial heritage), due to changes in habit and significance as social capital.

Table 83 – Assessment and impacts on the evaluated cultural heritage

Areas / Impacts	Material Heritage			Immaterial Heritage			Notes
	H	M	L	H	M	L	
AREA DIRECTLY AFFECTED			X	←	X		MH/Low impact on the subsoil/potential presence of associated cultural context MH/Moderate to high impact due to increased vehicle traffic. MH/Moderate/high impact - on livelihoods/productive areas and immediate environment/social capital.
DIRECT INFLUENCE AREA	←	X		←	X		MH/Moderate impact MH/Moderate to high impact due to increased vehicular traffic and possible new settlements for goods and services MH/Moderate to high impact on livelihoods and natural environment/ecosystem services HI/Moderate/high impact on loss of collective memory/migration/territorial roots/identity.
INDIRECTLY INFLUENCED AREA		←	X	←	X		MH/Low to moderate impact/ on the architectural heritage, which is protected and there is a citizen awareness of respect - tax exemption are municipal benefits for heritage safeguarding. MH/Moderate/high impact on livelihoods and cultural identity. HI/Moderate impact/ loss of collective memory/population growth

Reference: (H) High – (M) Medium – (L) Low - (MH) material heritage – (IH) Immaterial heritage

In Table 83, it can be seen that the most relevant impacts are in the Direct Influence Area (DIA), since it directly affects their livelihoods and the provision of ecosystem functions and services, initiating a process that would weaken their natural and social capital, with the loss of collective memory. New settlements and increased vehicular traffic are part of impacts that will affect livelihoods.

For the area of indirect influence, there is a low to moderate impact on tangible heritage (architectural and historical), since they are protected by Municipal Ordinance and their intervention/conservation is authorized through a municipal resolution, as well as their tax exemption (district of Concepción). However, for the districts of Loreto, Belén and Horqueta, the heritage houses are around their main squares, all of which are preserved, and others have been restored. The collective respect of the population and institutions

in the districts affected by DIA for their material/tangible heritage is part of their cultural identity.

In the potential impacts identified by areas of intervention (DAA/DIA/IIA), the loss and need to strengthen livelihoods and cultural identity, present in all stages of the process of implementation of the plant, in order to generate a rooting, human development and cultural appropriation.

9.3.4.4.2 Assessment and methods

The cultural heritage of a people comprises the works of its artists, architects, musicians, writers and scholars, as well as the anonymous creations that have emerged from the popular soul, and the set of values that give meaning to life, i.e. the material and non-material works that express the creativity of that people; the language, rites, beliefs, historical sites and monuments, literature, works of art, and archives and libraries (definition drawn up by the UNESCO World Conference on Cultural Heritage, held in Mexico in 1982).

Geographical, human and cultural diversity is expressed in its tangible or tangible (movable and immovable property) and intangible or immovable (intangible heritage) heritage; and it becomes meaningful through the appropriation assumed by communities.

The present study, due to its cultural, historical and archaeological character, defines a geographical space or territory as a stage for action, where a historical construction and a cultural practice were developed, and where the cultural identity of the community or communities that sustain it is clearly reflected.

The Baseline of this section begins with the Foundation of the Royal Village of Concepción (1773), its current characterization, its historical milestones, and the legal support that allows the protection and revaluation of heritage, specifying to which area of intervention of the project it is applicable. The identification of the existing types of heritage is disaggregated by their specificity and valuation.

The study area is located on a territory founded in 1773 by Agustín Fernando de Pinedo, with the name of Villa Real de la Concepción. This name, like other frontier towns founded under the reign of Charles III, recalls the Purísima Concepción, patron saint of Spain. It was a military town for 40 years, until in 1812 the town council was founded, with which the town became a civil settlement. The arrival of Italian, Syrian-Lebanese and Catalan immigrants around 1880 boosted the district as a commercial port and initiated a sustained process of development of Italian-style architecture. At the beginning of the 20th century, the Port of Concepción was an active center of trade and product exchange, especially with Matogrosso, Brazil (Yubi, 2011).

The survey of cultural and archaeological heritage focused on identifying tangible (material) and intangible (intangible) heritage, through secondary and primary information, as well as local testimonies of its social dimension. In the case of architectural heritage, which was the most relevant due to its magnificence, the selection and assessment criteria are described, and in this way its originality, attributes and relative temporality can be assessed.

Based on the location of the project area, on the banks of the Paraguay River and two land accesses, the surface archaeological characterization was carried out extensively throughout the Area Directly Affected (497 ha) and the Central Area (1,211 ha), the

Direct Influence Area (278,070 ha), and the Indirect Influence Area (3,329,828 ha) for the purpose of monitoring potential direct and indirect impacts on the cultural landscape and identifying heritage values at risk. The design of the archaeological characterization was made taking into account the variables that are controlled (intensity) and not controlled by the researcher (visibility, accessibility), in order to maximize the probability of finding archaeological records in a broad sense (artifact, structure and any feature)¹⁰¹.

The entire area was surveyed in search of areas of open terrain or erosion in order to prospect for archaeological indicators, taking as reference the natural and anthropogenic systems observed on Map 14 duly identified as study areas through observation points: agricultural zone (1,322 ha), forest cover (1,531 ha), herbaceous (1,586 ha), and water (438 ha).

The first field campaign was aimed at prospecting in the agricultural areas and observation points of the areas with forest cover and native herbaceous plants. As well as interviews with inhabitants settled in the Area of Direct Influence. In this same campaign, data was collected from the historical center of the main towns in the Area of Direct Influence, as well as interviews with local authorities and cultural and social references.

In the second campaign, a tour was carried out in the central area of the project with observation points of the areas of livestock use, both implanted pastures and grasslands and savannahs, up to the river bank and dry riverbeds. These observation points sought to find materials that would allow us to understand possible cultural contexts present.

The documentation of the terrain was carried out by arbitrarily selected field observation points (georeferenced), recording those sectors of the terrain that offered natural (erosion zones), cultural or other particular windows where superficial archaeological indications were most likely to be found. In the course of the surface prospection, points of observation of the terrain were recorded and documented in the following figure.

For the project's DIA and IIA, a quantitative inventory was made of the cultural heritage present: movable, immovable, gastronomic, historical events, popular festivals and other elements that the local imagination recognizes as heritage. Since this is a quantitative inventory and a record of the state of conservation of tangible and intangible, spiritual and archaeological heritage, methodologies were combined, according to the specificity of each element and heritage good identified. The use of online systems was the basis of the work, because of the combination of digital support information in real time.

For the territorial registry, the geographic coordinates obtained through the Avenza Map software were used to identify and create reference points that were categorized and presented in layered formats with reference points to the registered tangible heritage, adjusted to the national registry.

¹⁰¹ For this purpose, the criteria of Schiffer, Sullivan and Klinger were followed (1972),

Table 84 – Selection and assessment criteria for the study of architectural cultural heritage

Selection criteria	Valuation criteria
1. Testimony of cultural and symbolic tradition Be associated with living events or traditions of a local, regional and national nature.	1. History Construction period - Construction date.
2. Quality of the building It represents the quality of the design of the property at a typological and morphological level, the relevant constructive and decorative elements, the technology used in the construction system and the use of materials, the visual impact caused by the building within the immediate environment at an urban and natural level.	2. Architectural-aesthetics Style or stylistic influence. Volumetric and design; Architectural plastic (scale, unity, rhythm, harmony, color, texture, symmetry, asymmetry, composition, proportion, balance, highlighting). Integral elements: decorative, ornamental, structural.
3. Integrated with the urban environment (formation of urban complexes) Preserve homogeneity in typology, morphology, construction system and use of materials. The rhythm, the disposition of the openings and fills, the height of the buildings are some factors that express a clear language of architectural unity within an urban set.	3. Classification and function (Functional-Typology) Location, distribution and relationship of the spaces (accesses, portals, hallways, patios, gardens, orchards, green areas, galleries, stairs, porches, circulation elements, social, intimate and service areas) Identification of the typology (traditional building, vernacular, haciendas, villas, etc.) Type of use: original, current.
4. Associated with the cultural landscape Establish a relationship between the human being - architecture - physical environment (cultural landscapes).	4. Technical-constructive Technology and/or traditional construction systems. Contemporary technology and/or construction systems. Mixed materials / mixed construction.
5. Associated with historical events Be associated with significant historical events that occurred in the property at the local or national level.	5. Historical - testimonial - symbolic → Socio-cultural-economic value. → Associated with a historical event(s) or with the collective memory related to important character(s) and/or representative of the place. → Urban, architectural, productive landmark.
	6. Architectural - urban environment → Property integrated into the urban environment. Urban complexes. → Generate visual impact. → Favors the urban perspective. → Urban environment. → Related to archaeological sites or deposits.

Selection criteria	Valuation criteria
	<p>7. Authenticity and integrity</p> <p>→ Volumetric / form, - Design, - Integral, decorative, ornamental, structural elements, - Internal distribution of spaces, - Technology and construction systems, - Urban design (orientation, form, design, dimensions, construction materials and finishes).</p>

9.3.4.4.3 Description and evaluation of the cultural heritage in the project area

For the purposes of this study, cultural heritage will be understood as the set of tangible and intangible assets that constitute the heritage of a human group, that emotionally reinforce its sense of community with its own identity and that are perceived by others as characteristic.

To better understand the concept of Cultural Heritage, its appreciation will be divided into tangible and intangible heritage, in order to study and treat it.

9.3.4.4.3.1 Material or immaterial cultural heritage

It is made up of objects that have physical substance and can be preserved and restored by some type of intervention; they are those manifestations supported by material elements that are products of architecture, urbanism, archaeology, and craftsmanship, among others. It is composed of the movable and immovable goods made by the societies of past.

- **The movable cultural heritage (PCMU - in Spanish)** is the set of cultural heritage that communities, social groups and public and private institutions recognize as part of their memories and identities, or as part of the memories and identities of the nation, since they attribute to them, among others, collective, historical, aesthetic and symbolic values. These assets are generally protected and transmitted to future generations. The properties that make up movable cultural heritage may be representative: 1) for a group, collectivity, community or village; 2) for a municipality; 3) for a district; 4) for a department; 5) for the nation; or 6) for the world.¹⁰²
- **The immovable cultural heritage (PCIMU)** are movable cultural heritage that are an expression or testimony of human creation or the evolution of nature and therefore have an archaeological, historical, artistic, scientific and/or technical value. Examples are: an aqueduct, a mill, a cathedral, an archaeological site, an industrial building, the historical center of a city, among others.

For the case of the survey of immovable cultural heritage, they were categorized as follows, according to the historic center of the city of Concepción, identified through Municipal Ordinance Number 09/04 on zoning - land use; Number 12/04 establishing the protection, conservation, recovery and transmission of the cultural and natural heritage of the Municipality of Concepción, and Number 13/04 establishing the general

¹⁰² <https://www.mincultura.gov.co/areas/patrimonio/patrimonio-cultural-mueble/Paginas/default.aspx>

catalog of assets that make up the cultural and natural heritage of the Municipality of Concepción; and testimonies of the local imagination, with the following categories: Mansion - Casonas - Houses and Port Area.

This category was also applied to Belen, Loreto and Horqueta, where only historic homes stand out.

- Mansion: Buildings that have more than two levels or floors, worked with details in walls and cornices. They are buildings that have a larger built area and a large internal courtyard. It predominates the facades type cover ornamented with pillars in the walls and gables like auction. The pilasters had moldings in the shaft and in the capital with acanthus leaves, characteristics of the European houses with mixtures of styles like the classic one, neoclassic, Renaissance among others. Relative temporality: 19th century.
- “Casonas”: Buildings that have a certain bearing similar to mansions, but do not have as many details on the in front. It has predominantly a covered front. They were used as residences as well as local and regional businesses since they brought products from the surrounding settlements. They have the smallest patio in comparison to the mansions. Relative temporality: 19th century.
- Dwellings: Buildings intended for smaller residences in comparison with the other categories, predominantly tapa type facades and colonial galleries where the inhabitants sat to share traditional drink “terere” under their shade. It presents similar characteristics to mansions, but with less ornamentation. Relative time: 19th century.
- Port area: Buildings dedicated to port activities, is an area of interconnection between coastal towns and commercial exchange of the time. The dwellings closest to the port have a greater architectural presence since the inhabitants were dedicated to this trade, both fishing and commercial exchange. As one moves away from the site, one can observe more precarious dwellings. Relative time: 19th century.



Figure 51 – Heritage grids present in the city of Concepción with hierarchical symbols

The following is a list of the relevant tangible heritage of the city of Concepción, where there are 209 registered and declared for the Historic Center of the City of Concepción, by the Municipality of Concepción.

Table 85 – List of relevant material heritage of the city of Concepción

	Material Cultural Heritage	Location	Notes
1	Municipal Theater	Concepción (DIA)	Resolution SNC number 217/2019 was declared of cultural interest to the project of "Reformation and remodeling of the Municipal Theater Don Pedro Gregorio Antonio Alvarenga Caballero".
2	Railway "Nacional Norte"	Concepción (DIA)	Declared Heritage by Ministerial Resolution #1 (January 4, 2008) (components that were elements of the National Northern Railway, which are in the Department of Concepción, linking the departmental capital-Concepción, to the Captain Gumersindo Sosa Station - Arroyo Karé). Source : SICPY http://sicpy.gov.py/busquedas/index.php?categorias-3=&page=96
3	Museum of Contemporary Art	Concepción	It no longer exists. It was in the Autumn Mansion. It revolved around the work of Carlos Colombino.
4	Church "Nuestra Señora de la Concepción"	Concepción	Its construction began in 1960, after the collapse of a large part of the old church factory and the demolition of what remained. The work was completed in 1968 and the inauguration took place in December of that year. Its interior houses a holy water font carved in pink marble, a wooden sculptural group of the Crucifixion, the images of the Virgin of Carmen, Saint Joseph and the Sacred Heart of Jesus, a painting by Carlos Colombino and the altar that is the work of the latter, and the painting of the Virgin of Chestokowa, a gift from Pope John Paul II. https://www.bienvenidoaparaguay.com/showdata.php?xmlcity=22&xmldestino=64
5	Church "San José"	Concepción	Built at the time of the European mandate. Front building -cover with neoclassical reminiscences. It stands out for the beauty of its façade among other religious buildings in spite of the transformations it has undergone in its mortar altarpiece, the work of Don Pedro de Alcantara. It has a bell brought from Italy in 1911, which is owned by the Conception people. A huge Carrara marble tombstone inside it reminds us of the great benefactor Don Julián Quevedo y Gómez de la Pedrueza, who contributed a large sum of money to the construction (Catalogue N. 200 - Municipality of Concepción and Cultural Association of the Royal Village of Concepción)
6	Museum of the Cuartel de la Villa Real	Concepción	The Headquarters was built as soon as the city of Concepción was founded in 1773. It was not until 1862 that it began to be "modernized" when the Mcal assumed the presidency. Francisco Solano López. The War of the Triple Alliance began and ended in this place. Madame Lynch's cart is the most attractive relic in the Museum. (Catalogue N. 85 - Municipality of Concepción and Cultural Association of Villa Real)
7	Mansion Paciello	Concepción	Today UTIC University. Declared Patrimony of Concepción.
8	Mansion Villa Ida Albertini Quevedo.	Concepción	It has an incredible coffered ceiling made by hand by Quevedo himself. The President of the United States, Theodore Roosevelt, passed through there in 1913. Declared Patrimony of Concepción.
9	Mansion Aquino Quevedo	Concepción	Declared Patrimony of Concepción.
10	Mansion Chatelain – Jantou	Concepción	Declared Patrimony of Concepción
11	Mansion Peluffo Quevedo	Concepción	Declared Patrimony of Concepción - Ordinance #. 13/04

	Material Cultural Heritage	Location	Notes
12	Casona Miltos Herrero	Concepción	Declared Patrimony of Concepción - Ordinance #. 13/04
13	Casona Ugarte Zabala	Concepción	Declared Patrimony of Concepción - Ordinance #. 13/04
14	Casona de Gobierno de 1947	Concepción	Declared Patrimony of Concepción - Ordinance #. 13/04
15	Villa Heyn	Concepción	Declared Patrimony of Concepción - Ordinance #. 13/04
16	Hotel Francés	Concepción	Declared Patrimony of Concepción - Ordinance #. 13/04
17	Zavala, Benítez, Cabrera y Cía	Concepción	Declared Patrimony of Concepción - Ordinance #. 13/04
18	Cine Teatro Paradedá y Pampliega	Concepción	Declared Patrimony of Concepción - Ordinance #. 13/04
19	Solar del Gral. Francisco Isidoro Resquin	Concepción	Declared Patrimony of Concepción - Ordinance #. 13/04

Within the architectural heritage, the old town of the first Foundation of Concepción stands out, with houses, mansions and mansions of greater hierarchy, on a plot of the old port of Concepción and the Cuartel de la Villa Real de Concepción (1773 - 1864). Map 15 shows the boundaries of the historic center, where it also shows in georeferenced points the existence of a greater number of large houses, as well as mansions, all having their main entrance in corners, with two facades on two streets and hallway, which marks a greater social hierarchy. Outside the limits of the historical center only some relevant mansions can be observed.

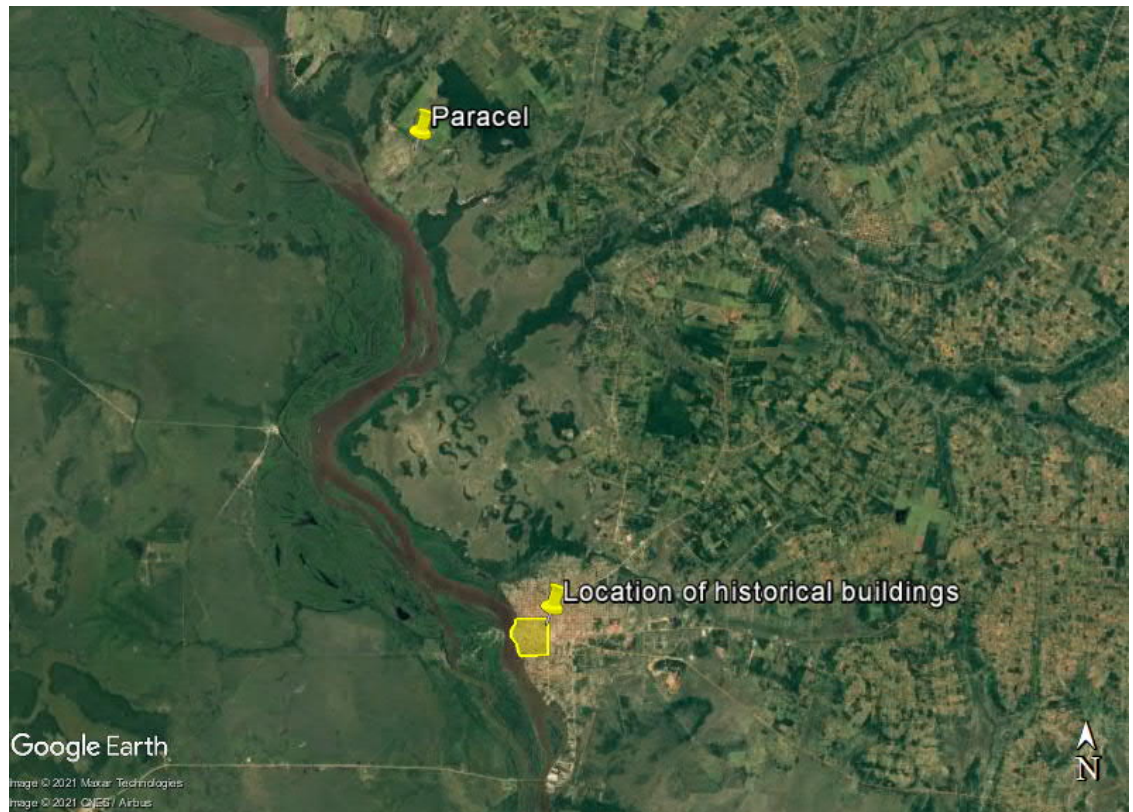


Figure 52 – Location of historical buildings, within the old town of Concepción, in relation to Paracel mill

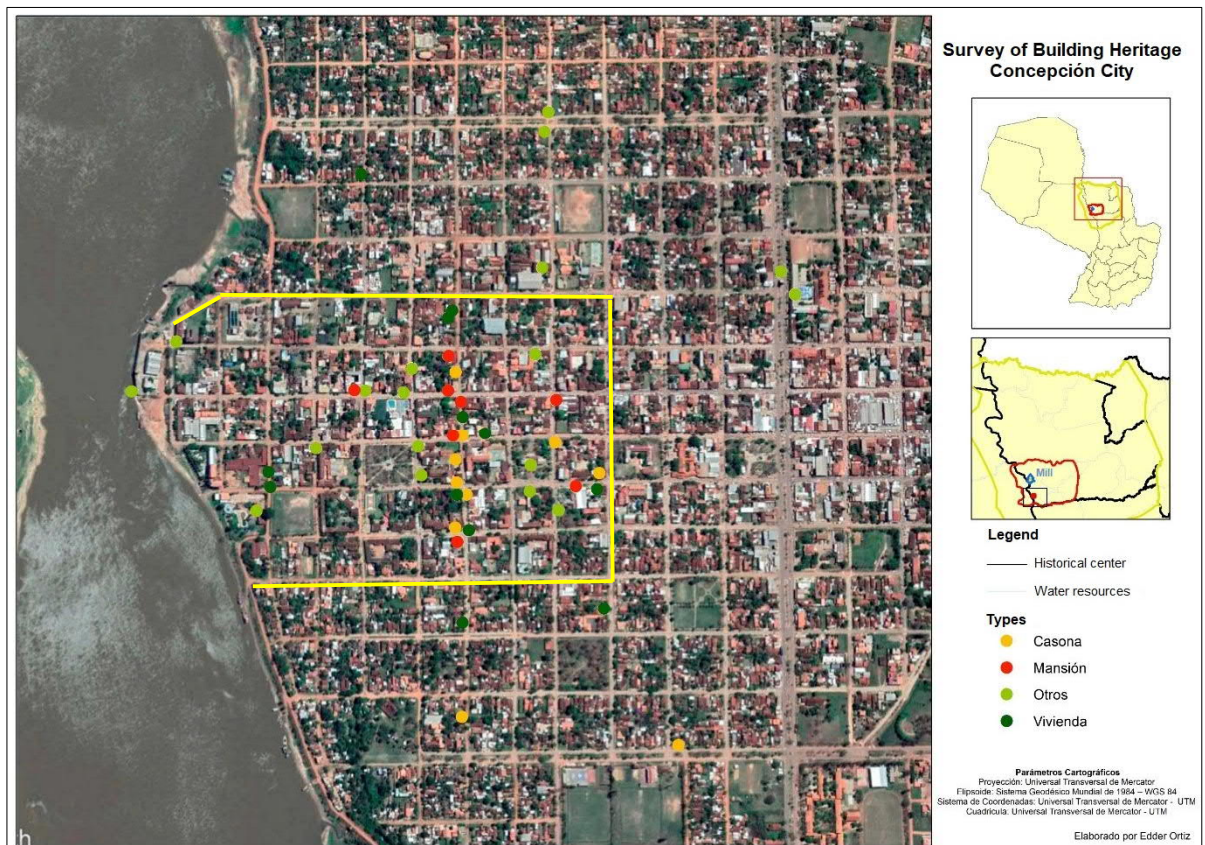


Figure 53 – Mapping of historical buildings, within the old town of Concepción, connection to the Paraguay River

The Museum of the Cuartel de la Villa Real de Concepción

History: 1773 – 1864



Figure 54 – Photography: Cuartel de la Villa Real de Concepcion -1886

The originality of this infrastructure, which was a main headquarters, represents the oldest building, dating from the foundation of the city of Concepción in 1773. It was not until 1862 that it began to be "modernized" when El Mcal became president. Francisco Solano López. In this place the War against the Triple Alliance began and ended. In spite of what is written, it was never Lopez's Barracks but rather the Barracks of his time that he reopened in 1864, with the presence of the president. The facilities were refurbished in 1862-64, during the time of Lopez. (Catalogue N. 85 - Municipality of Concepción and Cultural Association of Villa Real).

The materials that it has protected through its presentation represent historical moments of high patrimonial value, many of them "unique". Among them it can be mentioned Madame Lynch's cart, considered a relic and what it represents for the local and regional imagination. The cart dates from 1864 and was used to transport the belongings of the wife of the Mcal. Lopez ¹⁰³.

Currently, this Museum is restored and open to the public, with two municipal officials responsible. Its restoration was done through the Workshop School created in the Municipality, with the support of the Spanish Cooperation. At its best, this school trained more than 30 young people in different trades, with emphasis on the restoration of the Museum (1999). It is still in operation. ¹⁰⁴

According to the museum's certificate of reference to the building, placed in its entrance, it mentions that on May 25, 1773, the city of Concepción was founded by Brigadier Don Agustín Fernando de Pinedo y Valdivieso, a member of the Spanish army designated to govern for a period of six years. Its Spanish-Paraguayan style is reported by Du Graty, and published in Europe in 1862. This building is also called "La casa del Rey" (The King's house). Its urban territorial location, places it in the current lot, which overlooks the Plaza Mayor (current Plaza de la Liberta).

¹⁰³ <https://www.abc.com.py/edicion-impres/suplementos/centinela/el-museo-de-concepcion-una-opcion-turistica-1615023.html>

¹⁰⁴ Testimony M. Ibañez/Museo Cuartel de la Villa Real



Figure 55 – Photograph: Current museum front. 2020



In the Internal Gallery where can be seen its current conservation, after its restoration. It can be seen the space facing the internal courtyard, a ceramic brick floor, a carved column with a molding on its capital that supports the weight of the main beams of the roof, the braces are made of caranda and the seat of Spanish tiles is in section.

The openings are made of solid wood of great thickness with a curved crossbar that works as a lintel.

The walls are plastered and painted with rustic finish.

Figure 56 – Museum's internal gallery



Figure 57 – Municipal Museum of the Cuartel de la Villa Real

Special attention deserves activities around cemeteries¹⁰⁵, where the local population accompanies, with much devotion and respect, forming a group of friends of the cemetery. This activity is carried out every year, in the two cemeteries of the city. These tours, called necro-tourism, are carried out by the Cultural and Historical Studies Association of Villa Real, specifically in the old areas of the Municipal Museum, where there are characters who contributed to the history of the city and the country ¹⁰⁶.

The cemeteries located in the communities of the Direct Influence Area stand out.



In the image in the middle, the pantheon belongs to Mrs., Caballero de Saviex and in the image on the far right appears the pantheon belonging to the Isnardi Family, known as the neo-Gothic "Castillito". Photos Cultural Association of Villa Real. Posted January 12, 2019.

Figure 58 – Old sector cemetery - Villa Real de la Concepción

The pantheons present very elaborate architectural designs, including neo-Gothic, classical, neo-classical and others (Fig. 22). Major Rufino Pampliega Franco, Major Lorenzo Medina, Captain Gumercindo Sosa, Lt. 1 Manuel Irala Fernández, "Yacaré Valija"; Lt. 1 Aniano Cabrera, Vicente Cabañas, Pedro Céspedes, Ladislao Cabrera are some of the hundreds of heroes that rest in the "Pantheon of the Heroes of Concepción"..



Figure 59 – Dwelling - typology

¹⁰⁵ Testimonio Porfirio Báez, presidente de la Asociación CVR

¹⁰⁶ <https://www.abc.com.py/nacionales/realizan-necroturismo-en-concepcion-1583796.html>

Architectural heritage of the cities of Bethlehem, Horqueta and Loreto (DIA)

In the case of the cities of Horqueta, Belén and Loreto, located within the DIA, they present different periods of construction and settlement, many of them of immigrants or part of a rural development project implemented by the National Government. All relevant architectural manifestations are around the central square and church, with monoliths representing their saints, or a feature that makes it visible in the collective memory, as is the case of Bethlehem and the imaginary line of the Tropic of Capricorn. The relevant historical element that defines the collective memory of these cities is given by the events of the War of the Triple Alliance.

BELEN. The city of Belen, capital of the district of the same name, is also called "the city of the Tropic" because the imaginary line of the Tropic of Capricorn passes through it. It is considered the oldest city in the department of Concepción. The district of Belén was founded on August 23, 1760, in a place known as Paso Mbayá.

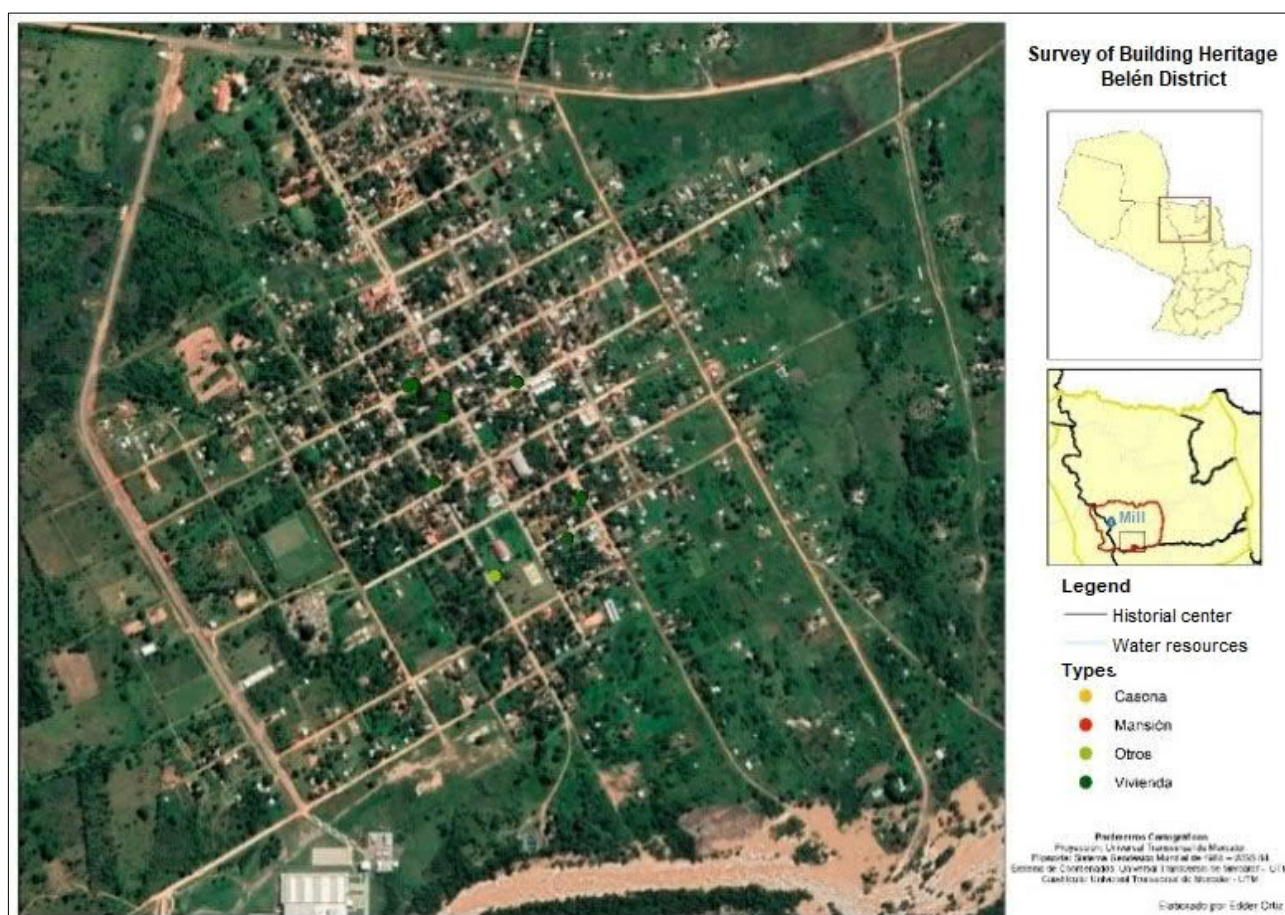


Figure 60 – Satellite image of the city of Belen - heritage survey



Figure 61 – Side facing of the church of Belen (Lat. 23°28'21.19 "S Long 57°15'43.84 "W)



Figure 62 – Back facing of the church of Belen (Lat. 23°28'21.19 "S Long 57°15'43.84 "W)



Figure 63 – Colonial house with front gallery. Padre Sanchez Avenue e/Uruguay. Belen



Figure 64 – Corner house with frontage type cover (Lat 23°28'12.57 "S Long 57°15'45.89 "W)



Figure 65 – Colonial house with front gallery with details of Jesuit style columns (Lat. 23°28'10.18 "S Long 57°15'49.90 "W)



Figure 66 – Colonial house with front gallery with details of Jesuit style columns (Lat. 23°28'9.72 "S Long 57°15'47.76 "W)



Figure 67 – Tropic of Capricorn Monument. Belén, Concepción Latitude 23°26'21". Tourist point and of relevance for the city.

HORQUETA. It is a city that had its origin as a chapel, in the 18th century, officially founded in 1793. It was the first city with a pedestrian street in the country. The city is called Horqueta, because it is located at the fork in the road, hence its name (Tape Horqueta). The first construction was a mansion where a family settled, and since then the place known as Paraje Horqueta or Tapé Horqueta, became a place where the traveler had a roof and a barnyard, where they could rest and give the animals a break. To this first family, several others came, occupying the four corners of TAPE HORQUETA, with time new immigrants already arrived, forming a conglomerate of ranches of farmers and hunters. It is located 50 km from the city of Concepción.

Figure 68 – Satellite image of the city of Horqueta

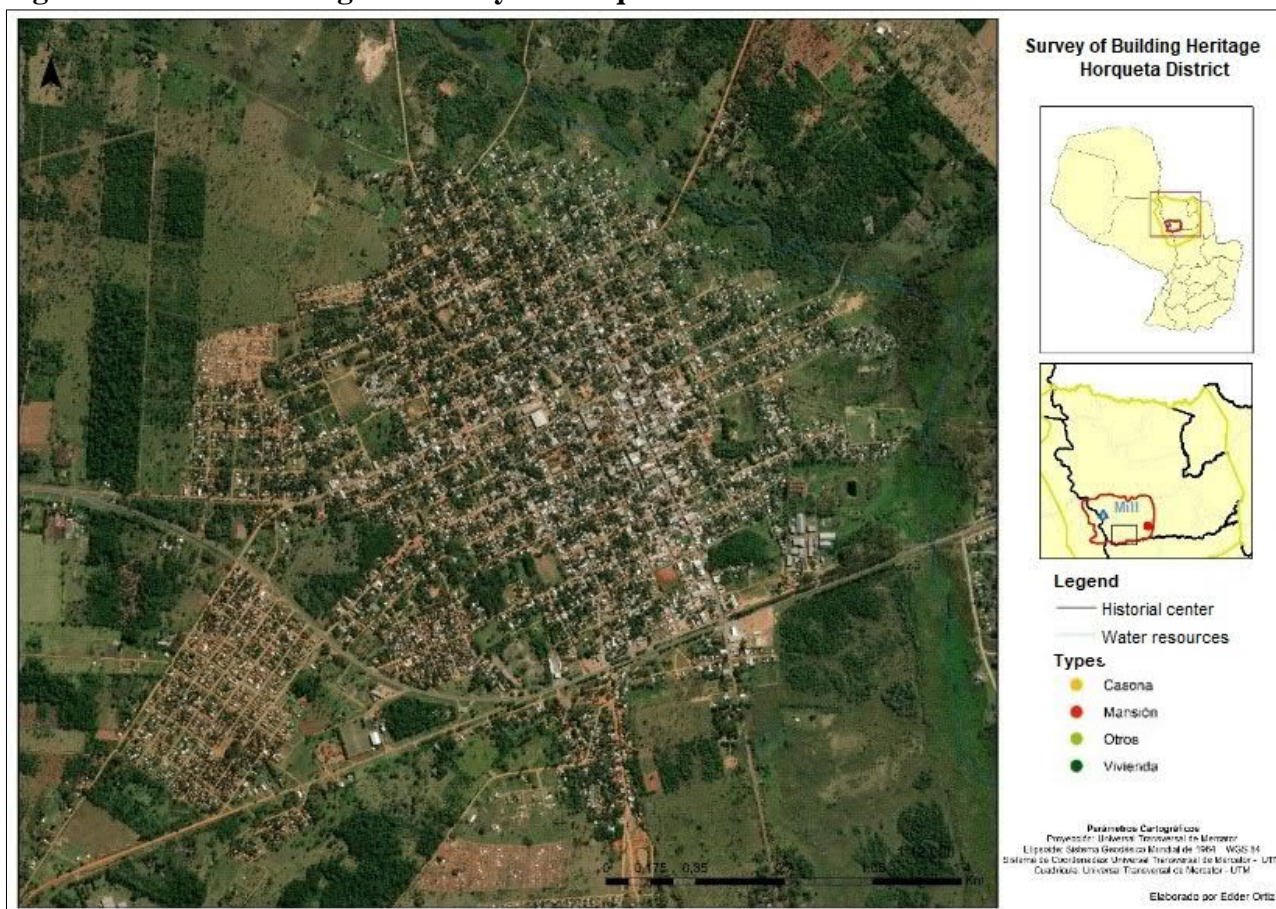


Figure 69 – Vivienda transformed into a corner with a front cover and gables on the cornice Location: Mariscal José Félix Estigarribia, corner of Curupayty. Horqueta.



Figure 70 – Vivienda in the corner with a front type cover and gables on the roof top and balcony. Location: Mariscal José Félix Estigarribia e/Curupayty. Horqueta.

LORETO. The city of Loreto, capital of the district of the same name, is known firstly as "Paraje Jui'y", then "Capilla Zarza", to be later called Loreto, in honor to "Nuestra Señora de Loreto", it was founded by Jesuits, who arrived in 1686. The city of Loreto was founded on December 10, 1792. In the urban layout it is observed that the oldest houses are located in the center of the city and the newest ones in the outside.

Figure 71 – Map of the city of Loreto – heritage survey

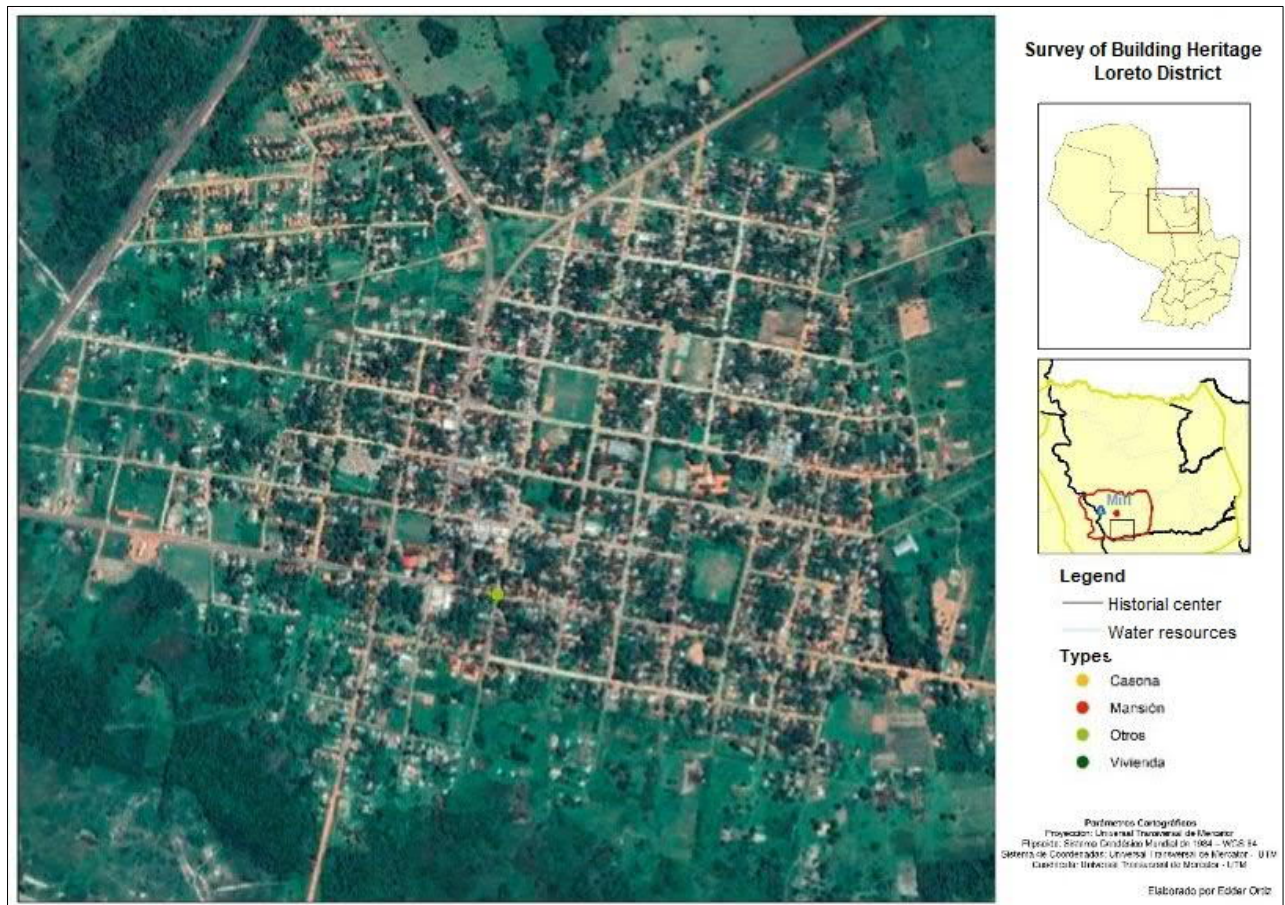


Figure 72 – Vivienda - Corner house with front “tapa” type



Figure 73 – Colonial style house with front terrace (-23 16 37 -57 19 38)

9.3.4.4.3.2 Immaterial or intangible heritage

El Intangible cultural heritage has been defined as: *“the practices, representations, expressions, knowledge and skills - together with the instruments, objects, artefacts and*

cultural spaces associated with them - that communities, groups and in some cases individuals recognize as an integral part of their cultural heritage. This intangible cultural heritage, which is transmitted from generation to generation, is constantly recreated by communities and groups on the basis of their environment, their interaction with nature and their history, giving them a sense of identity and continuity and thus helping to promote respect for cultural diversity and human creativity”¹⁰⁷.

Table 86 – List of relevant immaterial heritage in the DIA

Heritage	Location/District
Pieces of the Municipal Museum of Cuartel de la Villa Real de Concepción.	Concepción
Pieces of the Museum Diocesano de Arte Sacro	Concepción
Monument to the Virgen María Auxiliadora	Main road - Av. Agustín Fernando de Pineda. Concepción
The obelisk to Virgen de Fátima	Concepción
Obelisk to the indio (indigenous)	Concepción
Monolith of the Tropic of Capricorn	Belén
Monument to the Republic.	Plaza de la libertad o Plaza Fundacional, Concepción.
Background of the Foundation of Concepción	Plaza Pinedo - CONCEPCION
Museum Aire libre	In Boulevard Este, Concepción

Patron saint's day. The patron saint's festival or major festival is understood to be the set of solemnities with which a town - in the case of large cities, these may be neighbourhoods - celebrates the date of its patron saint every year. This is a tradition that is essentially established in countries with a Hispanic culture. These festivities usually include religious acts as a solemn service and pagan celebrations that take place in the streets of the town, such as parades, concerts, dances, festivals, fairs, children's games, bullfights and mechanical games.

¹⁰⁷ Convención para la Salvaguardia del Patrimonio Cultural Inmaterial convocada por la UNESCO, celebrada en París, 2003.

Table 87 – List of relevant “patron” holidays

	Patronal Party/celebration	Date	Location/District
1	Nuestra Señora de La Paz	January	Belén (DIA)
2	Festival del Paje - Aniversario del Ciudad de Belén	January	Belén (DIA)
3	Desfile Civil, Estudiantil, Policial y Militar en Homenaje a la Ciudad de Horqueta	January	Horqueta (DIA)
4	Fiesta Patronal a María Auxiliadora	January	Concepción (DIA)
5	Festival Estudiantil - Fundación de Concepción.	May	Concepción (DIA)
6	Desfile Estudiantil, Civil, Policial y Militar/homenaje a la Fundación de la Villa Real de Concepción	May	Concepción (DIA)
7	Fiesta Patronal: San Juan Bautista	June	Yby Yauí
8	Fiesta de la Integración	July	San Lázaro (en Vallemí)
9	Expo Norte	September	Concepción (DIA)
10	Festival en Homenaje a la Juventud Concepcionera	September	Concepción (DIA)
11	Festival del río Paraguay	October	Concepción (DIA)
12	Fiesta Patronal: Virgen del Rosario	October	Horqueta (DIA)
13	Festividad Nuestra Señora Aparecida	October	Yby Yauí
14	Fiesta Patronal: Virgen de Fátima	October	San Lázaro (en Vallemí)
15	San Carlos de Borromeo	November	San Carlos del Apa
16	Festival del río Apa.	November	Vallemí
17	Nuestra Señora de la Inmaculada Concepción	December	Concepción (DIA)
18	Nuestra Señora de Loreto	December	Loreto
19	San Lázaro	December	San Lázaro



Figure 74 – Monolith “María Auxiliadora” in the main street

9.3.4.4.3.3 Natural heritage

It is the set of natural, or environmental, resources and possessions that society has inherited from its predecessors. It is composed of: natural monuments consisting of physical and biological formations or groups of such formations which are of outstanding universal value from the point of view of aesthetics or science, geological and physiographical formations and strictly defined areas which constitute the habitat of animal and plant species, threatened or endangered, natural sites or strictly defined natural areas (such as national parks, nature reserves, conservation areas, etc.) which are of outstanding value from the point of view of science, conservation or natural beauty ¹⁰⁸.

¹⁰⁸ https://moodle2.unid.edu.mx/dts_cursos_md/lic/ET/FT/AM/09/Patrimonio_clasificacion_y_definiciones.pdf

Table 88 – Relevant natural heritage list: Protected areas and reserves in the project area/DIA

	Natural Heritage	Surface (ha)	Law	Link to PARACEL Project
1	National Park Paso Bravo	93.612	Decree n. 20.712/98	IIA
2	National Park Serranía San Luis (1991/2010)	10.282	Decree n. 11.964/91	IIA
3	National Park Bellavista	7.397	Decree n. 20.713	IIA
4	Private Natural Reserve Cerrados del Tagatiya	5.281	Decree n. 7.791/06	IIA
5	Private Natural Reserve Tagatiya mi	28.755	Decree n. 10.396/07	IIA
6	Natural Monument Santa Elena	36	Law n. 4.577/11	IIA
7	Natural Monument Caverna Kamba hopo	17	Law n. 4.577/11	IIA
8	Natural Monument Tres Cerros	140	Law n. 4.577/11	IIA
8	Natural Monument Cerro Morado Caverna Ycua pa`i	77	Law n. 4.577/11	IIA
10	Private Natural Reserve Guayacan I, II y III	1.447	Decree n. 1230/	IIA
11	Private Natural Reserve Kai Rague	1.769	No data	IIA
12	RAMSAR Site Estero Milagro	26.503	Law n. 350/94	IIA
13	Private Natural Reserve Arrecife	7.812	No data	IIA
14	IIA of Biosphere Reserve of Cerrados del Río Apa		267 836 ha.	IIA
		183.128		

Source: MADES, 2018; Guyra Paraguay, 2007 IBas. Among the areas of importance as bird conservation sites (Ibas) there are 4 recognized for the study zone (Guyra, 2017): Middle Ypane - Arroyo Tagatiya - Estrella and Cerrados de Concepción.

9.3.4.4.3.4 The cultural-natural heritage

The Cultural-Natural Heritage is made up of elements of nature, which are maintained in their original context, intervened in some way by man. Examples are: archaeological or historical remains in their original natural context; paleontological fossil remains associated with human activity in situ; underwater remains of human activity; and the cultural landscape, produced in a certain time and space, which has remained unchanged.

For the project area, it can be noted the presence of reported paleontological remains (Baez Presser, et al. 2004), both in flora and invertebrates. In the case of Flora, they cite that the first fossilized plants in Paraguay, such as fern and conifer woods, were found in the surroundings of the city of Villarrica, Guairá Department, by Carnier in 1911, who was quoted in Eckel (1959). Predominantly carbonate expositions of the Corumbá Group in Brazil, known as the Itapucumí Group in Paraguay (Concepción area), present a paleontological content that includes the macroscopic alga *Tyrasotaenia* sp. (Zaine, 1991), and is associated with the invertebrates *primitivos Claudina luciano* and

Corumbella weneri and the microfossil *Sphaerocongregus variabilis* (Zaine, 1991) (*Baylinella faveolata* cf. *Boggiani et.al.*, 1993)¹⁰⁹.

About the archaeological sites, it can be noted the presence of potential sites of native Mbayas people and others, associated with the use of temporary fishing areas. Reports of archaeological investigations mention the presence of shells, bone remains and ceramics with graffiti and painted designs, at the level of the upper parts of the banks of the Paraguay River, up to the area of Corumba, Brazil, and linked by Susnik (1978) for Paraguay, with the archaeological findings in Belén (department of Concepción).

Current research in Brazil and Argentina validates and complements these links, and indicates the presence of pre-Hispanic societies along the entire length of the Paraguay River, with radiocarbon dating from ca. 100 B.C. to ca. 300 A.D. for the Pantanal Tradition (Lamenza, 2015).

Regarding the rock art in the project area, there are reports of findings and photographs by Dr. Carlos Teichmann (1904) in a place called Barrero Guaá, near Gamarra-cué, a place located at the headwaters of the Tagatiyá stream (AII), Department of Concepción (Díaz-Pérez, 1904).

9.3.4.4.3.5 Culinary heritage

Culinary heritage is understood to be the element of cultural communication, and in this, both the cultural traditions themselves and the natural idiosyncrasies of a place are manifested. Cooking and gastronomy imply an indissoluble relationship between rural life and the service sector. Thus, gastronomy is local development and also tourist development¹¹⁰.

In 2017, the National Secretary of Culture decided: "To declare as Intangible Cultural Heritage of Paraguay the production, handcrafted and traditional preparation of four typical Paraguayan foods still in use, such as *vori-vori*, *locro*, Paraguayan soup and *yopará* (a mixture of beans and *locro*); and also their recipes, knowledge, practices and know-how that are transmitted from generation to generation and document the material and immaterial elements associated with it (corn, in its different varieties) as a cultural manifestation"¹¹¹. Table 89 lists the relevant culinary heritage as follows.

¹⁰⁹ https://www.researchgate.net/publication/263727484_ALGUNOS_ANTECEDENTES_PALEONTOLOGICOS_DEL_PARAGUAY

¹¹⁰ Francesc Fusté-Forné - Universitat de Girona. 2016. Los paisajes de la cultura: la gastronomía y el patrimonio culinario. En: DIXIT vol.24 N.1 Montevideo. Available at: http://www.scielo.edu.uy/scielo.php?script=sci_arttext&pid=S0797-36912016000100001

¹¹¹ <http://www.cultura.gov.py/2017/08/cultura-declara-patrimonio-cultural-inmaterial-del-paraguay-la-sopa-paraguaya-el-vori-vori-el-locro-y-el-jopara/>

Table 89 – Listing of typical food items surveyed with local testimonies (in Spanish to preserve the integrity)

Food		Ingredients in Spanish	Testimonies
Based on flour and vegetables			
1	Pirón	Cebolla, aceite o grasa, agua, fariña de mandioca, y sal.	JB , Type... In cast iron pot, the fat melts... it is fried and mixed with the wheat... should be mixed to avoid burning and generating lumps.
2	Locro	Locro y verduras fritadas con condimentos varios	PAEZ . Mentions the Páez family, who are dedicated to the manufacture of desserts and sweets... that today the locro is no longer like before... it is smaller and it is no longer consumed as before. Its preparation process starts in the early hours, as it takes a lot of cooking time
3	Poroto Ipokue (Poroto con pata)	Poroto, pata de la vaca, verduras, y condimentos varios.	PAEZ . The preparation process would begin with the frying of vegetables (Onion, locote, tomato and garlic), and species... you pour the water, the bean and the cow's foot... it is boiled until it is soft and flavorful
4	Polenta - Mbaipy	Harina de maíz, grasa natural, queso Paraguay, y carne picada como salsa final.	PAEZ . The sautéed onion, garlic, tomato and locote and species... is filled with water and boiled with corn wheat, until it thickens... then the meat is chopped and a separate tomato sauce is made, which is put on top of the polenta.
Based on fish			
	Sardina	Pescados chicos, condimentos y vinagre.	JB . Small fish... are boiled in pressure cookers... and add vinegar to make it sit.
	Piracaldo	Pescado: Surubí, Mandi'i, Tres Puntos y/o Pico de Pato; queso Paraguay, leche, cebollas, locotes y ajo	Brown the vegetables in a cooking pot, put hot water in the pot, place the fish fillet wait to cook and pour water, mix and wait for its boil.
	Chupín		CD . It has the same process as the broth pyre, but milk or cream milk is placed.
Meat based			
	So 'o hu'û (carne blanda)	Carne y menudencia	CD . The meat is boiled with other glibets.
	Morcilla - Mbusia	Tripa gruesa	EO . In family gatherings, an animal is carneed... blood and intestines are collected, which are cleaned and postponed to be filled as sausage....this work begins in the early hours... and you start preparing the filling of the Mbusia... and should be finished by 10 a.m., where its broth with the black pudding and other menudness (churra)... and is served as a first dish of roasts and preferably for older adults.
	Caldo Ava	Menudencias cebolla, cebollita de verdeo, locote, locote picante y perejil.	It is a broth or soup that is obtained by boiling in water all the smallness of the cow, cooking them, mainly the mondongo (intestines and belly of the beef), the booklet (the third of the four cavities in which the stomach of the ruminants is divided), the fat gut and the chinchulin, the latter the edible small intestine.

Food		Ingredients in Spanish	Testimonies
	Akangue yvyguy (cabeza enterrada)	Cabeza de vaca	JC. First, a well of approximately 75 x 75 centimeters is dug in the ground in which pieces of firewood are placed for an hour that acquires the necessary heat for cooking. A banana leaf bed is then made, where the cow's head wrapped in banana leaves, bundled with wire, is then wrapped in a burlap cloth and tied with wire. In the past banana leaves were placed on top of which was covered with earth and with wooden lid. Currently, a sheet metal is placed and on top of the ground, for half a day of cooking.
	Asado a la estaca	carne	EO; JC. This meal is usually for large events as the pieces of meat are whole pieces selected, crossed with guayaibi sticks of approx. 1.50 meters. A well is made where curupay firewood is burned in such a way that the fire does not spread, and the stakes rested on another wood that serves as a support.
	Caldo Ava	Menudencias	It is a soup of the smallness of the cow, has a dense and dark consistency, but of good flavor and a lot of caloric value.
	Arroz carretero	Cecina	There are several ways of cooking, one is to fry the vegetables, place water and then the rice, cut the cecina into small pieces and place it on the rice, the order usually varies.
Sweet			
	Dulce de leche	Leche de vaca y azúcar	CC. Sugar melts to the point of caramel... the milk is poured and stirred until it has a solid, thick, creamy consistency.
	Dulce de calabaza – andai	Andai/calabaza y azúcar	JC. The sugar is boiled with the water... until fully diluted... then the pumpkins are placed and left boiling until the water evaporates.
	Dulce de mamón	Mamón y azúcar	JC. The sugar is boiled with the water... until fully diluted... then the rested sucker is placed a day in advance... it is cleaned... and is left boiling until the water evaporates.
	Dulce de pata de vaca (gelatina de pata de vaca)	Osobuco de la pata de vaca, leche, clavo de olor y azúcar.	JC. The cow's foot is boiled until the osobuco softens, with the obtained broth mixed with milk and sugar, left boiling stirring until all the ingredients are mixed, at the end the clove is placed and allowed to cool at room temperature until hardened like a custard.

Fuente: CC: Crispín Concha (Piquete Kue) – JC: Juana Cubilla (Horqueta) – EO: Edder Ortiz - CD: Celeste Díaz. - PAEZ: Familia (Concepción). -ID Irene Díaz (Concepción). Prepared by the external consultant Lic. Caren Kremer and team.

9.3.4.4.3.6 Final considerations

From a primary archaeological and historical assessment, based on the secondary information available (historical background and local testimonies), added to the field survey conducted in the area of direct and indirect impact of the project, it can be mentioned the importance of a cultural territory rooted, with local testimonies alive and present in their experiential imagination. For each of the documented testimonies, an assessment is made and measures are proposed to generate cultural roots and protect the present collective memory.

With regard to the valuation and potential social impacts, both in the Area of Direct and Indirect Influence of the project, specifically with regard to the intangible cultural heritage, it can be mentioned that it could suffer a moderate to significant alteration, due to changes in habit and significance as social capital. The presence of external personnel, to complete in the first part the spatial modification of the project, is also considered a cultural impact on the uses and forms of appropriation (livelihoods).

9.3.5 Survey of social perception

9.3.5.1 Presentation of results about survey of social perception

As indicated in the map, and as mentioned in item 9.3.3 of Methodology for the Elaboration of Social Studies, the work carried out in the territory had as a transversal axis the survey of the social perception regarding the socioeconomic characteristics of the area and the installation of the plant.

This work of collecting both quantitative and qualitative data in the territory was carried out in the DAA and the DIA through the use of several techniques that allowed access to individual information, such as census to families located in the immediate surroundings of the project's prospecting area; interviews to key institutional and community actors, as well as surveys in strategic points of the districts involved. Likewise, community focal groups and a participative workshop of institutional actors were carried out in the city of Concepción, capital of the department, spaces from which qualitative information was obtained and used (in the case of this section) as a complement to the analysis to be presented.

The information collection process involved all 316 people in the district of Concepción, including the community of Piquete Cue and estancias located in the DAA; and the existing microterritories in the area and the accesses to the pulp mill, also in the districts of Loreto, Belén and Horqueta. Most of these people showed openness and predisposition to consultations and the delivery of information by the team in each of the spaces generated for this purpose.

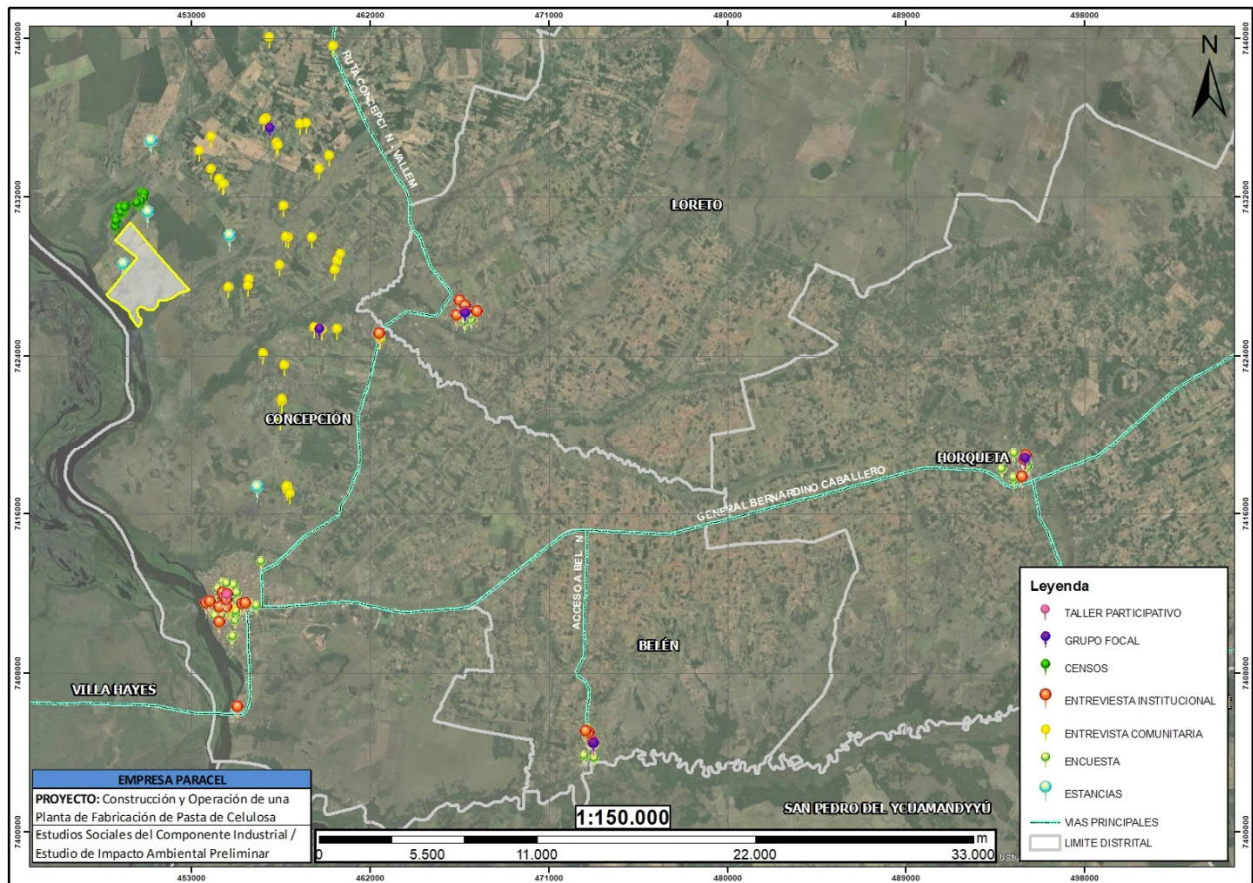


Figure 75 – Geo processing of field survey areas

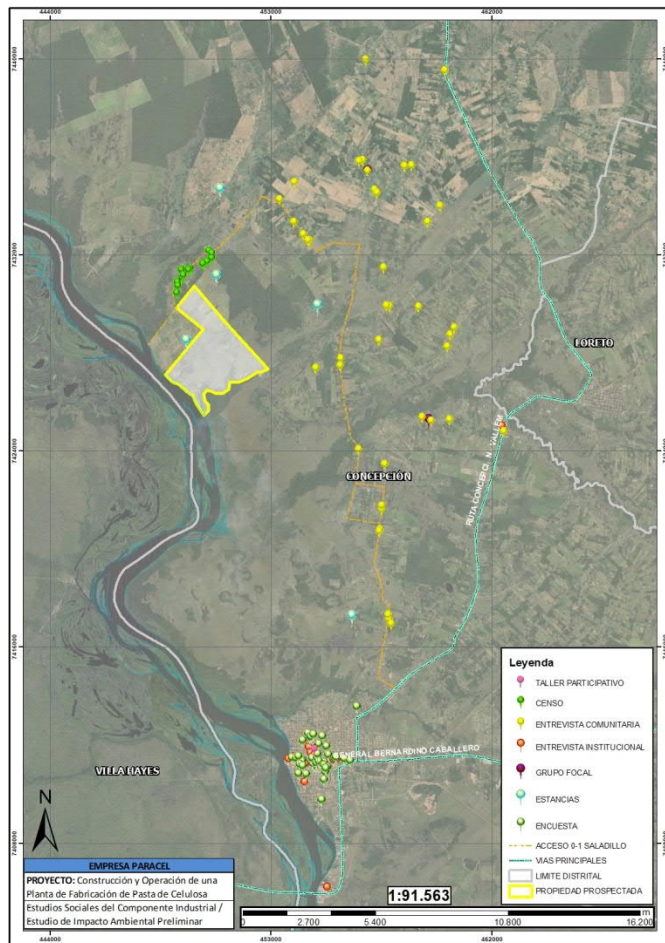


Figure 76 – Location of the collection process

Areas where information was collected from people in the district of Concepción, including the community of Piquete Cue and the DAA farms; and micro-territories in the area of future PARACEL industrial facilities.

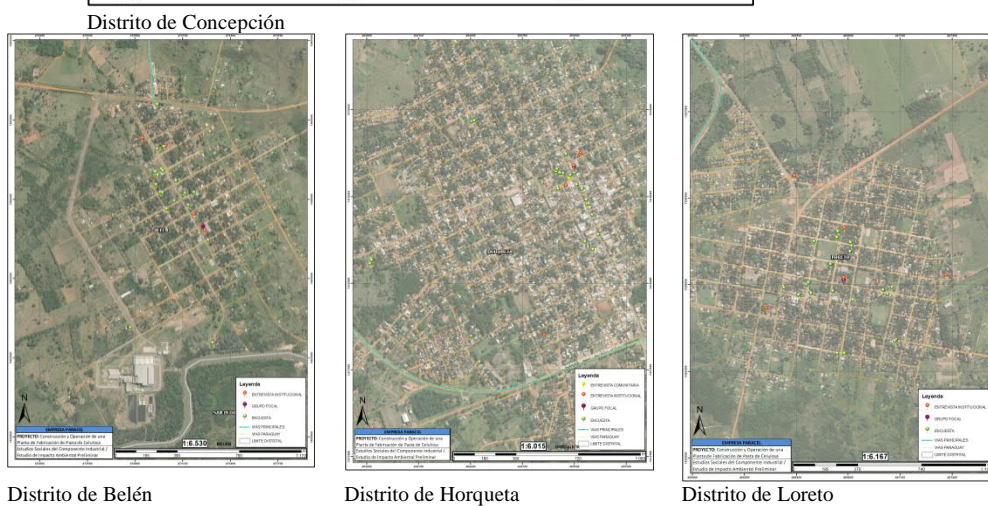










Table 90 describes each of the techniques used by area, number of people consulted and the resulting sources of verification.

Table 90 – Techniques used in the intervention

Activity	Zone / District / Micro territory	Number of people involved	Resulting Verification Sources	Photographic Record
Census- socioeconomic Census cards were applied to families living in the immediate neighborhood of the PARACEL mill.	DAA- Community of Piquete Cue	12 heads of household	Census file Case-by-Case Templates Photographic record	
Farm Interviews Semi-structured questionnaires were applied to owners or managers of mainly farming activities.	DAA-Comunidad de Piquete Cue y zonas aledañas	1 owner and 3 persons in charge of stays	Photographic record Written record of each interview	
Interviews with key players Semi-structured questionnaires were applied to key actors in public institutions, the private sector, civil society organizations, among others.	DIA- distritos de Concepción, Loreto, Belén y Horqueta	28 actors/referents from the Governor's Office of the department, municipalities, regional offices of ministries and national secretariats, universities, associations, social and religious organizations, among others.	Photographic record Written record of each interview	
Interviews with Stakeholders in the Community Semi-structured questionnaires were applied to references of the microterritories identified in the area near the plant.	DIA- distrito de Concepción y 18 Microterritorios ubicados al margen de las vías de acceso a la zona de la planta.	44 takeholders/ referents from educational institutions, small businesses, tourism and recreation enterprises, sanitation boards, neighborhood committees, among others.	Photographic record Written record of each interview	
Participatory workshop with institutional actors from the city of Concepción A program was generated including the delivery of official information by the company and semi-structured questionnaires were applied in working groups during the day.	DIA- Ciudad de Concepción	11 representatives from sectors such as public, private, academia, civil society, among others.	Form of signatures (Signature sheet) Photographic record Written record of the activity	

Activity	Zone / District / Micro territory	Number of people involved	Resulting Verification Sources	Photographic Record
Focus groups with community actors Semi-structured questionnaires were applied during the development of all 5 focus groups.	DIA – Districts of Concepción (Microterritories), Loreto, Belén y Horqueta	67 referents from neighborhood committees, peasant organizations, water and sanitation boards, educational institutions, small businesses, tourism and recreation enterprises, among others.	Signature sheet Photographic record Written record of the activity	 
Perception surveys They were applied by developing a tool with mostly closed and open questions, taking into account interest groups according to profile.	DIA – Districts of Concepción, Loreto, Belén y Horqueta	150 people, students, university students, teachers/managers of educational institutions, shopkeepers, hotel and tourism references, staff in target, people in religious, recreational and organizational spaces	Signature sheet Photographic record	

Source: Prepared by the external consultant Lic. Caren Kremer and team, based on the field work carried out during the months of December, January and February 2020.

The results obtained are presented below, and will be presented in a general way. That is, considering the totality of people consulted and each technique involved per district. However, it is important to highlight the following aspects:

- Certain results will be specified by zone of influence or group differentiated by technique used whenever it is considered important to highlight aspects; otherwise, they could be lost in the generality;
- Although the general results are presented, the results according to the technique used and the zone of influence can be consulted in annexed documents;
- The information recorded from the focal groups and participatory workshop has served as a complement when analyzing both quantitative and qualitative

results, in most cases, reaffirming positions and/or opinions from answers obtained through the other techniques used;

- The number of factors mentioned by the people consulted were taken into account in processing the information and presenting the results, considering the number of times each one was mentioned.

9.3.5.2 Social perception of the socio-economic characteristics of the area

As part of the territorial survey, a range of questions were included regarding the way in which people perceive the place they live, social, economic, cultural characteristics, etc.; the frequent problems, the strengths of the area, aspects considered by them as fundamental for development, among others. The results will be presented considering the areas of influence in which the social field work was carried out, initially in the DAA and later in the DIA.

9.3.5.2.1 Socioeconomic Characteristics of DAA – social perception

In the DAA, the 12 families and 4 references of the estancias bordering the prospected area (Piquete Cue) were consulted.

Main economic activities of the district/town

Both the families registered located in the immediate surroundings of the Plant and the interviewed references of the farms, when consulted about the main economic activities of the area, have mentioned mainly Livestock and Agriculture, with a predominance of small-scale livestock (between 10 and 15 heads) mainly for consumption and sale. In the case of the estancias, the interviewees commented on the roles in the families, "men work on the neighboring estancias doing specific tasks and others go to estancias in the Chaco while women stay to take care of the house and the animals" (referring to those who work as day laborers). It was also mentioned that there are small shops in the area, such as pantries, motorbike and mini-loading workshops (for cell phones), among others.

Table 91 shows the results of the socio-economic census for this item.

Table 91 – Main economic activities of population

Main economic activities mentioned	Number
Agriculture	7
Cattle farming	12
Coal / Coal production	3
Commerce of cheese	1

Source: Socioeconomic census in the DAA - Piquete Cue, January 2020

As it can be observed, cattle raising was mentioned by 100% of the people registered, that is to say; 12 times as the main economic activity of the area and in particular of Piquete Cue.

Positive aspects of living in the community

As for the positive aspects of living in the community, in the DAA, the people consulted agreed that the "tranquility" factor is a very valuable aspect of the area, being mentioned not only by 100% of the people surveyed but also by all the interviewees of the estancias involved in this area.

Table 92 – Aspects mentioned by the population as positive

Positive aspects of living in the community	Number
Environment/landscape	8
Security/surveillance	6
Peace	12
People	4
Low pollution level	1
Others: roots	1
Total	32

Source: Socioeconomic census in the DAA-Piquete Cue. January 2020.

Problems identified in the community

The persons involved in the relevance in the DAA mentioned, among the main problems identified in the community, the emigration and migration (first of all), the interviewees from the estancias offered an example of workers who are forced to move to Chaco before the lack of job offers in the area where they live, also who for the same reasons emigrate to Spain or Argentina, losing their link with their places of origin. Subsequently, both groups mentioned, in turn, at the time the labor supply, the access problems due to poor condition or lack of roads, it was abject as a latent difficulty in all cases of estancias and also the scarce police presence in the area.

Table 93 – Problems identified by the families surveyed

Main problems identified in the community	Quantity
Abigeo (theft, theft of animals)	2
Emigration and migration (rural-urban)	6
Low job offer	4
Alcoholism	2
Little cultural and recreational offerings	1
Insufficient communication service	1
Access problems: Lack of more roads and poor conditions compared to those there are	3
Insecurity	1
Total	20

Source: Socioeconomic census in the DAA-Piquete Cue. January 2020.

Priority issues for community development

In the DAA, a prioritization was requested regarding the aspects that people consider important to increase the development of their community. In view of this, the factor mentioned most often within the highest range (5) by the people registered corresponds to "work" -7-, then the factor "Access to basic services (mainly water)" -3- and finally "Education and Culture"-1-. And the majority of those interviewed in the estancias referred that the main factor to promote the development of the area is related to the generation of sources of work. The second factor is access to education due to the training needs to access jobs and the need to have Family Health Units (FHU) according to the needs of the area. Finally, the importance of the "Arraigo" and the improvement of roads was mentioned.

Table 94 – Priority issues selected by the Piquete Cue (ADA) census takers

Priority aspects for community development	Priority rank					quantity
	5	4	3	2	1	
Access to basic services (mainly water)	3 (25%)	2 (16,67%)	1 (8,33%)			6
Education and culture	1 (8,33%)		1 (8,33%)	1 (8,33%)	1 (8,33%)	3
Work	7 (58,33%)		1 (8,33%)	-	1 (8,33%)	9
Communication and Transport	-	2 (16,67%)	1 (8,33%)	2 (16,67%)	-	5
Territorial development	-	1 (8,33%)	3 (25%)	1 (8,33%)	-	5
Health	-	3 (25%)	4 (33,33%)	2 (16,67%)	1 (8,33%)	10
Agriculture and environment	-	2 (16,67%)	-	1 (8,33%)	3 (25%)	6
Cattle Raising and Productivity	-	1 (8,33%)	-	-	2 (16,67%)	3
Waste and collection and treatment system	-	1 (8,33%)	-	-	-	1
Social Assistance	-	-	1 (8,33%)	4 (33,33%)	2 (16,67%)	7
Security	-	-	-	1 (8,33%)	2 (16,67%)	3

Fuente: Censo socioeconómico en el DAA-Piquete Cue. Enero 2020.

Most important recreational and cultural activities at community level

In the DAA, both groups mentioned various recreational and cultural activities such as: Attending local festivities, organizing and attending soccer tournaments for both men and women and in lesser numbers, going fishing, going to mass, birthdays in the community and going to the public spa ("balneario").

Table 95 – Recreational and cultural activities mostly mentioned

Most important recreational and cultural activities	Amount	Percentage
Patron Saint's Day	11	91,67%
Laceada	5	41,67%

Football tournament (men and women)	4	33,33%
Fishing	2	16,67%
Holy Mass	2	16,67%
Birthdays in the community	2	16,67%
The Spa (balneario - resort area)	1	8,33%
Total		100%

Fuente: Censo socioeconómico en el DAA-Piquete Cue. Enero 2020.

Most used media in the area

All the interviewees from the farms and ranches (estancias) mentioned that the most used media is the cell phone through social networks (WhatsApp, Facebook), the most watched TV channel is Telefuturo and one of them mentioned that he uses cable TV. Among the most listened radios are cited: Regional Radio, Aquidaban and Radio Norte. In the case of the people surveyed, the answers are shown in table 96:

Table 96 – Media

Media	Quantity
Oficial radio media and alternative radio media (from community). (Teko Pyahu Loreto. Regional 660 AM Concepción. Radio comunitaria Primavera. La Mega)	10
TV: Telefuturo, Cable, Canal 40 de Concepción.	10
Social network: Facebook y WhatsApp	5
Total	25

Source: Socioeconomic census in the DAA-Piquete Cue. January 2020.

As can be seen, and unlike the group of interviewees from the estancias, 83.33% (10 out of 12) mentioned that the most used media in the area are: official and alternative (community) radios, as well as TV which was also mentioned by 10 people (83.33%); the minority 41.67% (5 out of 12) responded that the most used media are social networks.

Socio-economic characteristics of DIA - social perception

All 300 people were involved in the DIA in the different consultation spaces already mentioned at the beginning of this section. The following results were obtained from this process:

Table 97 – Economic Activities

Economic Activity	Concepción	Horqueta	Loreto	Belén	Total
Agriculture	66	16	14	7	103
Cattle breeding	76	11	10	10	107
Smaller Cattle	6	1	0	0	7
Trade	73	11	18	19	121
Day laborer/Changa	26	3	2	1	32
Tambo	2	2	1	0	5
Fishing	4	0	0	0	4
Goods and Services	12	0	1	3	16
Civil Service	2	2	4	1	9
Financial	1	1	0	0	2
Industry	7	1	0	18	26
Tourism	2	0	0	4	6
Retired	0	0	1	0	1
Productive Cooperatives	0	2	2	0	4
Construction	1	2	4	1	8

Source: Social work in the field. January and February 2020.

In terms of the main economic activities in the area, the three most important categories in the districts of Concepción, Horqueta and Loreto were agriculture, livestock/cattle farming and trade. In Belén there is a variation considering that industry is registered as the second most mentioned category.

In general terms, it can be observed that the 4th most mentioned factor is the one corresponding to the work by day or “changa”, where, those who are inserted in this labor segment are occupied in great measure in the informal sector; receiving a daily remuneration or to piecework. Examples include work on the farms (fencing, carpentry, planting), the sale of fruit and vegetable products at weekly fairs, and the sale of weed remedies, chicken, eggs, milk, cheese and other items on the street.

Agriculture and cattle raising are mostly done on a small scale and for family consumption. As part of the agricultural production are mentioned the cultivation of sesame, corn, cassava, pineapple, tomato, watermelon, cotton and tartar.

Cattle raising has the particularity of being an area that operates as a savings system for families, since the animals are sold or slaughtered according to need or in case of emergencies. To a certain extent, they supply the area's slaughterhouses and most of them slaughter for sale and consumption by the families in the places where they live.

Trade is an activity that has been increasing in recent years. Examples are: gastronomic enterprises (pizzerias, restaurants, food park), hardware stores, distributors, transporters, supermarkets, “bodegas”, warehouses and others.

The secondary sector is represented by the cement, lime and slaughtering industries as referred to by the people who participated in the consultation process. These industries

are initiatives that generate sources of income for the inhabitants of the area and are highly valued due to the lack of jobs/work.

In this area, the participation of both women and men in the neighborhood courts or sports centers of the largest cities is noteworthy. In addition, it is worth mentioning that there are people of all ages who come to support their teams, so it becomes a collective activity to which several people come as spectators; even more so in the official tournaments of Paraguayan “salonism”.

Another of the aspects mentioned belongs to the cultural environment, highlighting the reference to the Patron Saint's Day by the actors consulted. These are characterized by integrating a strong religious content in which festive acts are merged with beliefs, customs, and traditions.

The third most important factor is the traditional livestock, industrial and commercial event called Expo Norte. It has been held since 1989, organized by the Rural Association of Paraguay (ARP) and the Association of Traders and Industrialists of Concepción (ACIC). It takes place in the first two weeks of September in the Nanawa exhibition field, located at km 2.5 of Route V.

Expo Norte opens its doors to the general population with a wide variety of attractions at the artistic, cultural, sporting and social levels, in addition to the exhibitions presented by the fairground owners from different areas. Another of the activities referred to mainly at the community level is: attendance at spas, streams, pools or rivers that exist locally; and in the field of equestrian sports the competition of ties or "laceada" that takes place in a field called the track where the objective is to link the cattle with a rope or ribbon in the shortest time possible.

Table 98 – Recreational Activities

Zone	Concepción	Horqueta	Loreto	Belén	Total
Patron Saint Festivities	34	8	9	7	58
Founding Party	0	2	0	1	3
Night parties (discos)	6	3	2	1	12
Artistic Festivals	9	4	9	1	23
Motorcycle/running tours	2	1	0	0	3
Football tournaments (indoor, outdoor)	63	22	13	8	106
Volley	10	1	0	0	11
Fishing	1	0	0	0	1
Boat trip	1	0	0	0	1
Skating	1	0	0	0	1
Basket	1	0	0	0	1
Dance	1	1	0	0	2
Swimming	0	1	0	0	1
Painting	1	0	0	0	1
Open spaces (square, parks)	3	0	2	0	5

Spas, streams, river, pool	20	3	4	4	31
Race horse / horseback riding	6	2	1	0	9
Laceada	15	1	1	1	18
Going to Gourmet Sites	2	0	0	0	2
Expo Norte	28	3	1	2	34
Tourism	1	1	0	1	3
Theatre	4	0	0	0	4
Student Parade	11	2	5	14	32
Shopping	0	1	2	1	4
Religious activities	4	2	0	0	6
Youth Group Meeting	1	0	0	0	1
Fundraising activities for social assistance	3	0	0	0	3

Source: Social work in the field. January and February 2020.

Positive aspects of living in the area

Peace of mind, security, people, environment and low car traffic are the five most outstanding positive aspects of living in the area according to the data collected in the four districts of the study area. These elements refer to aspects related to the quality of life of the inhabitants.

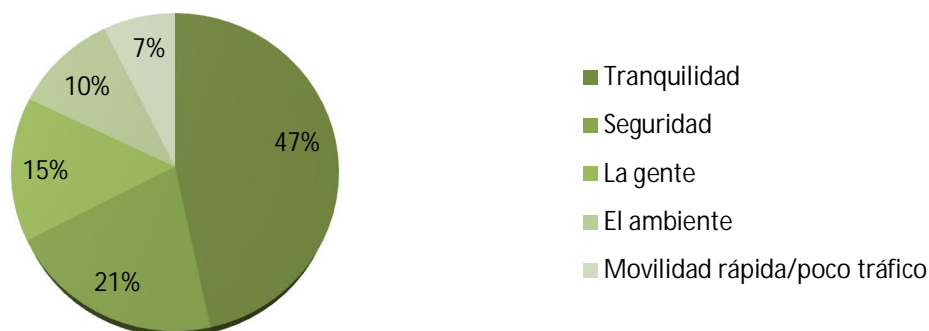


Figure 77 – Assessment of the positive aspects

Source: Social work in the field. January and February 2020.

In addition to the above-mentioned aspects, unity and solidarity are also noted as part of the organizational component, followed by the importance of having land suitable for agricultural and livestock production.

Table 99 – Main positive aspects mentioned about living in the area

Positive aspects	Concepción	Horqueta	Loreto	Belén	Total
Peace of mind	68	29	32	30	159
Security	21	15	11	24	71
Unit/Organization/Solidarity	10	3	2	6	21
Fast mobility/low traffic	9	4	1	11	25
The environment	25	7	2	2	36
The cost of living is lower	4	1	0	1	6
Roots (born tradition)	4	0	0	1	5
Productive zone, Fertile land	12	3	0	1	16
Area close to institutions and communities and access to benefits	9	0	0	0	9
Low rate of drug use	0	1	1	0	2
Investment zone	1	0	0	0	1
The people	33	6	4	7	50
Progress on the road and access	1	0	0	0	1
Industrial development	1	0	0	2	3
Offer of educational institutions	0	1	0	0	1
Freedom of speech	0	1	0	0	1
Little pollution	0	0	2	0	2
Cultural and recreational spaces	2	1	0	0	3
Job offer	4	4	3	2	13
Commercial sector development	1	2	1	1	5
Hotel and Tourism	2	0	0	1	3
Water quality	2	0	0	0	2

Source: Social work in the field. January and February 2020.

Necessary aspects for further development

The results obtained with respect to this item will be presented initially as mentioned by the people consulted through the interviews, including key institutional and community actors.

According to institutional and community stakeholders interviewed: Infrastructure and road safety (17%) considering the importance of improving the condition of roads and local roads, as many communities are isolated in the rainy season. The second factor refers to the need to generate sources of work (16%) in the area of study due to the little

or almost no existing labor supply, together with the importance of promoting or developing technical assistance programs (16%) for local initiatives and enterprises, with special emphasis on small and medium producers. Linked to this factor is the importance of strengthening peasant agriculture (5%) accompanied by a market for the commercialization of existing production at fair prices (5%).

The third factor corresponds to the importance of installation and operation of industries (10%), considering that these can contribute to compensate the lack of labor opportunities in the area.

Table 100 – Results about issues needed for development

Development	Concepción	Belén	Loreto	Horqueta	Total	%
Education/training	6	1	0	1	9	5%
Technical assistance for local initiatives	24	1	2	0	29	16%
Strengthen peasant agricultural production		2	2	3	9	5%
Agrarian reform and organization		0	0	1	2	1%
Generation of work sources	19	2	3	3	28	16%
Health	8	0	0	1	10	6%
Market for the trading on production at fair prices	3	2	1	3	10	6%
Industries	10	0	1	5	18	10%
Local investment and new technologies		1	2	2	7	4%
Infrastructure and Road Safety	26	1	1	1	31	17%
Recreational Spaces	1	0	1	0	3	2%
Clean-up politics	1	0	0	0	2	1%
Improvement of local government	1	0	0	0	2	1%
Dynamization of the local and departmental economy.	1	0	0	0	2	1%
Drainage and sanitation.	1	0	0	0	2	1%
Lack of political will.	1	0	0	0	2	1%
Supply market	0	1	0	0	1	1%
Strengthening SMEs.	0	1	0	0	1	1%
Roots	2	0	1	0	3	2%
Strengthen livestock production.	0	0	0	1	1	1%
Transparent competitions to access public positions, eradicating preferential treatment and clientelism.	0	0	0	1	1	1%
Access to basic services	2	0	0	0	2	1%
Access to education	4	0	0	0	4	2%

Source: Social work in the field. January and February 2020.

Necessary aspects for further development according to DIA respondents

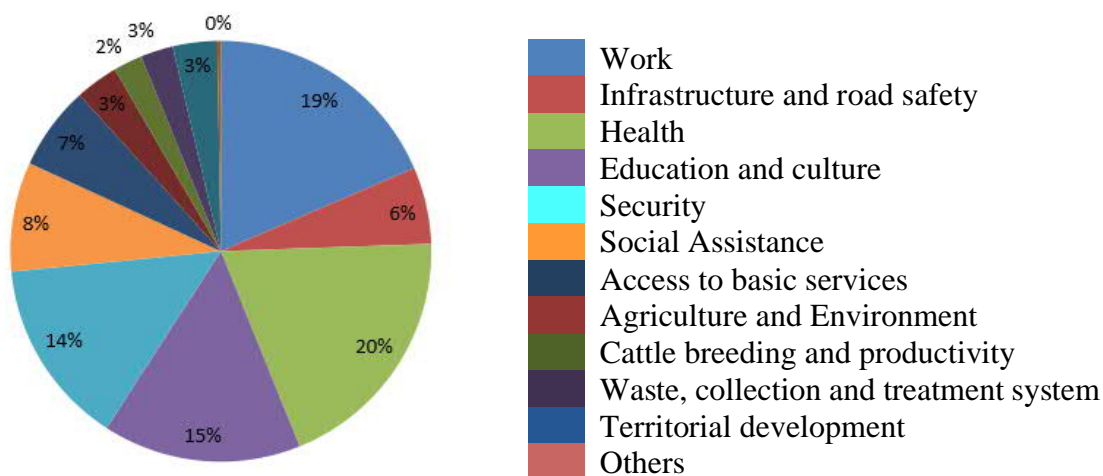


Figure 78 – Priorities for a major development

Source: Social work in the field. January and February 2020.

It can be seen that the priority factors are: Health (20%) related to the need to improve access to quality care, the importance of having health units close to the communities and that these have equipment, infrastructure and basic inputs for adequate care.

The second factor corresponds again to the need for labor supply in the area (19%). It is important to emphasize that the districts have qualified labor that cannot practice their profession due to the lack of jobs/work that is forced to migrate to other cities for greater employment opportunities.

The third factor most frequently mentioned is the priority given to education and culture (15%), linked among other aspects to the possibility of accessing university and improving the educational level of many young people who, due to low family income, are unable to continue their studies.

Social issues

The results that will be presented in this item correspond to the responses of the total number of people who responded to the interviews with institutional and community actors and to the surveys carried out. The analysis is in turn complemented by the conclusions resulting from both the participatory workshop and the focus groups held in the field.

At the level of social problems, the factor "insecurity" was mostly mentioned, that is, by 20% of the total number of interviewees, and the factor "migration" (rural-urban) was reflected by 18%, followed by "lack of work sources" by 14%.

Poverty, cattle ranching and uprooting are the 4th most important factors and the 5th element indicated corresponds to the Emigration of women in their majority to countries such as Argentina and Spain.

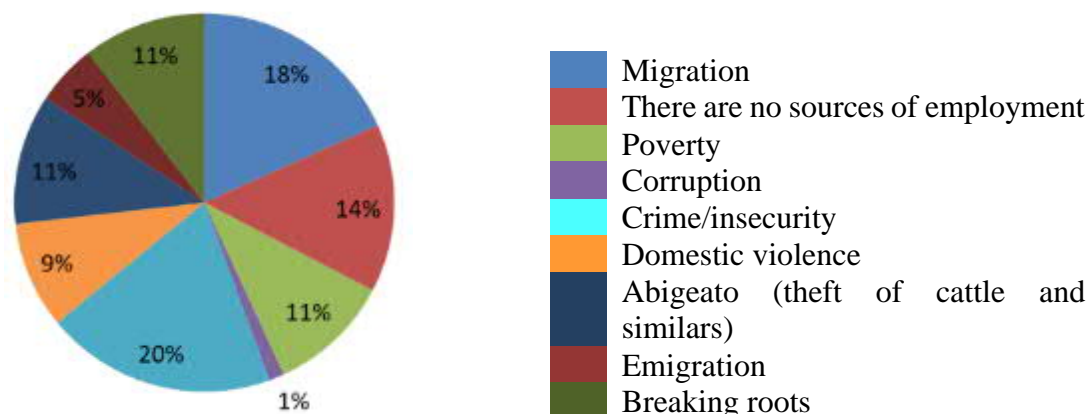


Figure 79 – Results of interviews about social issues

Source: Social work in the field. January and February 2020.

Economic issues

Among the factors most frequently mentioned as part of the results of institutional and community interviews, the first is the lack of work at the local level (27%); followed by the low profitability of agricultural production (22%) associated mainly with the difficulty in moving products for sale, the non-existence of a secure market for marketing and/or the loss of production; and the phenomenon of rural-urban migration (22%).

The third factor mentioned is poverty (12%), followed by uprooting (9%), which in most cases is identified by the people consulted as a consequence of the permanent migration and/or emigration registered in the areas of study.

The fifth element referred to consists of the lack of technical assistance specifically for small and medium-sized producers, both livestock and agricultural, as well as for entrepreneurs in general.

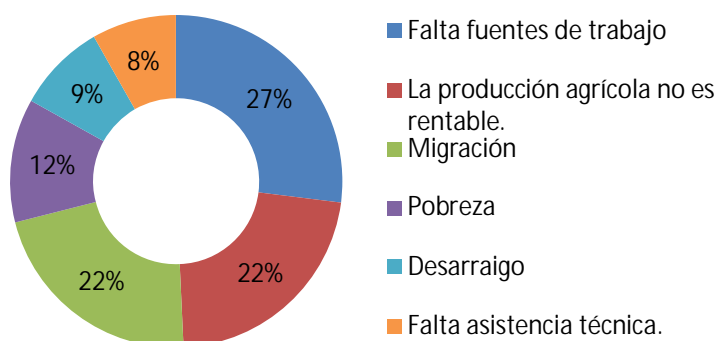


Figure 80 – Results of interviews about economic issues

Source: Social work in the field. January and February 2020.

Problems identified in the district - survey results

Out of a total of 150 respondents in the DIA districts, 9 key factors are mentioned, which are reiterated in the 4 districts; from which 5 central aspects can be visualized which are: the lack of jobs/work (38%), drug use (29%), insecurity (17%), emigration (10%) and migration (6%).

In relation to both social and economic problems, it can be seen that the lack of a source of work is currently a cause for concern in the area, as it was an aspect mentioned by a large number of people, both in the interviews and in the surveys. Insecurity and related issues (drug use, crime, etc.) and migration were also mentioned. However, it should be noted that in many cases these were linked to the lack of employment as the trigger for the other aspects mentioned.

In group spaces such as the participatory workshop with key actors in the city of Concepción, these aspects were reiterated. Likewise, the lack of road access, the little decentralization that leaves the area quite isolated at the political and social level, the fracture between the rural and the urban environment and the lack of training adapted to the local reality should be highlighted as other issues of concern highlighted in that space. It was also possible to access aspects that were highlighted in the community focal groups and that generate concern in the rural area, such as school dropouts, cattle ranching, lack of technical assistance for production, low income and debt, among others.

At the end of this subsection, it is necessary to highlight that, both in the DAA and in the DIA, through the techniques used, it was possible to access the socioeconomic characteristics of these areas, from the viewpoint of the inhabitants of the project's areas of influence, also fulfilling the objective of generating an initial information channel with them. It was possible to demonstrate that beyond belonging to an urban or rural area, there are similar visions regarding issues related to their immediate environment and in general, the main economic / productive activities of the area, also the positive aspects or personal appreciation of the community in which they reside, highlighting the "tranquility", "security" and other factors linked to the way of life in the department, as well as some similarities in aspects related to the common interest such as those that, according to them, should be worked on so that there is greater development in the community / department. However, in this and other items, in addition to the common themes that were mentioned, such as "sources of work" and "road improvement", others were also highlighted that refer to more particular issues depending on the area in which the survey was conducted "access to health services" "access to basic services, especially water".

9.3.5.3 Social perception of the PARACEL Project (pulp mill)

With regard to the social perception of the installation of the PARACEL pulp mill, the general results are presented, including the various techniques used to reach the population, this by district. The population was consulted about their knowledge of the project, the means by which they found out about it, their opinion of an initiative of this magnitude in the area, the positive and negative aspects of it, their expectations, aspects that they think are important to take into account in the construction and operational stages, among others.

As can be seen in the following table, the first item consulted is related to the knowledge about the installation of the plant, to which almost 30% of the interviewees and respondents answered affirmatively, that is, they mentioned having heard of the pulp mill. Of the districts involved, Concepción had 45% of affirmative responses, as opposed to the other districts with less than 20% of affirmative responses in all cases. It can be seen that in the case of the Belén district no one had heard about the venture.

An important aspect to highlight is that, in the DAA, the people surveyed and interviewed already had 100% knowledge about the venture and that through the development of focus groups it could also be noticed that the people living in the micro-territories located on the access road to the plant had greater knowledge than those in more distant districts.

The following table shows the general results related to the above-mentioned item.

Knowledge about the construction of a pulp mill

People who have claimed to have heard about the construction (67) have been consulted about the area in which the construction is planned and, if so, the means by which they found out. More than 80% responded that they had knowledge of the area in which the construction is planned, affirming that most of them had heard about it from friends, neighbors and/or relatives, followed by those who had heard about it through local radio programs.

Table 101 – Results of surveys, community interviews, institutional interviews and census

Have you heard about Pulp mill?	Concepción	Horqueta	Loreto	Belén	Total	Percentage
Yes	57	6	4	0	67	28,63
No	74	29	31	33	167	71,37
Total	131	35	35	33	234	100%

Source: Social work in the field. January and February 2020.

Table 102 – Results of surveys, community interviews, institutional interviews and census

Do you have idea about the area of future Pulp mill?	Concepción	Horqueta	Loreto	Belén	Total	Percentage
Yes	49	3	3	0	55	82,09
No	8	3	1	0	12	17,91
Total	57	6	4	0	67	100%

Source: Social work in the field. January and February 2020.

As can be seen in Table 102, most of the people who have knowledge of where the pulp mill will be built come from the district of Concepción.

Knowledge about what is manufactured and its implications

When asked about what is manufactured and its implications, the results show that in Concepción most of the answers were in the affirmative, however, with very little difference from those who responded not knowing. In the other districts there was a clear lack of knowledge.

Table 103 – Results of surveys, community interviews, institutional interviews and census

Do you know what it is produced and what the implications of its production are?	Concepción	Horqueta	Loreto	Belén	Total	Percentage
Yes	42	2	1	0	45	46,39
No	36	6	5	5	52	53,61
Total	78	8	6	5	97	100%

Source: Social work in the field. January and February 2020.

Opinion about the initiative

As for the opinion of the people involved in the survey regarding the initiative, most of them presented positive opinions. These opinions were linked to the generation of sources of work, to boosting the industrial development of the area and to generating progress and development. In terms of negative connotations, although there is a notable difference in terms of quantity, the most mentioned factor is related to people's fear of the possible damage to the environment that could be caused by the project if the corresponding precautions are not taken.

Table 104 – Result of inquiries

Opinion about the Project/initiative	Concepción	Horqueta	Loreto	Belén	Total
It is expected to be actually implemented (Corruption may create obstacles to the implementation of the initiative)	5				5
It's all about generating jobs	36	3	3	3	45
It is positive if it does not generate environmental damage (compliance with environmental laws on care and protection of the environment, reforestation, among others)	12		2	2	164
It will enhance the industrial development of the area. "Dynamization of the local and departmental economy"	17	6	3	1	27
Roads will be improved	2				2
Compliance with the Working Conditions "It is important that it takes place within the framework of decent working conditions".	4				4
Social Responsibility	4				4

Opinion about the Project/initiative	Concepción	Horqueta	Loreto	Belén	Total
"That they take into account the care of the social environment"					
It can be a good opportunity for local suppliers	4	1	1		6
It is important that they generate a truthful, transparent and articulated communication system with the citizens	1			1	2
Dynamization of the local and departmental economy	1	1	1	1	4
It is important that they consider and comply with safety and impact mitigation measures	1				1
Training and Proficiency	1			1	2
No answer	2				2
Total	90	9	8	9	116

Source: Social work in the field. January and February 2020.

Positive aspects/benefits that it will be able to offer to the community/department/country

Table 105 – Results of community and institutional interviews, census and inquiry responses

Positive aspects/benefits that it will be able to offer to the community/department/country	Concepción	Horqueta	Loreto	Belén	Total
Generation of work sources	91	28	31	25	175
Dynamization of the economy at the local and departmental level	27	4	6	4	41
Access to basic services		1			1
Progress and development	22	7	1	7	37
Enhancing industrial development	5		2	1	8
Improvement of community infrastructure	10	1			11
Social Responsibility	1				1
Additional facilities will be available	1				1
Reforestation	3				3
Generation of opportunities	1				1
Technical assistance to producers in the area	1				1
Consider and comply with safety and impact mitigation measures	1		1		2
Compliance with labor laws	2	1			3
Income generation	5				5
It will help to lower the hazard index		1	1		2

Root	1	1			2
Compliance with environmental care and protection	1				1
Increased income generation for the municipality	1				1
Trainings		1		2	3
No answer	6				6

Source: Social work in the field. January and February 2020.

As indicated in table 105, numerous positive aspects or benefits that an undertaking of this magnitude could offer to the community, cities and country were named. The aspect that prevailed during each of the survey activities, in all the districts, **was the job generation**, later on they mentioned the dynamization of the local and departmental economy, the progress and development and the improvement of the community infrastructure. When the key actors were consulted in the participatory workshop held in the city of Concepción and the community leaders in the different focus groups developed, all of them agreed on the importance of project implementation for the following reasons:

- It will generate direct and indirect jobs (shopkeepers, bricklayers and others);
- It will improve the quality of life in the area. When there is income there is an improvement in the quality of life;
- It will improve the quality of road access;
- Generate genuine income for the municipality; and
- It will contribute to the improvement of community infrastructure.

Negative aspects that could be generated by the project in the community/department/country.

Results of the processing of community and institutional interviews and surveys (In the case of the surveys, this item includes only the 31 cases of people who answered yes to the question "Do you think this project could generate negative impacts for the community" out of the total number of 150 people interviewed).

Although several factors were mentioned that could generate negative impacts according to the people consulted, the answers reveal, above all, their concern regarding the possible damage to the environment that could be caused if the corresponding precautions are not taken, this was the majority in all districts. This aspect was also mentioned in other spaces, such as the focus groups and the participatory workshop with key stakeholders, with the exception of the families registered in the DAA, who responded that they did not see any negative aspects in the implementation of the project.

Aspects mentioned during the interactive workshop and in 5 focus groups

- Environmental impacts/generation of environmental and health damage
- There may be low absorption of local labor due to lack of training and this may generate complications in the area;
- Threat of non-compliance with national and international regulations;

- Many industrial projects wanted to settle and due to political problems did not advance;
- If there is no good communication, it can generate conflict;
- Lack of information that can generate conflict.

Negative aspects that could be generated by the project in the community/department/country	Concepción	Horqueta	Loreto	Belén	Total
Generation of environmental damage	53	7	3	8	71
Low hiring of people from the department	3	0	1	1	5
Don't take care of the social environment	1	0	0	0	1
Non-compliance with working conditions	3	0	0	0	3
Opposition in the city in the case of not coinciding with a group or sector	1	0	0	0	1
Road unsafety	2	0	0	0	2
It does not promote the revitalization of the economy at the local and departmental level	4	0	0	0	4
Increased cost of quality of life	1	0	0	0	1
Control mechanisms for environmental compliance by weak state institutions.	2	0	0	0	2
Non-compliance with environmental conditions/laws	3	0	1	1	5
Non-compliance with protective measures, prevention and mitigation of impacts		0	1		1
Disinterest or lack of accompaniment by political representatives of the government	1	0	0	0	1
The presence of EPP in the area can be a problem	1	0	0	0	1
Concentration of profits in one sector	1	1	0	0	2
Do not answered	5	2	1	1	9

Fuente: Trabajo social en campo. January and February 2020.

Expectations about the project

The answers obtained in terms of expectations in relation to the project are in line with the answers presented in the previous items (opinion, positive and negative aspects) as can be seen in the following table, **the generation of jobs** was named most often, as the

main expectation, followed by the **care and protection of the environment, progress and development, promotion of the development of the department and support for the growth of the communities in the area.**

Expectation about the Project	Concepción	Horqueta	Loreto	Belén	Total
Sources of employment, recruitment of local labor and taking into account the young population	73	23	24	27	147
Feasibility of the proposal	6	4	5	5	20
Road Safety	10				10
Compliance with working conditions	8	1			9
Care and protection of the environment	21	3	1	2	27
Progress and development	12	4	8	1	25
Higher economic income	4	4	1	1	10
a truthful, transparent communication system and work articulated with the citizens	8	2			10
It could generate pollution	1	1			2
Adequate infrastructure	1				1
Technical assistance for local farmers	4	1	1		6
Care of the social environment	5	1			6
Consider and comply with safety and impact mitigation measures	4	2		1	7
To promote the development of the department and support the growth of the communities in the area	13	2	2		17
Installation of the plant in the areas; in places where the negative impacts are minor and it is easily accessible	1				1
Selection of qualified and reputable personnel	2		1		3
Training development	5	1			6
Contribute to local suppliers	8	2	2		12
Enhancing industrial development	1				1
relative impact on the local economy	1				1
Do not answered	5			1	6

Fuente: Trabajo social en campo. Enero y febrero de 2020.

Expectations and observations resulting from the collaborative workshop

- Effective communication with regard to the project;
- That society is aware of the implications of the project;
- That the hired labor is local professionals;

- That the project becomes a reality in the area;
- To inform with transparency so that erroneous information does not spread;
- Dissemination and awareness of environmental safety measures;
- Compensation for the natural resources used;
- Promoting synergies with educational institutions on the implementation of training programs;
- Promote synergies with educational institutions on the implementation of training programs; Dissemination within the Department, the clearer the impacts and benefits, the better.

Considering the consultation process related to people's perception of the possible installation of the pulp mill in Concepción, and as mentioned at the beginning of this section, it is considered important to **“UNDERLINE THE POSITIVE ATTITUDE OF PEOPLE IN ALL BUSINESS THAT MAY MEAN DEVELOPMENT AND BETTER LIVING CONDITIONS IN THEIR DEPARTMENT”**. Although institutional actors from the city of Concepción, DAA and micro territorial residents mentioned that they were aware of the initiative, in the other districts where the possibility was raised, even though they were surprised by the consultations, people were interested in knowing more about the implications of the pulp mill since it could mean **"NEW SOURCES OF JOB GENERATION"**, possibility of employment for unemployed local labor, especially in the case of young people who finish even university degrees and not being able to work they migrate to other places to look for better/greater opportunities, they also expressed the importance that the project has as a priority about **"CARE AND PROTECTION OF THE ENVIRONMENT"**.

People interviewed in the districts of Horqueta, LORETO and BELÉN requested that their communities take into account the work force, commenting that, in previous experiences, although the projects meant absorption of labor at the departmental level, at the local level the impact was not "felt". In the micro territories and DAA, through the implementation of the Census, interviews and focus groups, it was possible to record, among other issues, the expectations of the inhabitants, who expressed the hope that the pulp mill would support the **DEVELOPMENT OF THEIR COMMUNITIES**, expressed in technical assistance for farmers, training in general, contribution with local suppliers, road safety, among others. One aspect that stands out in several areas, both in the rural and urban zones, has to do with the fear of the citizens that the project will not be implemented, since they highlighted that **"MANY TIMES THIS TYPE OF OPPORTUNITIES IS DISCUSSED, BUT IT IS NOT CARRIED OUT"** to what in terms of expectation they mentioned as the "feasibility of the project". Likewise, particular opinions were given through which the importance of fluid communication with the population was highlighted, attention was paid to the interference of political parties in the actions and that security measures and impact mitigation be considered and complied with.

ANNEX I
SOCIAL STUDIES – MILL COMPONENT

SOCIAL STUDIES (Industrial Component)
**Environmental and Social
Impact Assessment (ESIA)**



Project: Build a pulp mill in the Concepción
region of Paraguay - March, 2021



P A R A C E L

Acronyms and Abbreviations

ACIC	Merchants and Industrial Association Industriales de Concepción
ADA	Directly Affected Area
AID	Direct Influence Area
AII	Indirect Influence Area
ANDE	National Electricity Administration
ANEAES	National Agency for the Evaluation and Accreditation of Higher Education
ANNP	National Administration of Navigation and Ports
ARP	Rural Association of Paraguay
BM	World Bank
BNF	National Bank of Fomento
CAH	Agricultural Enabling Credit
CGT	General Central of Workers
CNT	National Central of Workers
CODENI	Municipal Councils for the Rights of Children and Adolescents
CONATEL	National Telecommunications Commission
COPACO	Paraguayan Communication Company
DEA	Agricultural Education Directorate
DEAg	Directorate of Agricultural and Livestock Extension
DGEEC	General Directorate of Statistics, Surveys and Censuses
DIA	Environmental Impact Declaration or Environmental License
DINAC	National Directorate of Civil Aeronautics
EIAp	Preliminar Environmental Impact Assessment
ESIA	Environmental and Social Impact Assessment
EPH	Permanent Household Survey
ESSAP	Paraguay Sanitary Services Company
EIA	Environmental Impact Evaluation
IAIA	International Association of Environmental Impact
IFC	International Finance Corporation
INDERT	National Institute of Rural and Land Development
INDI	Indigenous People Paraguayan Institute
INFONA	National Forest Institute
IPS	Social Security Institute
LBS	Social Baseline

LPE	Extreme Poverty Line
LPT	Total Poverty Line
MADES	Ministry of Environment and Sustainable Development
MAG	Ministry of Agriculture and Livestock
MEC	Ministry of Education and Sciences
MIC	Ministry of Industry and Commerce
MINA	Ministry of Childhood and Adolescence
MOPC	Ministry of Public Works and Communications
MSPyBS	Ministry of Public Health and Social Welfare
MUVH	Ministry of Urbanism, Housing and Habitat
NBI	Unmet Basic Needs
ND	Performance Standard
ORMIC	Regional Office of the Ministry of Industry and Commerce
OSC	Civil Society Organizations
PDM	Municipal Development Plan
PE	Equator Principles
PEA	Economically Active Population
PEI	Economically Inactive Population
PET	Working Age Population
PGS	Social Management Plan
PLS	Local Health Plan
MDS	Ministry of Social Development
SENACSA	National Service for Animal Health and Quality
SENAVE	National Service for Plant and Seed Quality and Health
SENEPA	National Service for Paludism Eradication
SINAFOCAL	National System for Job Training and Qualification
SNPP	National Service for Professional Promotion
STP	Technical Secretary of Planning
USF	Family Health Unit
UNA	National University of Asunción
UNC	National University of Concepción
VECs	Valued Socio-environmental Components

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1. Presentation

This document corresponds to the results of the studies of the social component, developed within the framework of the Preliminary Environmental Impact Study (EIAp), of the Paracel firm's project, for the construction and operation of a pulp mill in the department of Concepción, Paraguay.

This report is developed in accordance with the following sections:

- **Description of the project and the areas of influence**, which contains a brief description of the project, services and related activities, and the implications of its implementation, the proposed phases, including the estimated execution periods and the results that are intended to be achieved, in terms generation of income sources, technological innovation, possible alliances, among others. Likewise, the selection criteria of the Project's Areas of influence: Directly Affected Area (ADA), Direct Influence Area (AID) and Indirect Area of Influence (AII).
- **Methodology for the preparation of social studies**, exposing in detail the work carried out by the team responsible for the preparation of this material, in its different chapters as a baseline and support studies, evaluation and analysis of impacts, measures and programs proposed. The information gathering process in the field, the techniques used, the processing and analysis system, among others, are also described.
- **Social characterization of the project's areas of influence**, a section that describes the economic, social and cultural aspects of the IIA and AID, including variables such as land tenure, income, gender, among others. Initially, a general presentation is made of each area (departmental, district and local) and later its situation in relation to demographics, economy, employment, access to basic services, etc.
- **Survey of social perception**, it is developed as one of the main components of the baseline since it contains information, especially qualitative regarding the perception of the resident population in the ADA and the AID, this in two large categories such as:
 - Socio-economic characteristics of the area in which they reside, and
 - The Build of a Pulp Mill in the department of Concepción.
- **Evaluation and analysis of social impacts**, section that contains the identification and assessment of the impacts and social effects expected by the project, and its services and related activities, as a result of the interaction between its different phases, activities and factors of the social environment, taking in consideration the area of influence of the same. It also contains the analysis of the effects caused both in the pre-construction phase and in the construction and operation phase of the Industrial Mill.
- **Identification and justification of the measures and programs**, which it presents from the analysis of the social baseline (LBS) and the impact assessment; the Social Management Plan (PGS). This Plan contains the objectives, scope and lines of action proposed in each program and/or measure to mitigate and manage the identified social impacts, in order to contribute to local development and to improve people's quality of life. For the development of this and other sections, the analysis of the national legal framework and the international standards that govern and guide the processes of this nature at the international level, of the actions to be implemented from the project, have been continuously considered.

Finally, in the annexes section, information related to the information collection tools, sources of verification resulting from field work, specific studies (Study of the indigenous component) and additional information on the project and related activities provided by the Paracel team.

1.1. Objectives and scope of the studies of the social component

The main objective of the social studies carried out within the framework of the EIAP is to develop a social baseline of the project's area of influence that allows evaluating the impacts of the social environment and consequently developing mitigation measures and social management programs.

An important part of the social studies was devoted to the survey of the perception of the population of the area of influence in relation to their community and the project, as well as to the identification of key actors at the institutional and community level, and the communities residing in the area closer to the mill.

Taking into account the importance of social management in a project of this magnitude, a permanent bidirectional social work was proposed from the beginning, that is, the development of actions that enable on the one hand; collect the first source information, as accurate as possible for the purposes of the project and the EIAP; and on the other hand, to deliver information of interest to the communities from the beginning, generating participatory spaces so that the population is involved from the project design stage.

1.2. International and national linked regulatory framework

The main laws, norms, and principles that have been considered for the development of social studies are listed below. The sustainability policy of the Paracel company takes into account the best international practices, which guide the socio-environmental management of the project.

The normative framework at the national and international level mentioned below has been considered in the different stages of social studies, from the definition of the areas of influence to the criteria for evaluating impacts and developing programs.

At the National Level

Within the framework of the socio-environmental processes of the projects, both public and private, specific studies are carried out framed in Law 294/93 on Environmental Impact Assessment, and its Regulatory Decrees No. 453/13 and 954/13, in which the Environmental Management Plan (PGA) or the Environmental and Social Management Plans (ESMP) are established that will govern the undertaking in its different stages, that is, during design, construction and subsequent operation.

On an International Level

Related international legislation, such as The Equator Principles, the Performance Standards on Environmental and Social Sustainability of the International Finance Corporation (IFC) that guarantee the implementation of projects with social responsibility linked to rigorous environmental management practices, the Objectives of Sustainable Development (ODS), the Guidelines on environment, health and safety of the World Bank, and ILO Convention No. 169, ratified by Law No. 234/93, among others.

Chart 1 presents the legal instruments and principles that govern the project, with an emphasis on social aspects.

Chart 1. National and international Norm linked to the project

Topic	Legal Instrument
National Constitution	<ul style="list-style-type: none"> ▪ Main rule of the Paraguayan State. It establishes the principles of the organization and administration of the country, guaranteeing the protection of fundamental rights. It establishes the principles that define the right to quality of life (Article 6), the right to a healthy environment (Article 7), among others.
Main International Treaties and Conventions	<ul style="list-style-type: none"> ▪ Law No. 1231/1986. That approves and ratifies the Convention on the Protection of the World Cultural and Natural Heritage. ▪ Law No. 2885/2006. Approving the Convention on the Defense of the Archaeological, Historical and Artistic Heritage of the American Nations (San Salvador Convention). ▪ Law No. 2886/2006. Approves the Convention on the Protection of the Underwater Cultural Heritage and Annex. ▪ Instruments derived from the commitment to climate change (National Strategy for Adaptation to CC, National Strategy for CC Mitigation, National Plan for Adaptation to CC). ▪ Law No. 234/93. That approves Convention No. 169¹ on Indigenous and Tribal Peoples in independent countries, adopted during the 76th. International Labor Conference, held in Geneva on June 7, 1989.
Environmental Impact Assessment	<ul style="list-style-type: none"> ▪ Law No. 294/1993. Environmental Impact Assessment. ▪ Law No. 345/1993. That modifies article 5 of Law No. 294/93 on Environmental Impact Assessment.
Institutional Framework with emphasis on environmental, social and territorial issues	<ul style="list-style-type: none"> ▪ Law No. 1561/2000. Creates the National Environment System, the National Environment Council and the Environment Secretariat. ▪ Law No. 6123/2018. That raises the Ministry of the Environment to the rank of Ministry and is renamed the Ministry of the Environment and Sustainable Development. ▪ Law No. 436/1994. Departmental Organic Charter. ▪ Law No. 3966/2010. Municipal Organic. ▪ The National Environmental Policy - PAN. ▪ Law No. 1183/1985 Civil Code. ▪ Law No. 976/1982 by which Law No. 966/1964 creating the ANDE National Administration is expanded. ▪ Law No. 6682/2020 That modifies Article 1 of Law No. 976/1982. ▪ Ordinances of the Municipalities of the area of influence. ▪ Resolutions issued by MADES
Health, Hygiene and Safety	<ul style="list-style-type: none"> ▪ Law No. 836/80 Health Code ▪ Law No. 213/93 Labor Code ▪ Law No. 5552/16, which classifies and categorizes national, departmental and neighborhood routes; ▪ Law No. 5016/14. National Traffic and Road Safety; ▪ Decree No. 14,390 / 1992. General technical regulation of safety, hygiene and medicine at work.
Social, Cultural y patrimonial	<ul style="list-style-type: none"> ▪ Law Nº 3051/2005 "National of Culture". ▪ Law No. 5621/2016 for the Protection of Cultural Heritage. ▪ Law No. 904/1981 "Statute of Indigenous Communities". ▪ Law No. 946/1982 for the Protection of Patrimonial Assets. ▪ Law No. 352/1994 on Protected Areas. ▪ Law Nº 4228/2010 By which the Serranía San Luis National Park is declared a Protected Wilderness Area under public domain, within the department of Concepción. ▪ Law No. 4577 on Natural Monuments (Santa Elena, Kamba Hopo Cavern, Tres Cerros, among others.) ▪ Decree No. 1039/2018 "By which the Protocol for the Process of Consultation and Free, Prior and Informed Consent with the Indigenous Peoples living in Paraguay is approved."

¹ Although ILO 169 and other Regulations Related to Indigenous Peoples are mentioned, these are the Object of Evaluation in a document independent, and evaluated by specialists hired by Paracel.

Topic	Legal Instrument
Other related norms	▪ Laws that govern the management of Solid Waste (Law No. 3956/2009), Water Resources (Law No. 3239/2007), Air Quality (Law No. 5211/2014), Sound Pollution (Law No. 1100/1997), others

The principles and international performance standards that have guided the elaboration of the baseline and the studies of the social component in the framework of the preparation of the EIAP are presented in detail below.

Chart 2. Standards and performance on environmental and social sustainability IFC

Performance Standards	Description
1. Assessment and management of environmental and social risks and impacts	Attending to the development of a good management system during the different stages of the project requires a comprehensive evaluation of the identification of impacts, risks and opportunities at an environmental and social level. This requires the inclusion of intervening actors as part of participatory processes, as well as the dissemination of pertinent information about the project.
2. Work and working conditions	This principle starts from recognizing and guaranteeing the basic rights of workers by promoting fair, healthy and safe working conditions. Promoting non-discrimination, equality, the protection of workers including the category of vulnerable workers such as children, migrants or workers hired by third parties.
3. Efficiency of resource use and pollution prevention	Increased industrial activity and urbanization can lead to increased levels of pollution. Therefore, this principle describes the approach of the project to avoid or minimize the impacts generated on human health and the environment; integrating pollution prevention and control technologies and practices.
4. Community health and safety	The principle stipulates the need to anticipate and avoid impacts and risks on the health and safety of the communities that are affected by the project activities.
5. Land acquisition and involuntary resettlement	The acquisition of land for project purposes can lead to: physical displacement (relocation or loss of housing) and/or economic displacement (loss of access to resources to generate income or means of subsistence) of individuals or communities. The objective is to avoid physical or economic displacement or minimize the impacts through appropriate measures that are governed by general requirements stipulated in the regulations such as: compensation, community participation, complaint handling mechanism, among others.
6. Conservation of biodiversity and sustainable management of living natural resources	Its objective is the protection and conservation of biodiversity; the sustainable management of natural resources adopting conservation and protection practices.
7. Indigenous People	Guarantee that the development process ensures and fosters full respect for human rights and the dignity of indigenous peoples
8. Cultural Heritage	This principle seeks to protect cultural heritage from the adverse impacts of project activities and to support its conservation, recognizing their importance for current and future generations.

Source: own elaboration based on revised documents

Chart 3. Equator Principles

Principle	Description
Review and categorization	The adhered financial institution (EPFI) ² categorizes the project based on levels of risks and environmental and social impacts of the project.
Environmental and Social Assessment.	It refers to the evaluation processes to address the relevant environmental and social risks and impacts of the project; incorporate measures to appropriately minimize, mitigate and compensate for adverse impacts.

Applicable Environmental and Social Standards.	The evaluation process should address compliance with the host country's laws, regulations, and permits and should demonstrate overall project compliance with applicable standards.
Environmental and social management system and action plan of the EPs.	Projects must have an adequate environmental and social management system. An Environmental and Social Management Plan must be prepared.
Participation of Interest Groups.	The effective and systematic participation of stakeholders must be guaranteed through informed consultation and participation processes in the different phases of the project
Complaints and Claims Mechanism	The operation of a system is due to receive and facilitate the resolution of concerns and problems related to the environmental and social performance of the Project.
Independent review	A review by an external environmental and social consultant is required; for the purposes of evaluating compliance with the principles.
Contractual Commitments	All projects must comply with the current documentation, regulations, environmental and social permits of the host country.
Independent Monitoring and Reporting	Follow-up information must be verified by a qualified external expert.
Reporting and transparency	In addition to the information requirements of principle 5, at least a summary of the Environmental and Social Impact Assessment must be guaranteed; the public presentation of information on the levels of GHG emissions. ³

Source: own elaboration based on revised documentation

2. Description of the Project and areas of influence

2.1. Project synthesis

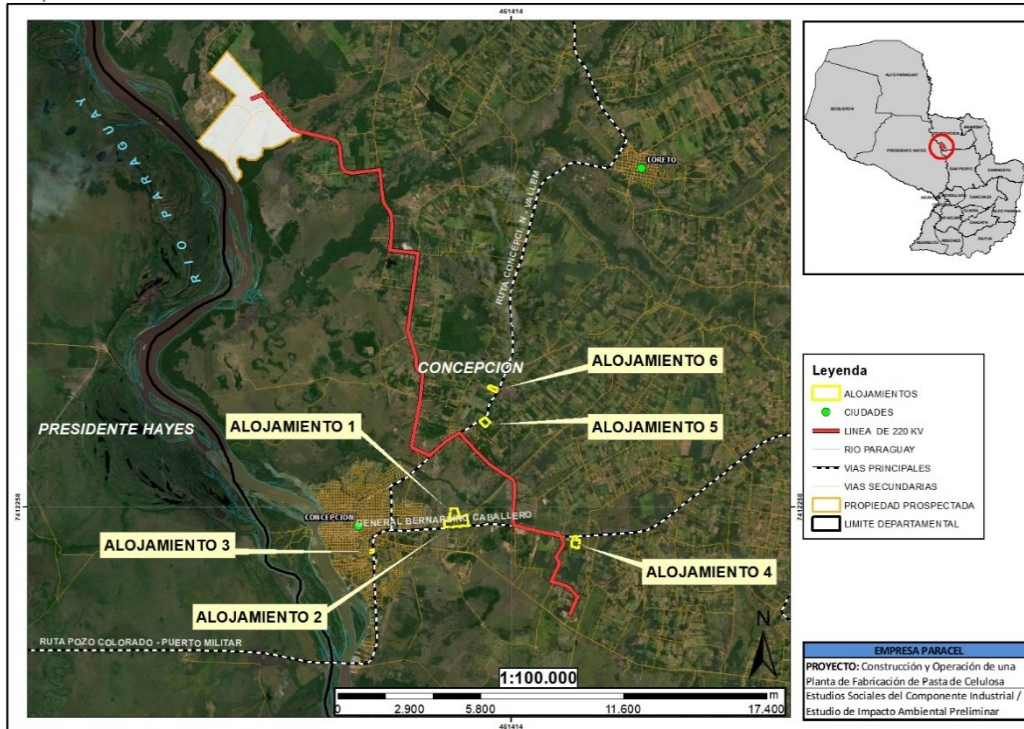
Paracel, a Paraguayan national and foreign investment company, plans to build and operate a pulp mill on the coast of the Paraguay River, approximately 15 km north of the city of Concepción, in the department of the same name.

The venture integrates two major components: the industrial and the forestry. The Industrial Mill (industrial component of the Project) will be designed based on the best available technologies and managed in accordance with certified systems; both from the productive point of view, as well as the socio-environmental point of view. In addition, related services (port, exclusive sanitary landfill, others) and other relevant related activities in this component are considered, such as everything related to accommodation for staff in six accommodations⁴ to be built for this purpose in the city of Concepción, as well such as the construction of a 220 kV Transmission Line (TL), from the city of Concepción to the mill site itself.

³ Combined emissions of Scope 1 and 2 referred to in Annex A of the Equator Principles.

⁴ The location might vary in the future

Map 1. Location of the Industrial Mill and relevant related activities



The raw material, consisting of *Eucalyptus sp.* wood, will come from our own plantations, with certified afforestation, located almost entirely in the department of Concepción (forestry component of the Project), although is expected during the first years of operation a supply from Mato Grosso do Sul (Brazil) and, to a lesser extent, from northern Argentina.

The estimated times for each component are:

Study Phase:	For de study phase (engineering, forestry, environmental, social, among others) which started on 2019, an approximate duration of 2 years is expected.
Planting Phase:	5 - 7 years
Construction Phase:	2 - 3 years

It is estimated that the project will generate direct quality jobs: between 5,000 - 8,000 during the construction phase, and 500 - 800 during operation. In addition, the generation of indirect jobs of between 10,000 - 30,000 is projected, with entrepreneurship being a potential booster of the local and national economy. Having as a priority the absorption of local labor, the company will seek to create alliances with local and national educational institutions, to stimulate education and training according to the required profiles.

For the care of the environment, the project will be governed by national regulations (water and effluent quality standards, zero deforestation, among others). With the highest international standards, which require permanent monitoring of environmental impacts, and the public dissemination of the results.

2.2. Criteria for the definition of the areas of influence

For the delimitation of the areas of influence in the framework of social studies, the following criteria were taken into consideration:

- IFC Performance Standard No. 1, on the delimitation of the project's area of influence⁵,
- the phases of the project (design, construction and operation), its components (industrial and forestry⁶), possible impacts, and
- the social and cultural aspects studied.

Based on the analysis of these aspects and the initial recognition of the area, three areas of influence of the project were established, for which a particular methodology of work with the resident population has been defined, taking into account the different aspects studied about it.

The three areas were named as follows:

- Indirect Influence Area (AII)
- Direct Influence Area (AID)
- Directly Affected Area (ADA)

2.3. Description of the project's areas of influence

Indirect Area of Influence (AII): It includes the three northern departments of the Eastern Region of the country: Concepción, San Pedro and Amambay; which were taken into account since they could represent, given their proximity, areas of possible migratory flows, especially in the context of the construction stage. In addition, as a result of the review of secondary sources and field work, it was possible to verify the internal migratory dynamics of these three departments, and their own and common characteristics such as the northern area (economy, population, road connection, etc.).⁷

Area of Direct Influence (AID): The district of Concepción (belonging to the department of the same name), was integrated into the area of direct influence of the project, as it is the closest and most populated urban area to the project, important because it is also the capital from the Department. Especially within this district, an area of approximately 5 km was initially considered around the prospected area for the construction of the mill, as well as the access roads to it, including the Paraguay River in said area. In this area, 18 interconnected localities were identified through local roads. Considering this aspect, it was decided to extend the initial range to a radius of 13 km around the surveyed area. Likewise, the districts close to the surveyed area were included, such as Belén (54 km), Horqueta (66 km) and Loreto (26 km)⁸. Furthermore, this area of influence (AID) also integrates the related activities of the project (accommodation and TL 220 kV)⁹.

In relation to the population in the area of direct influence on the side of the department of Pdte. Hayes, after observation in the field and the data from secondary sources surveyed, it was verified that there is no settled population near the factory. The western region in this area has a very low population density, with the most

5 The area that is likely to be affected by: (i) the project and by activities and facilities that are directly owned or operated or managed by the client (including through contractors) and that are components of the project; (ii) the impacts of unscheduled but foreseeable events caused by the project, which may occur subsequently or elsewhere, or (iii) the indirect impacts of the project on biodiversity or on the ecosystem services on which the affected communities depend for get your livelihood. Related facilities, which are facilities not funded as part of the project, that would not have been built or expanded had the project not existed, and without which the project would not be viable. Cumulative impacts (resulting from the incremental impact) on areas or resources used or directly affected by the project, produced by other existing, planned or reasonably defined constructions at the time of carrying out the risk and impact identification process. Performance standard 1 evaluation and management of environmental and social risks and impacts. IFC. 2012. P. 9.

6 Although the characterization does not include the development of the baseline and the evaluation of impacts for the forestry component, it will be taken into account in the framework of the proposed social work.

7 With respect to Pdte. Hayes, although the geographical proximity could indicate that it is part of the IIA, the analysis carried out based on social criteria and in accordance with the results presented in this baseline, shows that the migratory relationship between the North Zone and Pdte. Hayes has a greater number of inhabitants of Concepción who travel to the Chaco for work (for example, to Farms in Pdte. Hayes), than the other way around (from Pdte. Hayes to Concepción). In addition, the populated areas of Pdte. Hayes are far from the surveyed area.

8 Road distances.

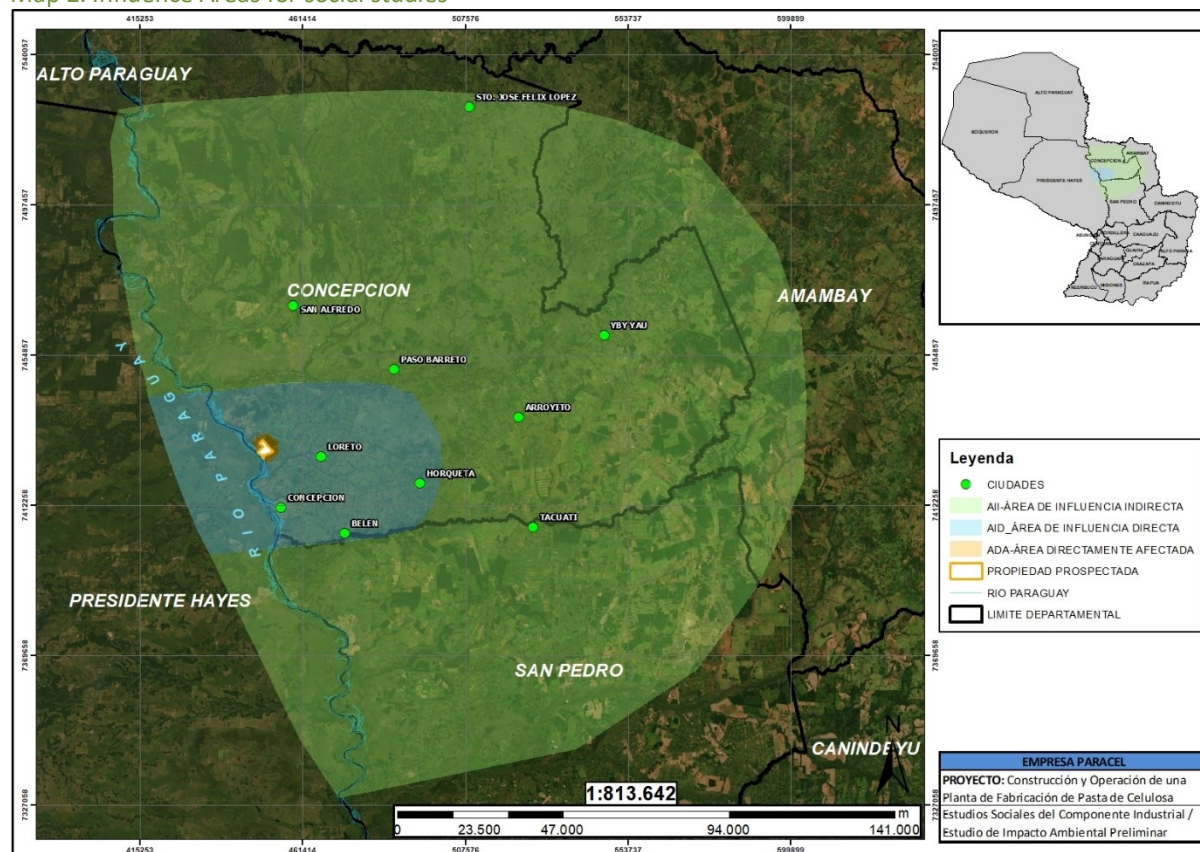
9 The update of this document includes more precise information in relation to the related activities of the project than the initial version (April 2020), because at that time there was no defined location of the accommodation sites and other related aspects.

populated urban centers being very far from the intervention zone (Puerto Pinasco, Benjamín Aceval, Villa Hayes, among others).

Directly Affected Area (ADA): In this area were included the social units (properties, building infrastructures, dwellings, etc.) located in the immediate surroundings of the area surveyed for the installation of the mill, settled within a radius of 1 km from distance.

The scope of the areas of influence is described below:

Map 2. Influence Areas for social studies



It should be clarified that, for the purposes of the EIAP and considering the requirements of the indigenous population, a specific study independent of this document has been developed. Said study, carried out by the Natán Foundation, is presented in the annexes section of this document. The delimitation of areas of influence for said study was carried out according to specific criteria that take into account the particularities and sociocultural dynamics of the communities.

3. Methodology for the development of social studies

For the elaboration of the social studies referring to the industrial component of the project, the following actions have been developed:

- **Formation o fan interdisciplinary team** of professionals and social technicians in charge of carrying out the necessary process for the preparation of the studies. The collection, processing and analysis of information was carried out according to the different study topics developed in each section.

- **Survey and analysis of information** obtained through secondary and primary sources, including the use of different selected techniques, which has allowed, in the case of field work, access to the perception of residents regarding the socioeconomic characteristics of their community and the implementation of the project in those areas.
- **Identification and direct communication** with key actors in the areas involved in the project, departmental, municipal and community referents, in order to have their participation and involvement during all stages of the work carried out.

3.1. Methodological scheme

Considering the objectives of preparing this document, a work methodological scheme was defined that was based on the steps described below:

- **Review of secondary sources:** To access information regarding the socioeconomic characteristics of the project's areas of influence, including their cultural heritage; and for the elaboration of the impact assessment carried out, it was necessary to review and analyze pertinent documentation such as censuses, statistical databases, development plans, specific studies, land use plans, periodic reports from public institutions, regional investigations, reports local programs for socioeconomic development, among others.

Information from the departmental and district level was considered, however, there were difficulties in accessing official data on the local level, in response to which information generated thanks to field work was used, including consultations made to reference bodies such as the Government of Concepción, Municipalities involved and other public institutions in the area.

Both the national and international regulations, mentioned above, have constituted the guiding basis for the preparation of the different sections that make up this document.

- **Access to information through primary sources/field work:** Various information gathering activities were carried out in the field, through the application of pre-designed tools in order to obtain the necessary data for each study and deliver information to the population involved. These will be described in detail in item 3.2. Information gathering in the field.
- **Access to Project-specific information:** Obtained through work meetings with Paracel's environmental and social sustainability team, who provided complementary and additional data (information on related activities, ongoing social management plans, among other topics) in the period development of this document. In addition to information and documentation available on the project website (<https://paracel.com.py>).
- **Processing of collected data:** Once collected, the information has been processed with the aim of generating a unique database, taking into account each technique used, so that it is available for the following actions to be developed within the framework of the draft.

3.2. Information gathering in the field

As previously mentioned, for social work in general and in particular for field surveys, the importance of constantly carrying out a bidirectional process was raised; developing actions that made possible; on the one hand, to collect the information from the first source, as accurate as possible and necessary for the purposes

of the project and the EIAP; and on the other hand, to deliver information of interest to the communities from the beginning, generating participatory spaces so that the population is involved from the project design stage.

Through this work, baseline studies have been developed, contributing information (especially qualitative) regarding the resident population in the areas involved in the project.

The field survey was structured taking into account the different areas of influence of the project, which has also required the use of different data collection techniques (qualitative and quantitative). The steps carried out during the data collection process are described below:

- **Direct Observation:** Initially, an in-situ reconnaissance tour was carried out and the important aspects of the zones were recorded for the final delimitation of the project's areas of influence; in addition to making the first contacts with key players in the departmental capital.
- **Population residing in the Directly Affected Area (ADA)** units closest to the mill area; with whom the following activities were developed:
 - **Socio-economic census** with the application of a previously designed census form, to families identified in the Piquete Cue community, located in the vicinity of the entrance to the prospective area of the Mill's installation and;
 - **Semi-structured interviews** to owners and administrators/managers of mostly livestock establishments (ranches) located in said area.
- **Population residing in the Area of Direct Influence (AID)** with whom survey activities were carried out, taking into account the district (Concepción, Horqueta; Loreto and Belén) and local level, involving 18 localities or micro-territories, located on the access roads to the mill area, carrying out the following activities:
 - **Interviews to Institutional Actors** in coordination with focal points of the municipalities and the Concepción Government, as well as other referents with whom they had contact during the field work.
 - **Community Interviews**, work that initially implied the identification of key informants, which made it possible to involve referents from community organizations, women's committees, members of water and sanitation boards, educators, pantries, former residents, among others.
 - **Participation Workshop** with institutional actors in the city of Concepción, including referents from public and educational institutions, the private sector, civil society organizations and other key actors in the area.
 - **Focus Groups** with representatives from community organizations, producers, neighborhood commissions, water and sanitation boards, educational institutions, among others. These were implemented by areas that bring together several localities, in addition to communities in the districts of Loreto, Horqueta and Belén.
 - **Perception Surveys** in strategic points of agglutination of people such as supermarkets; educational supervisions; Public hospitals; private sanatoriums and pharmacies; transport and tourism houses; Hotels; small, medium and large businesses; Churches; plazas; etc. In the urban area of the districts involved in the project, taking into account profiles such as: university students; merchants and shop users; people who frequent religious spaces; organizational and recreational; teachers; directors of educational institutions; health care providers; among others.

Finally, it is important to consider the following points related to the work methodology:

- Information gathering tools were designed with special emphasis on identifying the socioeconomic characteristics of each area and the existing capacities and/or needs from the perspective of the stakeholders involved.

- The survey of the perception of the population regarding the socioeconomic characteristics of their community and the installation of the mill, was carried out in a transversal way, to all the people involved in each of the activities, so that there is the necessary inputs to carry out the corresponding monitoring during other stages of the project.
- The survey work in the field (primary sources) was considered a priority since through this it was possible to have valuable information for the development of the studies that make up this document, especially the sections of characterization of the districts and localities of the AID in the absence of specific data related to these.

4. Characterization of the project's areas of influence

4.1. Indirect Influence Area (All)

Taking into account the information available from official sources, this socioeconomic characterization contains data related to the three departments involved in the IIA (Concepción, San Pedro and Amambay), with emphasis on Concepción. Likewise, with reference to the four AID districts, quantitative data that were available are presented in a complementary manner in this section. As explained in Chapter 3. Methodology for the development of social studies; For the characterization of the AID, and due to the lack of official data at the district level, the information has been complemented with the survey work carried out in each of the districts, and which is presented in item 4.2.

The information is presented in sub-chapters by topics of interest, grouped by department and district (where available). Taking into account the diversity of data sources and the differences in the periods for which the information was available. A comparative analysis between departments was integrated, where possible.

Regarding statistical data, it is worth mentioning:

- The use of the most recent publications and databases that were delivered by the General Directorate of Statistics, Surveys and Censuses (DGEEC) was privileged.
- Although certain types of information could only be obtained from the different Censuses carried out: National Census (2012), Agricultural Census (2008), Economic Census (2011), a valuable amount of information could be collected from the Permanent Household Survey 2017 (and earlier).
- For uniformity of criteria, in population projections and related data those corresponding to the year 2017 were used.
- On December 2019, the DGEEC presented departmental results of the Continuous Permanent Household Survey (EPHC) 2017 and 2018, a publication that presents average annual estimates at the departmental level. Where possible, these data were incorporated. However, taking into account the change in methodology, a comparative analysis was not always possible.

4.1.1. General Description of the Department

The **department of Concepción** is located to the north of the Eastern Region. To the north, it borders the Apa river, to the south with the department of San Pedro, to the west with the Paraguay river and to the east with the department of Amambay. Numerous rivers and streams cross it; and the main river communication route is the Paraguay River.

The department has an **area of 18,051 km²** and ranks second in the region in terms of area. According to data from 2017, the current population amounts to **244,071 inhabitants**, of which 48.58% are women, with a population density of 13.51 people per km². In this department the population is young, with a large majority under 35 years of age (72%); and with an average of 7.61 years of studies. Concepción is divided into **twelve**

districts: Concepción, Belén, Horqueta, Loreto, San Carlos del Apa, San Lázaro, Yby Yaú, Azotey, Sergeant José Félix López, San Alfredo, Paso Barreto and Arroyito¹⁰; and the city of Concepción is the capital of the department

Although the main economic activity historically was agriculture and extensive livestock¹¹, in recent years, large companies such as refrigerators and cement plants have been installed, with cutting-edge technology. Likewise, important service provider companies have developed; and, in the district of Azotey there is a milk processing plant (Lácteos Norte) that has developed the milk basin in the districts of Azotey, Tacuati, Yby Yaú and Horqueta¹². These companies created new jobs for skilled and unskilled people, and fueled economic growth in the department.

The **department of San Pedro** borders Concepción to the south and has an **area of 20,002 km²**. Its population reaches **419,629 inhabitants** (2017 projection data) and has a population density of 21 inhabitants/km². A little more than half of the population is made up of men and they are predominantly young: 70% of the inhabitants are under 35 years of age; with an average of 7.21 years of studies. The main economic activity is agriculture and livestock. The department is divided into **21 districts**: Antequera, Capiibary, Choré, General Aquino, General Resquín, Guayaibi, Itacurubí del Rosario, Liberación, Lima, Nueva Germania, San Estanislao, San Pablo, San Pedro, Santa Rosa del Aguaray, San Vicente, Tacuatí, Unión, 25 de Diciembre, Yataity del Norte, Yrybycuá and Villa del Rosario. The departmental capital is the city of San Pedro del Ykuamandiyú

The **department of Amambay** borders Concepción to the west. It has an area of **12,933 km²**, its population is **164,462 inhabitants** (2017 data) and the population density is 12.7 inhabitants/km². In this department, there are almost equal numbers of men and women and most of the population is under 35 years old (68%); and with an average of 8.48 years of studies. The department is divided into **5 districts**: Pedro Juan Caballero, Bella Vista, Capitán Bado, Zanja Pyta and Karapai; the capital is Pedro Juan Caballero

4.1.2. Demographic Dimension

Next, statistical information related to the population of the Area of Indirect Influence and its evolution, age and gender distribution, households, housing, poverty levels, among others is presented. Likewise, data related to the migration patterns that occurred in the departments are included, with emphasis on the department of Concepción. Where available, data are presented for districts in the Area of Direct Influence.

4.1.2.1. Population

According to data from the General Directorate of Statistics, Surveys and Census (DGEEC)¹³, the total population of the department of Concepción is 244,071 inhabitants (2017 projection); which represents 3.5% of the Total Population of Paraguay (6,953,646 inhabitants, 2017 Projection). It is the ninth most populated department in the country, while San Pedro ranks sixth and Amambay ranks thirteenth.

Chart 4. Projection of total population by gender, regarding department. Year 2017

	Concepción	San Pedro	Amambay	Total All
Men	125,490	219,509	82,173	427,172
Women	118,581	200,119	82,289	400,989
Total (both genders)	244,071	419,629	164,462	828,162

10 The municipality of Arroyito was created by Law No. 5742/16 "which creates the municipality of Arroyito in the department of Concepción and a municipality based in the town of Arroyito", disaffected the district of Horqueta. For this report, although the most recent information was included, it was relieved from the official reports that still do not include this disaffection; that is, in all the mentions of Horqueta, Arroyito is included.

11 Plan of Development and Departmental Diagnose. I Concepción Department. STP. 2011.

12 <https://www.abc.com.py/edicion-impres/economia/fomentan-produccion-lechera-en-districtos-del-dpto-de-concepcion-1594334.html>

13 DGEEC. Statistic Yearbook of Paraguay, 2017, p. 47.

% Total Population of Paraguay	3.5%	6.03%	2.37%	11.1%
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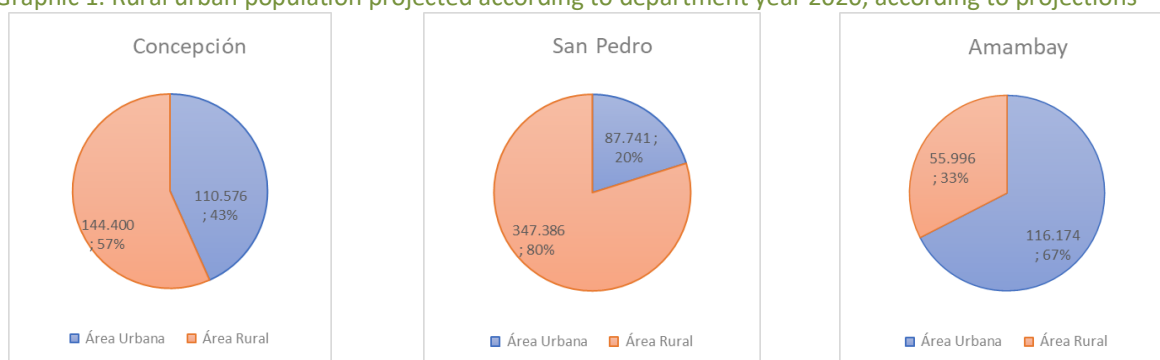
Source: DGEEC. Statistic Yearbook of Paraguay, 2017.

48.58% of the inhabitants of Concepción are women, while in San Pedro less than half of the population is made up of women (47.39%) and in Amambay approximately half are women (50.77%). The total population of the three AII departments totals 828,162 inhabitants, which is estimated to represent 11.91% of the country's population, and of which 400,989 are women (48.41%).

With respect to the population living in rural and urban areas, Figure 1 presents estimates made for each department¹⁴.

Chart 5 presents Population Projection data, revision 2015, in the three departments of the Area of Indirect Influence, and also for the studied districts. Likewise, an estimate of the AII population projection has been made.

Graphic 1. Rural urban population projected according to department year 2020, according to projections¹⁵



Source: Own elaboration based on data provided by STP/DGEEC. February 2020

Chart 5. Evolution of the population (Projection 2017)

Department/district	2015	2016	2017	2018	2019	2020
Total AII	805,603	816,68	828,161	839,499	850,887	862,272
CONCEPCIÓN	236,959	240,495	244,071	247,675	251,314	254,976
Concepción	80,622	81,917	83,226	84,545	85,876	87,215
Belén	12,223	12,418	12,615	12,814	13,014	13,215
Horqueta	59,374	60,031	60,691	61,349	62,008	62,664
Loreto	18,419	18,514	18,608	18,701	18,791	18,879
SAN PEDRO	40,381	414,503	419,629	424,774	429,957	435,126
AMAMBAY	159,263	161,869	164,462	167,050	169,615	172,169

Source: DGEEC. Paraguay. Proyección de la Población Nacional. Revisión 2015. Own elaboration

Regarding population density, the department of Concepción shows a density of 13.5 inhabitants per km², while San Pedro has 21 and Amambay 12.7. On average, then, a population density of 16.2 inhabitants per km² can be estimated in the Area of Indirect Influence. Chart 6 summarizes these data.

¹⁴ For the estimates, according to the methodology indicated by the DGEEC, the data from a report specifically prepared by said institution were used; For each department the projected population for the year 2020 was used and the proportions were applied according to observations from the 2012 National Census.

¹⁵ Sources: STP/DGEEC. Paraguay. Projection of the population by gender and age, according to department, 2000-2025. Revision 2015 and STP/DGEEC. National Population and Housing Census 2012.

Chart 6. Population Density

	Concepción	San Pedro	Amambay	Total All
Area (Km ²)	18,051	20,002	12,933	50,986
Total Population (Projection 2017)	244,071	419,629	164,462	828,162
Population Density (inhabitants/km ²)	13.5	21.0	12.7	16.2

Source: DGEEC. Statistic Yearbook of Paraguay, 2017. Own elaboration.

4.1.2.2. Indigenous Population

As mentioned in chapter 2, as well as in chapter 3: Methodology for the preparation of social studies, for the purposes of the EIAP and considering the requirements of the indigenous population, a specific independent study has been developed. Said study, carried out by the Natán Foundation, is presented in the annexes section of this document.

In the same way, general data in this regard are presented below.

According to the report of the III National Census of Population and Housing for Indigenous Peoples 2012¹⁶, at the country level, the total indigenous population corresponds to 117,150, thus being 1.8% of the total population (6,435,218) of the country. 52% live in the Eastern Region and 48% in the Western Region. Being the majority, 91.3% (103,396) live in rural areas and 8.7% (9,858) live in urban areas.

In the Department of Concepción, 3.5% (3,998) of the indigenous population is concentrated, these are divided according to linguistic family and indigenous people; Among them are the Guaraní linguistic family and people (3,495), which in turn are subdivided as follows: Western Guaraní (3); Ava Guaraní (1); Mbya Guaraní (1234); Paí Tavytera (2,254) and Guaraní Ñamdéva (3). Lengua Masloy (469), corresponds to Toba Maskoy (22); Enlhet North (185); Enxet South (21); Sanapaná (61); Angaité (79) and Guaná (101). Mataco Mataguay (4) that concerns Maká (4). Zamuco (9), divided into Ybytoso (8) and Tomárahó (1). Guaicuru (2), belongs to Qom (2). Non-indigenous (19), referring to the non-indigenous population living in the communities.

Taking into account the areas linked to the project, the identified communities are presented below, with the exception of the Loreto district in which, according to the source consulted, there is no indigenous population. Of the total indigenous population residing in these areas, 9.5% (381 people) reside in urban areas, in the district of Concepción and 90.5% (3,617 people) in rural areas, including Concepción, Belén and Horqueta.

Concepción

Urban Zone

In Redención there is a total of 150 families with approximately 700 people¹⁷. According to the DGEEC, in the 2012 National Population and Housing Census for indigenous peoples, the community is made up of the Enlhet Norte/Angaité/Sanapaná/Toba Maskoy/Enset Sur/Guaná/Ybytoso/Maká/Qom/Western Guaraní peoples.

Rural Zone

Nucleus of families Calería Itakua of the Angaité People (13 - 8 men and 5 women), with 3 private and collective dwellings. Vy'a Renda Boquerón Community of the Mbya Guaraní People (235 - 123 men and 112 women),

¹⁶ DGEEC. III National Census of Population and Housing for Indigenous People, 2012.

¹⁷ Report "Study on indigenous communities of the departments of Concepción and San Pedro. Area of influence of the pulp mill installation project". Consulting for the firm PARACEL S.A. Year 2020.

with 54 private and collective dwellings. Jeguahaty Community of the Paí Tavytera People (145 - 75 men and 70 women), with 38 private and collective dwellings.

Belén District

Yvu Pora Community of the Mbya Guraní People (73 - 39 men and 34 women), with 17 private and community dwellings.

Horqueta District

Isla Saka Yaka'i Community of the Mbya Guraní People (33 - 18 males 15 females), with 8 private and community dwellings. Korai Punta Suerte Community of the Mbya Guaraní People (152 - 65 men and 87 women), with 31 private and community dwellings. Ñande Yvy Pave Community of the Paí Tavytera/Sanapaná People (32 - 17 men and 15 women), with 9 private and community dwellings. Paso Ita community of the Mbya Guaraní People (122 - 62 men and 60 women), with 27 private and community dwellings.

4.1.2.3. Main Demographic Indicators

In this section, the main demographic indicators related to the three departments of the IIA are presented. The data used were collected in publications of the General Directorate of Statistics and Censuses¹⁸ and correspond to the year 2017.

Chart 7. Main demographic indicators, by department. Year 2017

Indicators	CONCEPCIÓN	SAN PEDRO	AMAMBAY
Global Fertility Rate	3.02	2.97	2.62
Birth Rate (per thousand)	24.7	23.38	22.31
Mortality Rate (per thousand)	5.31	5.53	5.36
Life expectancy at birth	74.12	73.73	73.76
Men	71.3	70.88	70.91
Women	77.09	76.72	76.76
Ratio for Gender	105.8	109.7	99.9
Middle age	22.5	23.2	24.3
Total dependency ratio	66.9	64.5	59.3
Children dependency ratio	57.6	55	50.7
Senior dependency ratio	9.3	9.5	8.6
Aging index	16.2	17.2	17
Percentage of the female population of reproductive age	49.7	49.9	52.5
Percentage of male population of household starting age	27.6	26.2	25.9
Index of availability of care for the elderly	26.2	24.3	20.9

The definitions provided by the DGEEC¹⁹ for the indicators contained in the preceding chart are transcribed below.

Chart 8. Indicators contained in the chart 7

Ratio for gender	It is the ratio between the number of men and the number of women, expressed as the number of men for every 100 women.
Middle age	Age that indicates exactly when half of the population is older and the other half is younger.

18 DGEEC. Paraguay, Projection of the Population by Gender and Age, according to Department, 2000-2025. Revision 2015.

19 DGEEC. Paraguay, Projection of the Population by Age and Gender, per Department, 2000-2025. Revision 2015.

Age dependency ratio	It is the ratio of people of ages that generally depend on (people under 15 and over 64 years of age) and people of economically productive ages (between 15 and 64 years of age).
Aging index	Relates the older population (65 years and over) with the young (0 to 15 years), indicating the number of older adults for every 100 children. This indicator clearly shows how the aging of the population is progressing in coherence with the two previous indicators.
Percentage of male population of household starting age	It is an approximate indicator of the demand for housing.
Index of availability of care for the elderly	Ratio between adults over 80 years old, who, for the most part, have lost their autonomy, and the female population between 50 and 64 years old, which would correspond approximately to their daughters. This measure roughly indicates the number of elderlies for every 100 potential caregivers.

Source: DGEEC.

In the department of Concepción, the age and gender distribution are presented as illustrated in figure 2.

The age and gender distribution of the departments of San Pedro and Amambay can be seen in the following graphs 2 and 3²⁰:

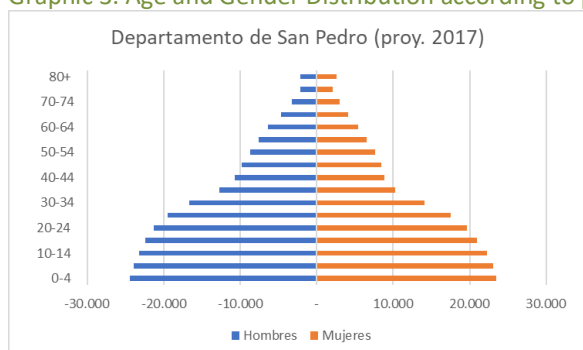
In the three departments, the population is eminently young: in Concepción 72% of the total population is under 35 years old, while in San Pedro and Amambay, the data is 70% and 68% respectively.

Graphic 2. Age and Gender Distribution according to projected data 2017. Concepción Department²¹



Source: DGEEC. Own elaboration.

Graphic 3. Age and Gender Distribution according to projected data 2017. San Pedro Department

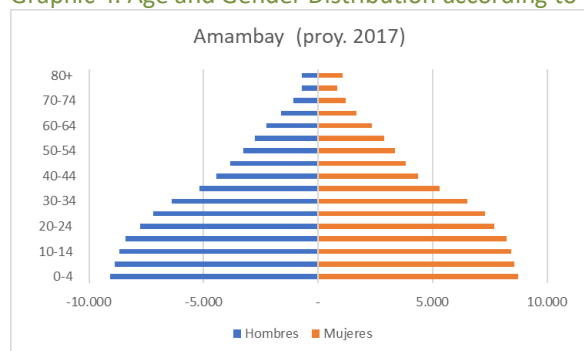


Source: DGEEC. Own elaboration.

20 DGEEC. Paraguay, Projection of the Population by Age and Gender, per Department, 2000-2025. Revision 2015.

21 DGEEC. Paraguay, Projection of the Population by Age and Gender, per Department, 2000-2025. Revision 2015.

Graphic 4. Age and Gender Distribution according to projected data 2017. Amambay Department



Source: DGEEC. Own elaboration.

4.1.2.4. Households, housing

Throughout this section, data are presented from the Permanent Household Survey, year 2017; complemented with the data included in the Continuous Permanent Household Survey, years 2017-2018. Due to differences in the methodology of each Survey, it is possible that the data cannot be compared at this time, but will serve as a baseline for comparisons with future surveys.

In the Concepción department, there are 60,157 households (EPH 2017)²²; while, in San Pedro, 103,024 households are registered (EPH 2017)²³; and in Amambay 43,100 households (EPH, 2017)²⁴. In the data listed in chart 9, it can be seen that a large percentage of the homes in the three departments are owned or are in the process of purchasing in installments, and have electricity.

In both Concepción and San Pedro, in 2017, the highest percentage of household water came from SENASA or the local Sanitation Board, while in Amambay most households obtained water from a community network, as shown in Chart 10.

Chart 9. Houses, legal possession and electrical current, years 2017 and 2018

	CONCEPCION		SAN PEDRO		AMAMBAY	
	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾
Total Houses (Número)	60,157	62,476	103,024	109,443	43,100	44,719
Legal Possession (%)						
- own or paying in installments	83.65	85.7	86.25	87.6	73.86	68.6
- loaned	11.33	8.1	10.91	9	13.08	12.1
- rented	(*)		(*)	3.5	13.06	19.3
Electricity possession (%)	97.79	98.6	99.24	99.4	98.54	98.4

Source: DGEEC. Own elaboration based on data of the DGEEC

(1) DGEEC. Data EPH 2017

(2) DGEEC. Data EPHC 2017-2018

(*) Insufficient sample, less than 30 cases.

Chart 10. Water sources in the houses (%), years 2017 and 2018

Water Sources (%)	CONCEPCION		SAN PEDRO		AMAMBAY	
	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾
- SENASA/Sanitation Board	48.79	29.6	58.29	69	8.13	10.8
- Communitary Network	27.85	37.7	25.76	16.9	33.57	32.3

22 DGEEC. Triptych Concepción Department. EPH 2017. August 2018.

23 DGEEC. Triptych San Pedro Department. EPH 2017. August 2018.

24 DGEEC. Triptych Amambay Department. EPH 2017. August 2018.

- ESSAP	11.28	18.8	(*)	2.8	17.89	20.8
- Artesian Well	(*)		(*)	3.4	10.9	8.9
- Well with or without pump	9.88	7.9			18.36	14.3
- Others ⁽³⁾	(*)		6.09	7.8	8.33	3.6

Source: DGEEC. Own elaboration based on data of the DGEEC

(1) DGEEC. Data EPH 2017

(2) DGEEC. Data EPHC 2017-2018

(*) Insufficient sample, less than 30 cases.

(3) Others: include spring, cutwater, river or stream

Regarding solid waste disposal, the vast majority of households' resort to burning in Concepción and San Pedro, and public/private collection services in Amambay. It is worth mentioning that one third of the population of Concepción has access to garbage collection services.

Likewise, for the disposal of wastewater (sewage), only 6.55% of the dwellings have access to the sanitary sewer network (sewer) in Concepción (1.03% in San Pedro and 4.14% in Amambay).

Almost 30% of households use a manhole with a septic chamber, and a similar percentage use a manhole without a septic chamber in Concepción and San Pedro, while in Amambay these percentages amount to more than 40% in both cases. In addition, a very important percentage of households (35.47% in Concepción, 37.38% in San Pedro) still use a common latrine with or without a roof or door, a ventilated latrine with a dry pit or the surface of the land, stream, river and others. While in Amambay this percentage is reduced to 8.23%. The corresponding data are found in Chart 11.

Chart 11. Solid waste disposal and wastewater (%), years 2017 and 2018

Solid Waste Disposal and Wastewater (%)	CONCEPCION		SAN PEDRO		AMAMBAY	
	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾
Solid waste disposal (%)						
- Burning	61.44	52.3	75.7	72.2	29.84	30.5
- Public/private collection	30.32	33.1	8.18	13.4	63.12	62.8
- Throws it in a hole			12.73	11		
- Others ⁽³⁾	8.24	14.6	(*)	3.3	7.05	6.7
Waterwaste disposal (%)						
- Sanitary sewer network (sewer)	6.55	6.8	1.03	2.2	4.14	6.1
- Septic chamber and cesspool	29.8	35.8	29.08	34.4	46.39	47
- Manhole without septic chamber	27.81	23.5	31.38	25	41.24	35.2
- Common latrine without roof or door	27.79	25.7	26.93	29	4.57	9.9
- Common dry pit latrine (with slab, roof, walls and doors)	6.01	6.4	8.79	7	2.63	1.1
- Ventilated dry pit latrine (common with ventilation tube)	1.29	0.3	1.26		1.03	
- Land surface, open hole, ditch, stream, river	0.38	1.4	0.40	1		0.4

Source: DGEEC. Own elaboration based on data provided by DGEEC

(1) DGEEC. Data EPH 2017

(2) DGEEC. Data EPHC 2017-2018

(*) Insufficient sample, less than 30 cases.

(3) Others: includes Throwing in the municipal dump, hole, backyard, wasteland, street, farm.

In the homes of Concepción, the most used fuel for cooking continues to be firewood (46.49%), followed by gas (31.87%), coal (9.57%) and electricity (8.69%), as well as than in San Pedro. However, in Amambay, the statistical data indicate a strong predominance of gas use, as can be seen in Chart 12.

Chart 12. Main used fuel for cooking (%), years 2017 and 2018

Main fuel used for cooking (%)	CONCEPCION		SAN PEDRO		AMAMBAY	
	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾
- Firewood	46.49	44.2	59.76	55.3	12.76	83.1
- Gas	31.87	38.7	21.31	23	82.74	11.2
- Coal	9.57	6.5	8.07	5.6	(*)	(*)
- Electricity	8.69	9	9.31	13.8	(*)	(*)
- Does not cook	(*)		(*)		(*)	(*)

Source: DGEEC. Own elaboration based on data provided by DGEEC

⁽¹⁾ DGEEC. Data EPH 2017 | ⁽²⁾ DGEEC. Data EPHC 2017-2018 | (*) Insufficient sample, less than 30 cases.

With reference to durable goods in households, in the three departments it can be observed that the same five types of goods have higher ownership percentages; and the possession of mobile phones is greater. In second place, the possession of motorcycles is located in Concepción, while the households of San Pedro and Amambay give preference to the possession of electrical appliances (refrigerators, televisions and washing machines), as can be seen in Chart 13.

Chart 13. Possession of durable goods (%), years 2017 and 2018

Possession of Durable Goods (%)	CONCEPCION		SAN PEDRO		AMAMBAY	
	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾	2017 ⁽¹⁾	2018 ⁽²⁾
- Mobile phone	96.63	95.9	95.97	96.2	98.46	96.5
- Motorcycle	86.58	82.2	71.88	76.2	74.57	74.1
- Refrigerator	83.25	85	84.69	86.9	92.41	90.3
- Television	81.24	86.8	79.98	81.1	89.39	86.9
- Washing machine	69.57	76.1	71.62	76.7	83.07	82.7

Source: DGEEC. Own elaboration based on data provided by DGEEC

⁽¹⁾ DGEEC. Data EPH 2017

⁽²⁾ DGEEC. Data EPHC 2017-2018

4.1.2.5. Poverty, Income Distribution, Unsatisfied Basic Needs (NBI)

Poverty

In Paraguay, the method used to measure poverty is the Poverty Line method. Among other indicators, the DGEEC carries out calculations to estimate the incidence of total poverty and extreme poverty (percentage of poor and extremely poor), defined as “Proportion of the population with an income below the total poverty and poverty lines extreme”²⁵. That is, it measures the percentage of people in a situation of Total Poverty²⁶ and in a situation of Extreme Poverty²⁷. Considering the cultural and consumption characteristics of the population in urban and rural areas, Total Poverty Line and Extreme Poverty Line values are calculated for urban and rural areas.

For the year 2017, the values of the poverty lines are the following²⁸:

25 DGEEC. Main Results of Poverty and Income Distribution. EPH 2017. March 2018.

26 The percentage of inhabitants living in poverty is calculated by comparing the per capita income with the cost of the basic consumption basket (Total Poverty Line), considering in addition to food other non-food expenses such as: housing, education, health, transportation, communication, entertainment, etc. (DGEEC. Summary of the Estimation of Poverty Lines).

27 The percentage of inhabitants living in extreme poverty is determined by comparing the per capita income of households with the cost of the basic food basket or the Extreme Poverty Line. (DGEEC. Summary of the Estimation of Poverty Lines).

28 DGEEC. Main Results of Poverty and Income Distribution. EPH 2017. March 2018.

Chart 14. Information about poverty lines on 2017

	Urban Area (Gs.)	Rural Area (Gs)
Total Poverty Line (LPT)	664,297	473,601
Extreme Poverty Line (LPE)	256,881	234,592

Source: DGEEC. Permanent Household Survey 2017.

As can be seen in the data from the Permanent Household Survey²⁹, 43.97% of the population of Concepción is in a situation of poverty, that is, around 107,097 people have per capita income lower than the cost of a basic consumption basket (LPT). Of these people, 15,911 (6.53%) have per capita monthly income below a minimum food consumption basket, that is, they cannot cover the cost of the minimum amount of food. In San Pedro, the percentage of total poverty is similar to that of Concepción; however, the percentage of people living in extreme poverty is higher. Amambay is the department with the lowest poverty rates in the IIA, and this result is aligned with the other indicators contained in other sections of this report. Chart 15 summarizes the main data obtained.

Chart 15. Total and Extreme Poverty according to department (year 2017)

Department	Total Population ⁽¹⁾	Total Poor Population ⁽²⁾		Extremely Poor Population	
		Absolut (quantity)	Relative (%)	Absolut (quantity)	Relative (%)
Concepción	243,560	107,097	43.97	15,911	6.53
San Pedro	418,851	182,567	43.59	33,894	8.09
Amambay	164,254	25,026	15.24	5,390	3.28

Source: DGEEC. Permanent Household Survey 2017.

(1) Does not include domestic employee without retirement.

(2) Includes extreme and not extreme poor people

Income Distribution

According to available data, in 2017, the average per capita income in Concepción reached approximately Gs. 896,026³⁰, which represents 8.7% less than that of San Pedro and is 41.47% less than that of Amambay. In the three departments of the IIA, the richest quintile is more than 50% of the population. There is a marked inequality both between per capita income in each department and between quintiles. By way of illustration, in Concepción, the poorest 20% earn 11.74% of what the richest 20% earn, a relationship similar to that of Amambay (11.50); while, in San Pedro, the ratio drops to 8.55%. However, when comparing the absolute values in the same quintile, the average income in Concepción is almost 40% lower than in Amambay and 7.45% higher than in San Pedro. The data collected can be seen in Chart 16.

Chart 16. Average and distribution of population's monthly income per capita, according to monthly income quintiles (2017)

Per capita income quintiles	CONCEPCION		SAN PEDRO		AMAMBAY	
	Average (Gs)	Percentual distribution	Average (Gs)	Percentual distribution	Average (Gs)	Percentual distribution
Total	896,026	100	981,516	100	1,530,906	100
20% poorer	265,696	5.93	245,836	4.97	440,099	5.71
20% following	433,258	9.67	397,922	8.16	754,516	9.9
20% following	605,317	13.43	550,863	11.29	1,069,846	13.93
20% following	911,518	20.48	832,589	16.86	1,553,616	20.34
20% richer	2,262,201	50.5	2,876,140	58.72	3,824,094	50.12

Source: DGEEC. Permanent Household Survey 2017. Own elaboration.

29 DGEEC. Encuesta Permanente de Hogares 2017.

30 DGEEC. Boletín - Principales Resultados de pobreza y Distribución de Ingreso. EPH 2017. Concepción.

Unmet Basic Needs (UBN)

According to data from the 2012 Census, in Concepción, more than half of the households (56.2%) have at least one UBN. In the three departments, the highest percentage occurs in access to health infrastructure, as is also the case, if we compare, with the total (country). It is worth mentioning that all the percentages are higher than those registered at the country level (except access to subsistence capacity in Amambay), indicating that the departments and districts are in worse conditions than the national average.

Regarding the districts studied for the AID, Concepción presents the lowest percentages in each surveyed indicator, denoting better access in general compared to other districts, while in Loreto there is the highest percentage of homes with at least 1 UBN, in addition of the highest percentages in each type of UBN, except access to education. Chart 17 presents data for the 3 departments and 4 districts.

Chart 17. Houses with UBN, per department and district

Department and district	TOTAL HOUSES	Houses with Unsatisfied Basic Needs (UBN) (%)				
		At least 1 NBI	Type of UBN			
			UBN in the quality of the house	UBN in the sanitary infrastructure	UBN in access to education	UBN in subsistence capacity
Total (country)	1,232,496	43.0	12.6	20.8	15.7	14.9
CONCEPCIÓN	42,638	56.2	19.0	29.7	20.3	19.8
Concepción	14,973	46.6	16.4	20.5	15.2	15.8
Belén	2,165	57.9	20.8	26.7	18.1	20.5
Horqueta	10,784	59.4	17.5	32.5	21.9	20.1
Loreto	3,317	60.0	21.7	32.6	16.1	21.2
SAN PEDRO	78,742	57.6	19.1	24.8	21.2	23.3
AMAMBAY	27,047	48.3	18.6	26.5	25.9	14.7

Source: DGEEC. Unsatisfied Basic Needs Triptych (UBN) 2012. Paraguay based on STP-DGEEC. National Census of Population and Housing 2012.

4.1.2.6. Migration

Like other countries, in Paraguay, there are significant difficulties in determining migration, and even more so in predicting it. This situation is exacerbated by the lack of internal migration statistics at the interdepartmental level³¹. Considering these limitations, in this section, the Population Projection data published by the DGEEC has been used, where data are presented that allow their analysis.

Migration can be defined as “permanent or semi-permanent transfer of people and families between geopolitical units, with the consequent change of residence”³².

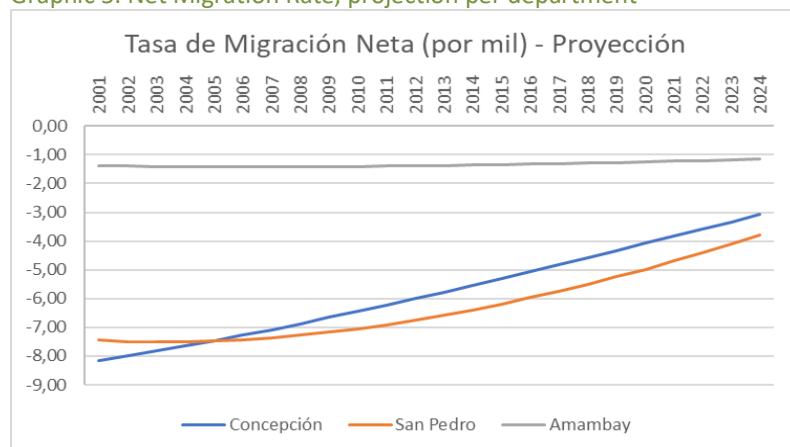
In Paraguay, for the years 2001 to 2024, migration rates are negative in all departments, except in the Central department, where a high immigration rate is observed³³. These data suggest a significant migratory movement from the interior of the country to the cities surrounding the capital.

31 DGEEC-STP. Paraguay. Projection of the Population by Gender and Age, per Department. 2000-2025. Revision 2015

32 DGEEC. Pendular Migration in Paraguay, 2012.

33 Including Asunción.

Graphic 5. Net Migration Rate, projection per department



Source: Own laboration based on Population Projection (DGEEC).

Graph 5 presents the Net Migration Rate for the years 2001-2024 corresponding to the three departments of the IIA. As can be seen, in Concepción and San Pedro, the net rates are negative (emigration) with a tendency to decrease. In Amambay, although they are also negative, the trend remains relatively stable.

According to Pereira, in his text *“Department of Concepción. Wealth and social inequality”*, based on official data from the 2002 Population and Housing Census, 40% of the people migrated to the central department, 16% to Asunción and 12% to the Amambay department. Likewise, he relates that in that period *“emigration from the department of Concepción has the face of a woman. Fifty-seven out of every 100 migrants... were women”*³⁴. It is possible that this statement is still valid as of 2017, however, no data has been found in this regard.

Pendular Migration.

Pendulum migration is migration "of a periodic nature and does not translate into a change of residence"³⁵. It refers to people who periodically move to another country, department or even district, for work reasons. In this section, data will be used from the Population aged 10 years and over, employed in the same department, but a different district, a different department, another country or without a fixed district to which they reside, according to data from the 2012 Census.

Chart 18. Population of 10 years and more, pendular migrants per department of residence, according to employment, 2012

Place of Employment	Department of Residence		
	Concepción	San Pedro	Amambay
Asunción	113	272	29
Concepción	666	118	69
San Pedro	133	1020	16
Amambay	261	110	131
Cordillera	5	18	0
Guairá	0	25	5
Caaguazú	13	73	1
Caazapá	3	6	2
Itapúa	3	7	0
Misiones	2	6	0
Paraguarí	1	8	0

34 Pereira, Hugo. *“Department of Concepción. Wealth and social inequality”*. Available at: <https://revistascientificas.una.py/index.php/RE/article/view/714>

35 DGEEC. Pendular Migration in Paraguay, 2012.

Place of Employment	Department of Residence		
	Concepción	San Pedro	Amambay
Alto Paraná	23	83	9
Central	43	121	4
Ñeembucú	3	4	0
Canindeyú	2	101	6
Presidente Hayes	401	168	5
Boquerón	659	114	6
Alto Paraguay	357	60	9
Other country	104	122	2346
Does not have a fixed district	346	441	148
Total pendular migrant population	3139	2875	2786

Source: DGEEC. Pendular Migrant in Paraguay. Own elaboration.

As can be seen in chart 18, a large part of the pendular migration from Concepción and San Pedro occurs as intradepartmental migration: 21.2% and 35.5% respectively, which indicates that, although a significant number of people mobilize outside their area of residence to work, the vast majority do it relatively close and stay in the same department.

On the other hand, it should be noted that a very significant proportion of inhabitants of Concepción work in the Chaco: 45% in the three Chaco departments³⁶, with easy access through the Nanawa bridge that connects the Western and Eastern regions, which is not reported in the department of San Pedro. With regard to Amambay, 84.2% of the pendular migrant population moves to another country (probably Brazil due to the geographic location of the department) and the lowest percentage of people move to Concepción (4.7%), although important numbers of interdepartmental pendulum migration are not register.

Going deeper into the analysis, and based on the data included in other sections of this document³⁷, it is possible to observe that the industrial sector in San Pedro is better paid than the industrial sector in Concepción. For this reason, it is probable that the migratory influx is of unskilled labor and probably also coming from the primary sector.

Based on the information presented in this document, the migratory influx from Amambay to Concepción is unlikely, considering that the department of Amambay presents much better ratios than the other two departments of the IIA, so the flow could be unlikely.

4.1.3. Job

In the first part of this section, the main statistical data related to the Working Age Population (PET), Economically Active Population (EAP), Unemployment, underemployment and others are presented. Where available, gender-disaggregated data was included.

In the second part, information is presented on the formality of employment in the 3 departments of the IIA, and on the average labor income.

4.1.3.1. Summary of the main indicators of the labor market

Where possible, data and information have been compiled and total values calculated for the three departments. The data used were extracted from reports prepared by the DGEEC, according to data from the Permanent Household Survey (2017).

³⁶ On the contrary, the total number of people who migrate from the Chaco to Concepción temporarily to work is low, being 101 people, which represents 1.57% of the total number of Chaco people with pendular migration.

³⁷ Items Employment and Economy.

Chart 19 systematizes the main indicators of the Labor Market, and Chart 20 provides data on the Employed Population, according to different segmentation criteria.

In Concepción, there is a Working Age Population (WAP) of 186,627 people (53.53% are women), of which 58.33% are Economically Active (108,860 people, of which 41.33% are women). The department's activity rate is 58.33%, a figure lower than the national activity rate (63.09%)³⁸. For women, an activity rate of 45.04% was registered, while for men this figure reached 73.64%, in line with the rates registered at the national level of 50.91% and 75.24% respectively.

The figures recorded for the other two departments are close to the national figures. In San Pedro, the Activity Rate was 63.11% (47.33% for women and 77.63% for men). While in Amambay it reached 64.03% (54.07% for women and 74.55% for men).

In 2017, Concepción's open unemployment rate was 6.66% and Amambay's was 5.48%. In other words, some 7,247 people from Concepción and another 4,490 from Amambay were unemployed³⁹. The country's unemployment rate was 5.20%, a figure lower than any of those mentioned.

The Permanent Household Survey also measures the number of "people who worked less than 30 hours in the week and want to work more hours and are available to do so"⁴⁰, that is, underemployment due to insufficient working time (or visible underemployment). In Concepción, the visible underemployment rate reached 8.25% (13.55% of women), while in San Pedro it was 6.41% (10.8% of women) and in Amambay it was 5.63% (10.27% of women). It is worth mentioning that the country's visible underemployment rate stands at 5.43%, below those registered in the three departments.

With regard to occupation by economic sectors, 47% of the economically active population of Concepción is engaged in tertiary sector activities (commerce and services), a sector that absorbs two thirds of the female workforce and one third of the male; while the primary sector occupies 36.2% of the EAP and the Secondary Sector 16.63%. A similar situation occurs in Amambay where 70% of the EAP works in the tertiary sector, which occupies 88% of the female EAP and 57% of the male. In San Pedro; however, the vast majority of the EAP is working in the primary sector (56.35%), which occupies 60% of the male population and 49% of the female population.

38 DGEEC. Main Employment indicators. Permanent Household Survey 2017.

39 DGEEC. EPH 2017. Without data about San Pedro.

40 DGEEC. Main indicators of employment. Permanent Household Survey 2017.

Chart 19. Main indicators of the working market

	CONCEPCION			SAN PEDRO			AMAMBAY			TOTAL		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Total population	244,097	114,152	129,945	419,617	220,754	198,863	164,483	80,975	83,508	828,197	415,881	412,316
Working Age Population (PET)	186,627	86,734	99,893	330,995	172,399	158,596	127,915	62,230	65,685	645,537	321,363	324,174
Economically Active Population (EAP)	108,860	63,869	44,991	208,902	133,841	75,061	81,908	46,391	35,517	399,670	244,101	155,569
Economically Inactive Population (PEI)	77,767	22,865	54,902	122,093	38,558	83,535	46,007	15,839	30,168	245,867	77,262	168,605
Working population	101,613	59,780	41,833	203,463	131,579	71,884	77,418	44,197	33,221	382,494	235,556	146,938
Open Unemployment	7,247	(*)	(*)	(*)	(*)	(*)	4,490	(*)	(*)			
Under-employed population due to insufficient working time (visible underemployment)	8,981	(*)	6,097	13,398	5,292	8,106	4,611	(*)	3,646	26,990	S/D	S/D

Source: DGEEC, Permanent Household Survey – Year 2017. Own elaboration

(*) Insufficient sample, less than 30 cases.

Chart 20. Working population, according to sector of employment

	CONCEPCION			SAN PEDRO			AMAMBAY		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Working by Economical Sector (%) ⁽¹⁾	101,613	59,780	41,833	203,463	131,579	71,884	77,418	44,197	33,221
Primary	36.2	41.78	28.22	56.35	60.48	48.8	11.27	17.13	(*)
Secondary	16.63	24.5	(*)	11.55	14.72	(*)	18.74	26.12	(*)
Tertiary	47.17	33.72	66.39	32.1	24.79	45.46	69.98	56.76	87.58
Working by Employment Category (%)	101,613	59,780	41,833	203,463	131,579	71,884	77,418	44,197	33,221
Public employee / worker	8.37	(*)	11.12	6.38	5.7	7.62	7.82	(*)	10.35
Employee / private worker	27.42	36.61	14.28	18.26	23.01	9.56	43.93	55.13	29.02
Employer or employer	5.07	(*)	(*)	3.28	(*)	(*)	7.07	9.72	(*)
Self-employed	38.92	40.19	37.11	44.32	46.97	39.46	25.96	22.84	30.11
Unpaid family worker	13.03	9.8	17.64	24.86	19.8	34.12	6.09	6.08	(*)
Domestic employee	7.19	(*)	16.86	2.9	(*)	(*)	9.14	(*)	20.88

	CONCEPCION			SAN PEDRO			AMAMBAY		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Working according to Size of the Company (%)	101,613	59,780	41,833	203,463	131,579	71,884	77,418	44,197	33,221
Alone	27.57	25.88	29.98	27.06	26.59	27.94	19.88	16.27	24.68
2 to 5 people	42.97	49.34	33.87	54.28	55.36	52.3	36.26	44.91	24.75
6 to 10 people	7.21	8.66	(*)	15.28	17.05	12.04	9.39	11.38	(*)
More than 10 people	14.2	14.91	13.18				23.18	24.48	21.45
Domestic employee	7.19	(*)	16.86	2.9	(*)	(*)	9.14	(*)	20.88
Does not know	0.87	0.78	0.98	0.47	0.6	0.24	2.03	2.64	1.21
Working according to Years of Study (%)	101,613	59,780	41,833	203,463	131,579	71,884	77,418	44,197	33,221
Without instruction ⁽²⁾	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
From 1 to 6	42.04	41.38	43	50.35	48.69	53.4	34.36	37.91	29.63
From 7 to 12	38.47	43.33	31.53	34.97	39.72	26.27	41.25	42.14	40.07
From 13 to 18	16.97	12.28	23.67	12.31	9.73	17.02	22.58	18.06	28.59
Not available							0.14	- -	0.32

Source: DGEEC, Permanent Household Survey – Year 2017. Own elaboration

⁽¹⁾ Primary Sector: Includes Agriculture, Livestock, Hunting and Fishing.

Secondary Sector: Includes Manufacturing Industries, Construction, Mines and Quarries.

Tertiary Sector: Includes Electricity and Water, Commerce, Financial Establishments, Community and Personal Services.

⁽²⁾ Includes: Pre-Primary

(*) Insufficient sample, less than 30 cases

In the three departments, the highest proportion of people who work do so in MSMEs/Establishments with 1 to 5 employees (Concepción: 70.54%; San Pedro: 81.34%; Amambay: 45.14%). On the other hand, analyzing the data provided by occupation category, it is possible to conclude that, both in Concepción and San Pedro, the population works mainly independently (Concepción: 57.02%; San Pedro: 72.46%) while that in Amambay most of the population works as an employee of private companies (43.93%) compared to 39.12% of independent workers.

4.1.3.2. Formality in Employment

One of the main criteria to define the formality or informality in the employment of salaried persons is constituted by the registration and contributions to a retirement system. In Paraguay, although there are various types of retirement depending on the business union, the main mandatory retirement system for salaried workers who work in a situation of dependency is the Social Security Institute.

In 2017, a little more than a third of the employed salaried population of the three departments was registered and made contributions to a retirement system: 13,969 people from the department of Concepción made contributions to a retirement system, this is 38.41% of the employed salaried population; in San Pedro, there were 19,171 contributors (38.24%) while in Amambay there were 14,167 people (35.36%).

Additionally, taking into account that, in general, people who were able to carry out higher education levels have better access to better paid jobs with a higher degree of formality, an indicator to consider is the salaried employed population according to years of studies. Chart 21 provides data in this regard:

Chart 21. Working according to the years of study, by gender, in the All (2017)

	CONCEPCION			SAN PEDRO			AMAMBAY		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Working by Years of Study (%)	101,613	59,780	41,833	203,463	131,579	71,884	77,418	44,197	33,221
Without Instruction (1)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
From 1 to 6	42.04	41.38	43.00	50.35	48.69	53.40	34.36	37.91	29.63
From 7 to 12	38.47	43.33	31.53	34.97	39.72	26.27	41.25	42.14	40.07
From 13 to 18	16.97	12.28	23.67	12.31	9.73	17.02	22.58	18.06	28.59
Not available							0.14	--	0.32

Source: DGEEC, Permanent Household Survey - Year 2017. Own elaboration

(1) Pre-primary

(*) Insufficient sample, less than 30 cases

In chart 21; It can be observed that, in Concepción, the majority of the employed population has a maximum of 6 years of studies (that is, 42.04% have primary education), a smaller percentage (38.47%) have secondary studies; and only 16.97% attended tertiary studies (7,340 men and 9,900 women). In San Pedro, approximately half of the EAP has primary studies, while almost 35% have secondary studies and only 12% have completed tertiary studies. In Amambay, the majority have secondary studies (41.25% compared to 34.36% with primary studies); and there is also a higher percentage of PEA with tertiary studies (22.58%). It is worth mentioning that, in the three departments, there were a greater number of women (percentage) who attended tertiary studies.

Current Legal Minimum Salary

In recent years, the legal minimum wage has been gradually increasing. From March 2014 to November 2016 it was Gs. 1,824,055; on that date it increased to Gs. 1,964,507 and in July 2017 it increased to 2,041,123. Finally, in July 2018, it was increased to Gs. 2,112,562, to date.

Average Earned Income

As can be seen in the data from the Permanent Household Survey, until 2016, the department with the lowest general average of labor income was San Pedro. While the one with the best average income was Amambay, in correspondence with the number of years of studies of the population. In 2017, the average labor income fell by almost 14% in Concepción, placing this department in last place. It is worth mentioning that, in 2017, the average labor income was higher than the legal minimum wage in force only in the department of Amambay.

Chart 22 details the Average monthly income (in thousands of guaraníes) in the main occupation of the employed population aged 15 and over per year, by department and sex, for the years 2017 and 2018.

Chart 22. Average working income (years 2016 and 2017)

	CONCEPCION		SAN PEDRO		AMAMBAY	
	2016	2017	2016	2017	2016	2017
Average Labor Income (in thousands of guaraníes) of the main occupation ⁽¹⁾	1,763	1,518	1,537	1,747	2,580	2,422
Average Labor Income (in thousands of guaraníes) of the population of Q1 ⁽¹⁾ and Q2 ⁽¹⁾	738	704	494	665	1,110	1,350
Average Labor Income (in thousands of guaraníes) of the population of Q1 ⁽¹⁾	562	497	389	512	887	1,082
Average Labor Income (in thousands of guaraníes) of the population of Q2 ⁽¹⁾	853	865	579	795	1,264	1,554

Source: DGEEC. Permanent Household Survey term 2016-2017

⁽¹⁾ Corresponds to the usual monthly income of those employed in the main occupation at constant prices 2017

As can be seen, the average income is significantly higher in Amambay, when we compare data from the three departments. On the other hand, in all three departments, there is a significant pay gap between women and men. In Concepción, women have 25% lower incomes than men, on average, while the gap is 15% in San Pedro and 22% in Amambay.

Chart 23. Average of the working income, according to department and gender (in thousands of guaraníes)

Department	2017	2018
Concepción		
Total	1,511	1,735
Man	1,682	1,920
Woman	1,259	1,439
San Pedro		
Total	1,506	1,885
Man	1,594	1,977
Woman	1,317	1,672
Amambay		
Total	2,249	2,346
Man	2,466	2,581
Woman	1,932	2,016

Source: DGEEC. Annual Departmental Results EPHC 2017-2018

4.1.4. Economy

By way of introduction, we tried to present comparative information of the different economic sectors: primary, secondary and tertiary for the three departments. However, it was only possible to do it for the Secondary (Industry) and Tertiary (Commerce and Services) sectors due to the type of data available⁴¹.

Consequently, the first section presents data related to the Primary Sector and then data from the Secondary and Tertiary sectors of the IIA. Finally, an analysis is presented on the evolution of the economy in the department of Concepción.

4.1.4.1. Primary Sector

In the three departments, 68,047 farms are registered with a total area of 4,575,725⁴² hectares dedicated to the sector. The area dedicated to livestock reaches 2,935,287 hectares (65.2% of the total), while that used for agriculture is 527,512 hectares (11.5%), and the area with cultivated natural and forest forests is 734,741 hectares (16.1%).

Comparing the data corresponding to the three departments, there is a greater number of farms in the department of San Pedro, which shows the greater occurrence of small agricultural farms, more agricultural than livestock, as can be seen in Chart 24.

Chart 24. Land according to its usage in amounts of farms, by department on 2008

Department	Amount of farms with lands	Farms with temporary, permanente crops and vegetables	Farms with natural or cultivated pasture	Farms with natural forests or forest plantations.	Farms with fallow land	Farms with land destined for other uses
Concepción	17,377	15,285	10,071	6,414	7,485	15,583
San Pedro	45,875	42,889	23,866	18,468	24,154	40,784
Amambay	4,795	3,969	2,726	2,454	1,745	3,261
TOTAL, ESTIMATED AII	68,047	62,143	36,663	27,336	33,384	59,628

Source: National Agricultural Census 2008. Own elaboration

On the other hand, the department of Concepción is the one that dedicates a notorious higher percentage of its surface to livestock activity in relation to agriculture, in comparison with the other departments of the IIA.

With a total of 17,377⁴³ farms covering an area of 1,619,416 hectares where farm management by a single producer reaches 16,809 farms, associated producers 431 legitimately constituted farms, companies or societies 115, the State 4 and others not defined 8. Livestock is large landowners and smallholder agriculture.

The cultivated area reaches 464,267 ha, the composition of the workforce is dominated by the national with 16,512 national producers and the international workforce is dominated by the Brazilian with 261, and only 36 from other nationalities.

41 That is to say, we only have data from the primary sector for 2008 (collected by the National Agricultural Census of 2008, with some annual projections using sampling techniques in non-continuous years), and from the other 2 sectors for 2011 (collected by the National Economic Census of 2011, applied by the DGEEC, was unique in its class so the data presented correspond to an observation). The provision of projections from a single observation lacks statistical robustness, since its preparation is carried out through indirect methods, using series of other observations or determinations taken periodically or regularly over time, such as the Permanent Survey of Households (EPH), the Consumer Price Index (CPI), among others.

42 DGEEC. Agricultural Census

43 DGEEC. Agricultural Census

The education of the agricultural producer in the department of Concepción is distributed in 1,108 producers with no educational training; 5,066 with basic school training (from 1st to 3rd completed); 7,668 with basic school training (from 4th to 6th completed); 1,422 with basic school training (from 7th to 9th); 1,058 with completed secondary education and 173 agricultural technical high school graduates (B.T.A.), while 404 are those with non-university higher education.

Chart 25. Land according to its number in terms of area, by department on 2008

Department	Total área (Ha).	Area with permanent temporary crops and vegetables	Area with natural and cultivated pasture	Area with cultivated natural and forestall forests	Fallow area	Area under other uses
Concepción	1,619,416	71,431	1,218,911	233,300	50,394	4,538
San Pedro	1,739,232	321,156	909,500	276,656	81,091	150,828
Amambay	1,217,077	134,925	806,876	224,785	28,567	21,924
TOTAL, ESTIMATED ALL	4,575,725	527,512	2,935,287	734,741	160,052	177,290

Source: Censo Agropecuario Nacional 2008. Own elaboration

As shown in chart 26, with respect to soil management and conservation, San Pedro presents clear leadership in conservation techniques, which could be connected to its link with international cooperation development programs, since this department has historically shown high levels of poverty and inequality.

Chart 26. Farms according to soil management and conservation, by department on 2008

	Number of farms with soil management	Soil management and conservation					
		Level curve	Crop rotation	Green manure	Plots with organic production certification	Direct sowing	Others
Concepción	10,390	232	9,176	178	273	596	1,196
San Pedro	28,598	998	23,592	297	393	3,669	3,792
Amambay	1,715	307	1,123	10	39	740	241

Source: National Agricultural Census 2008

Regarding the existing forest plantations in the three departments, it is also possible to see a clear leadership of the department of San Pedro in number of trees. However, Amambay has fewer farms containing more trees per unit area. The department of Concepción presents a lower efficiency among the three, per unit area. This could be due to less efficient or less aggressive planting and management techniques. The corresponding information is included in chart 27.

Chart 27. Forestry Plantations (Eucalyptus and Pine Tree crops), by department on 2008

	Compact Forestry Crops		Eucalyptus Crops			Pine Tree Crops		
	Number of farms	Total Area	Number of farms	Cultivated Area	Number of trees	Number of farms	Cultivated Area	Number of trees

Concepción	1,451	4,209	573	1,269	2,254,095	19	60	113,387
San Pedro	2,994	11,022	740	4,431	6,315,778	29	332	556,676
Amambay	222	6,716	87	3,126	5,986,820	6	7	12,787

Source: Censo Agropecuario Nacional 2008

4.1.4.2. Secondary and Tertiary Sectors

Data from the Secondary and Tertiary sectors of the departments of the Project IIA are presented below, seeking to size part of the economic activity in the area. The data used were extracted from the 2011 Economic Census, which did not include the primary sector.

In Concepción, there are 5,242 economic units that employ 13,682 people (44.55% are women) and generate income of Gs. 1,444,284,575,000. San Pedro presents data of high similarity with Concepción, while there is a lesser coincidence with Amambay, where all the registered data are of greater magnitude; for example, income that reaches Gs. 5,112,545,870,000. This is due to the exposure of the department of Amambay to Brazil, where trade with the neighboring country is one of the highest in the country after Alto Paraná.

In fact, the Commerce subsector is the most developed of the three subsectors in the IIA, it is the one that occupies the largest number of Economic Units and people, and generates the largest amount of income. The following chart 28 presents a summary of the Secondary and Tertiary sectors of the three departments of the Area of Indirect Influence of the Project.

Chart 28. Total of economical units. Secondary and Tertiary Sectors, by department. Year 2011

Department and sector of economic activity	Economical Units	Busy Staff			Total Remuneration (In thousands of Gs)	Expenses for purchases of goods and services (In thousands of Gs)	Income from supply of goods and services (In thousands of Gs)
		Total	Man	Woman			
CONCEPCIÓN	5,242	13,682	7,586	6,096	88,154,610	1,079,862,460	1,444,284,575
Industry	572	1,877	1,604	273	12,397,928	109,362,370	151,834,489
Commerce	3,032	7,136	3,757	3,379	39,053,593	857,146,675	1,069,238,665
Services	1,638	4,669	2,225	2,444	36,703,089	113,353,416	223,211,421
SAN PEDRO	5,448	13,801	7,786	6,015	89,635,307	1,151,030,240	1,530,882,702
Industry	493	1,641	1,385	256	15,239,236	92,135,588	131,524,254
Commerce	3,416	7,481	3,986	3,495	44,082,621	934,217,439	1,207,312,984
Services	1,539	4,679	2,415	2,264	30,313,450	124,677,213	192,045,463
AMAMBAY	6,249	18,502	11,071	7,431	188,575,177	4,236,320,036	5,112,542,870
Industry	540	1,869	1,504	365	24,544,937	148,327,137	214,828,806
Commerce	3,868	10,663	6,310	4,353	100,170,416	3,721,163,117	4,347,214,366
Services	1,841	5,970	3,257	2,713	63,859,823	366,829,782	550,499,699

Source: DGECC. Economical Census of Paraguay, 2011

4.1.4.3. Evolution of the economic-productive activity and services in the department of Concepción

The economic-productive activity in the department of Concepción, in general, has been increasing in the last 50 years.

There are no available and detailed time series to perform a consistent and evolutionary analysis in a timely manner, however, it is possible to analyze aggregate data such as those shown in chart 29, including macro trends at the regional level.

In Chart 29, the decrease in the EAP can be observed, which is due to the interdepartmental migration that occurs towards the Chaco, as well as towards the capital Asunción and the Metropolitan Area. This also affects the EAP of the primary sector as can be seen in the corresponding section in the same chart.

The data from the EPH for 2015 show an unemployment rate for Concepción of about 16%, which is inconsistent with the results of chart 29, which has the same institution as a source. This is mainly due to the modification of methodologies in determining the occupancy percentages that occurred in the same year.

Chart 29. Evolution of the economy of Concepción in the last 50 years

Years	1962	1972	1982	1992	2002	2012	2017
Concepción's Population	85,690	108,130	133,977	167,289	179,450	226,585	244,070
Economically Inactive Population	61,397	77,783	95,191	121,058	121,843	129,833	135,210
Economically Active Population (PEA)	24,293	30,347	38,786	46,231	57,607	96,752	108,86
Active Economic Population (%)	28	28	29	28	32	43	45
Employment Rate	87	97	96	98	98	99	93
PEA per sectors							
Primary	14,456	18,467	24,675	27,189	25,805	38,984	39,19
Secondary	3,873	4,419	4,901	6,477	9,195	17,442	17,418
Tertiary	5,18	5,986	6,791	11,046	21,932	40,325	51,164
Other	784	1,475	2,419	1,519	675	s.d.	1,089

Source: Own elaboration based on data of the DGEEC.

4.1.5. Services

This section presents content related to the availability of services in the Project IIA. The information is organized by type of service to which the population can access: basic services, education, professional and technical training, health, security and justice, infrastructure and accessibility, means of transport, information and communication technologies (ICTs), media, financial services, accommodation, state presence.

4.1.5.1. Basic Services

Taking into account that in item 4.1.2.4. Households and housing, details of the use of basic services in households were presented, in this section the information is complemented with data related to the service and providers.

In general terms, a significant percentage of the IIA population has access to two basic services: electricity and improved water. Regarding improved sanitation, the access percentages are much lower, as in the entire national territory. With regard to waste collection, the service is registered in some municipalities and a relatively small proportion of the population has access to it.

Electricity

The electricity supplier is the National Electricity Administration (ANDE), which has national coverage and provides electricity to 99.92% of the population (2017 data)⁴⁴. The company's coverage in the AI is high, reaching 97.79% of households in Concepción, 99.24% in San Pedro, and 98.54 in Amambay (2017 data)⁴⁵.

In order to benefit the population, depending on the use that the client will give the electric current, the company establishes different requirements and rates. The categories of use (consumption) available are the following⁴⁶:

- Domestic consumption group (housing or residential)
- Industrial consumer group
- Other consumer group: low and medium voltage
- High and Very High voltage consumer group
- Government consumer group
- Differential consumption group
- Electric Lighting Service

Improved Water

According to the sector study carried out by the Pan American Health Organization⁴⁷, in 2010, the Regulatory Entity for Sanitary Services (ERSSAN) had the following number of providers registered in the Project's IIA:

Chart 30. Amount of water systems and connections per lender, by department

	ESSAP		Sanitation Boards		Neighborhood		Private Operating Organizations		Others	
Dpto.	Nº of systems	Nº of connections	Nº of systems	Nº of connections	Nº of systems	Nº of connections	Nº of systems	Nº of connections	Nº of systems	Nº of connections
Concepción	1	5,183	127	11,104	65	3,628	2	1,056	1	100
San Pedro	1	1,311	261	32,196	64	4,376	1	100	0	0
Amambay	1	6,630	13	3,034	35	8,876	3	457	0	0

Source: MOPC-OPS/OMS

At present, it is possible to provide details on the following:

- **National Environmental Sanitation Service - SENASA:** It is the main institution that promotes the development of the Sanitation Boards, the main provider of improved water in the three departments according to 2017 data⁴⁸.

In 2017, the SENASA office in Concepción had registered 81 artesian wells in the districts of Concepción, Loreto, Belén, Paso Barreto, José Félix López, San Alfredo, San Lázaro and San Carlos del Apa that had been built from 1993 to 2014 by the same institution or various others such as DINCAP, FONPLATA,

44 ANDE. Statistical Compilation 1997-2017.

45 Source: DGEEC. Permanent Household Survey term 2003-2004-2015-2016-2017

46 Details of rates and requirements can be found in the following documents: ANDE. List of Rates No. 21; and ANDE. Resolution No. 42.847 / 19 "By which the definitions and general conditions of the Schedule of Rates No. 21 are modified."

47 MOPC-OPS/OMS. Update of the Sectorial Analysis of Drinking Water and Sanitation of Paraguay. 2010.

48 Source: DGEEC. Permanent Household Survey term 2003-2004-2015-2016-2017.

Concepción Government, Club de Leones, Office of the First Lady, IBRD, JICA and Sembrando Oportunidades. These wells had 8,904 users. Of the wells, 17.3% had chlorine treatment, the same percentage had systems that were not working and 65.4% did not have any system for chlorine treatment. 53% is managed by a Sanitation Board (which has Legal Status); and 47% is administered by Neighborhood Commissions. The number of users per well is variable, from 20 to 1,800 beneficiaries connected to the network. According to data provided by the head of the office, these numbers have varied very little in the last two years (Justino Blanco, personal interview, 2020).

- **Sanitary Services of Paraguay Company - ESSAP:** It is the second most important provider in the department of Concepción and reaches 11.28% of households in Concepción. It has two water treatment plants in the IIA⁴⁹:
 - *Concepción Treatment Plant:* Located in the area north of the departmental capital, it extracts water from the Paraguay River and then distributes it to the city. It has a production capacity of 25,920 m³, to serve 31,245 inhabitants.
 - *Pedro Juan Caballero Treatment Plant:* The production is 800 m³ of drinking water, which is distributed to about 6,500 users.
- **Private Network:** It supplies 8.33% of the homes in Amambay (EPH, 2017), less than 1% in San Pedro, and is not registered in Concepción.
- **Other Sources:** They include artesian well, well with or without pump, spring, cutwater, river or stream, all in a much lower percentage of use by the population of Concepción and San Pedro; while almost 30% of the population of Amambay obtains water from wells and/or artesian wells (EPH, 2017)

Sanitary Sewer

There is a sanitary sewer service in the city of Concepción, provided by ESSAP; and that reaches about 3,742 users, approximately 23% of the population of the departmental capital. In May 2018, ESSAP presented the Preliminary Environmental Impact Report for the adaptation of the system, the data of which are reproduced in this section⁵⁰.

The system has an estimated flow of 5,760 m³/d, which represents much less than 1% of the natural flow of the river. It includes a network of pipes of approximately 48,020 m in length that collects wastewater with the support of two pumping stations located in the Center of the city of Concepción; and then pour them underwater (through a final outlet of 150m in length) to the Paraguay River 10 m from the shore. The discharge point is located about 600m south of the ESSAP raw water intake for the Water Treatment Plant. Its geographic coordinates in UTM are: 21K 453777; 7410868.

On the other hand, the MOPC plans the construction of Wastewater Collection and Treatment Systems and Improvement of the Drinking Water System for the City of Horqueta⁵¹, with an effluent collection network and a pumping station, within the framework of the Sanitation and Water Program. Drinking for the Chaco and

49 www.essap.gov.py. Consulted on 02/05/2020

50 ESSAP. Preliminary Environmental Impact Report. Entrepreneurship "Environmental Adequacy of the Sanitary Sewerage System of the City of Concepción - ESSAP S.A.". May, 2018.

51 MOPC Directorate of Road Planning. Summary of MOPC Works in Concepción, San Pedro and Amambay. August 2018-December 2019.

Intermediate Cities of the Eastern Region of Paraguay. The mill would be located within the city of Horqueta, and would benefit the urban population of the city estimated at 13,222 inhabitants per year 2016⁵².

Garbage Collection

In Paraguay, garbage collection is the responsibility of the municipalities.

In the Municipality of Concepción, garbage collection is a service provided by the Municipality that reaches 8,500 taxpayers (2016 data, ABC). For disposal, it has a landfill on a 22-hectare property located at kilometer 9 of Route PY05 “Gral. Bernardino Caballero”. As indicated on the website of the Municipality of Concepción⁵³.

With respect to the other Municipalities in the Area of Direct Influence, Belén does not have a garbage collection system, therefore most of the population burns and others bury⁵⁴. In Loreto, according to a publication of the MSPBS-CIRD⁵⁵, only some homes in the urban area have access to the service provided by the Municipality and in rural areas, burning is used. Finally, in Horqueta, there is a collection service provided by the Municipality, but only a part of the homes in the urban area have access to it, while almost 90% of the homes resort to burning and a few others bury⁵⁶.

4.1.5.2. Education

In this section, statistical data related to the population of the Project IIA are presented in terms of education (school, middle and university level) and the number of institutions in the AID districts. With respect to the universities, considering that several have campuses in more than one district, consolidated information is provided.

According to data from the DGEEC, the young population of the AII (in general) has more than 9.4 years of education on average. In Concepción, the average rises to 10 years and 10.8 years of study for women, being the highest in the AII. Chart 31 presents information for each department and according to age group.

Chart 31. Average of study years of the population between 15 and 29 years old, by department and gender. Year 2018

Department, gender age group	CONCEPCION		SAN PEDRO		AMAMBAY	
	Man	Woman	Man	Woman	Man	Woman
Total	10.0	10.8	9.4	9.9	10.0	10.2
15 to 19	8.9	9.2	8.7	8.9	8.8	8.8
20 to 24	10.9	11.8	10.4	9.8	10.3	10.7
25 to 29	10.3	11.2	9.6	11	10.9	10.9

Source: DGEEC. EPHC 2017-2018

As the DGEEC publications indicate, the vast majority of the school-age population of the Department of Concepción attends an educational center (97.18% in 2017), presenting a gradual increase both in percentage

52 HYDEA-AESA-HIDROCONTROL Consortium. Preliminary Environmental Impact Study. “Construction of the Sanitary Sewerage System and Effluent Treatment mill of the City of Horqueta”. Sanitation and Drinking Water Program for the Chaco and Intermediate Cities of the Eastern Region of Paraguay - MOPC. Loan Agreement 2589/BL-PR and GRT/WS-12928/PR. December 2017.

53 <https://www.municipalidadconcepcion.gov.py/>. Consulted on 02/05/2020

54 MSPBS-CIRD. Local Health Plan. Belén. Term 2014-2016.

55 MSPBS-CIRD. Local Health Plan. Loreto Term 2014-2016.

56 MSPBS-CIRD. Local Health Plan. Horqueta. Term 2014-2016.

terms and in average years of studies. The percentage of attendance of the population in 2017 is 97.18% for boys and girls up to 14 years old; and, the average years of studies of the population aged 10 years and over is 7.61.

Chart 32. Main indicators of education of the population in Concepción (% and absolute value)

	2003	2004	2015	2016	2017
Average years of study of the population aged 10 and over	6.34	6.47	7.53	7.6	7.61
Attendance of the population aged 6-14 years (%)	89.56	94.87	96.88	95.71	97.18
Attendance population 6 -14 years (absolute value)	44,994	50,466	53,779	52,599	51,736

Source: DGEEC. Permanent Household Survey – Term 2003-2004-2015-2016-2017

With reference to the department of San Pedro, a situation with similar characteristics is presented: 88,204 people of school age attended educational centers in 2017; which represents 97.33% of the school population, with an average of 7.21 years of studies (DGEEC, EPH 2017). In Amambay, although the absolute number of students attending an educational center is much lower (31,889 in 2017), the trend in percentage terms continues (97.48%) and the average number of years of studies increases to 8.48 (DGEEC, EPH 2017).

Basic School Education

In the Department of Concepción, most of the institutions that offer Basic School Education (EEB) are official (398 institutions) and the private ones are subsidized (32 institutions)⁵⁷. 79% of the institutions are in rural areas. While 42% of all institutions offer all cycles (first, second and third cycle), the rest offer a combination.

In San Pedro, there are a total of 943 educational institutions that teach EEB; 87.7% of which are in rural areas and the rest in urban areas. 96% of the institutions are public and the rest are divided between subsidized private (2.86%) and private.

In Amambay there are 210 institutions that offer EEB. 91.9% are public; 5.7% are private and the rest are private subsidized. Although the majority are located in rural areas (65.7%), the percentage of institutions in urban areas is higher than in Concepción and San Pedro (34%).

Middle Education

There is a total of 111 institutions that provide Secondary Education in the Department of Concepción (2015 data⁵⁸), 39 institutions are located in urban areas and 72 in rural areas. Of these, 106 offer a Scientific Baccalaureate (38 in urban areas and 68 in rural areas); and 22 teach Technical Baccalaureate (13 in urban areas and 9 in rural areas).

In San Pedro, there are 49 institutions that provide secondary education in urban areas and 222 in rural areas, while in Amambay there are 32 institutions in urban areas and 9 institutions in rural areas.

57 DGEEC. Statistical Yearbook of Paraguay, 2017, p. 77-79

58 DGEEC. Statistical Yearbook of Paraguay, 2017, p. 103, 104, 116, 117

In the three departments covered by the AI, the vast majority of students enrolled in Scientific High School and only a smaller percentage enrolled in Technical Baccalaureate, according to official data from 2015⁵⁹ included in Chart 33.

Chart 33. Students enrolled in high school, by department and gender (year 2015)

	Scientific Baccalaureate	Technical Baccalaureate	Total
Concepción	8011	1323	9334
Men	3824	742	4566
Women	4187	581	4768
San Pedro	12689	2995	15684
Men	6391	1616	8007
Women	6298	1379	7677
Amambay	3832	514	4346
Men	1778	224	2002
Women	2054	290	2344

Source: Own elaboration based on data of DGEEC

As can be seen in chart 33, both in Concepción and Amambay there is a slight majority of enrolled students who are women (51% and 54% respectively), while in San Pedro the situation is the reverse (49% are women).

On the other hand, with respect to the area in which they enrolled, both in the department of Concepción and Amambay, most of the students were enrolled in the urban area. While, in San Pedro, almost a third of high school students are in rural areas (see chart 34).

Chart 34. Students enrolled in high school with emphasis, according to department and zone (year 2015)

	Scientific Baccalaureate	Technical Industrial B.	Technical in Services B.	Technical Agricultural B.	Total
Concepción	8011	153	855	315	9334
Urban Zone	4359	131	713		5203
Rural Zone	3652	22	142	315	4131
San Pedro	12689	182	1725	1088	15684
Urban Zone	3826	93	1178	221	5318
Rural Zone	8863	89	547	867	10366
Amambay	3832	0	451	63	4346
Urban Zone	3542		451	50	4043
Rural Zone	290			13	303

Source: Own elaboration based on data from DGEEC

59 DGEEC. Statistical Yearbook of Paraguay, 2017, p. 103, 104, 116, 117

It is worth mentioning that, although most of the students enrolled in Scientific Baccalaureate (General), the second option for those enrolled was Technical Baccalaureate (emphasis on Services) in 2015.

Universities

In the Department of Concepción there are several public and private university educational offers, with a great concentration in the capital of the department. Most universities offer careers in the humanities, with a deficit in the offer of careers in the exact sciences.

Although the offers are many, the educational quality is still low, and a great lack of infrastructure and adequate hourly load may be noted. This can be verified, considering the low number of courses accredited by the National Agency for the Evaluation and Accreditation of Higher Education (ANEAES) in Chart 35, compared to those offered by the various universities, in Chart 36.

Chart 35. Universities, district and offered careers

University	Careers
Faculty of Veterinary Sciences UNA/Concepción Branch	Veterinary
UNC - National University of Concepción (districts of Concepción, Horqueta, Yby Yáú, Loreto)	Dentistry, Agronomy, Agribusiness Administration, Agricultural Administration, Commercial Engineering, Business Informatics, Public Accounting, Administration, Medicine, Education Sciences, Social Communication, Psychopedagogy, Social Work, Applied Mathematics and Civil Engineering
Universidad Nacional de Asunción/Facultad de Enfermería y Obstetricia Concepción	Nursing and Midwifery
National University of Asunción/ Faculty of Nursing and Obstetrics Concepción	Business Administration, Law, Accounting and Education Sciences
Uninorte/Concepción	Business Administration, Rural Administration, Accounting Sciences, Law, Notary Public, Commercial Engineering, Psychology and Specialization in University Didactics
San Carlos University (Horqueta)	Agrarian Administration, Agronomy, Zootechnics, Food Technology, Environmental and Forest Sciences
UPAP - Polytechnic and Artistic University of Paraguay. Concepción Horqueta	Nursing, Midwifery, Law, Educational Sciences, Psychology, Physical Education, Art Education, Accounting, Business Administration, Electronic Engineering, Industrial Engineering, Architecture Kinesiology and Physiotherapy, Medicine, Criminalistics, Criminology, Pharmacy, Nutrition and University Didactics
UTCD - Technical University of Marketing and Development. Concepción Loreto Horqueta	Environmental Engineering, Kinesiology and Physiotherapy., Sports Sciences. Education Sciences, Nutrition, Psychology, International Trade and University Didactics
TIC - Universidad Tecnológica Intercontinental Concepción Horqueta	Computer Systems Engineering, Accounting, Administrative Sciences, Educational Sciences, Computer Systems Analysis and Nursing
Autonomous University San Sebastián Concepción Horqueta	Agronomy, Physical Education, Educational Sciences, Law, Notary Public, Computer Systems Analysis, Production, Business Administration, Agricultural Administration, Accounting, Commercial

University	Careers
	Engineering, Nursing, Nutrition, Veterinary Medicine, University Didactics and Thesis Tutoring
Concepción	Nursing/Kinesiology/Physiotherapy, Pharmacy/Radiology/Chemistry and Pharmacy/Clinical Laboratory, Nutrition/Psychology/Obstetrics, Biochemistry
Private University of Guairá Horqueta Vallemi Yby Yaú	Law, Agronomy and Accounting

Source: Own elaboration

According to the ANEAES, the following careers are enabled:

Chart 36. Careers accredited by the ANEAES, department of Concepción

University	Faculty	Career
UNC –National University of Concepción	Agricultural Sciences	Agronomic Engineering
	Agrarian Sciences - Horqueta Headquarters	Agricultural Administration
	Humanities and Education Sciences	Education Sciences
	Odontology	Odontology
	Health Sciences	Medicine
	Economic and Administrative Sciences	Public accounting
UNA – Subsidiary in Concepción	Dr. Andrés Barbero Institute	Nursing
	Veterinary School	Veterinary
UCA – Campus Concepción	Accounting, Administrative and Computer Sciences	Public Accounting Business Administration
	Legal and Diplomatic Sciences	Law
UTIC –Intercontinental Technological University	Health Sciences - Horqueta Headquarters	Nursing

Source: Own elaboration according to data of the ANEAES, 2019.

In line with the professional orientation (and probable job prospect) in the department of Concepción, the Veterinary degree at UNA is the one that received the largest number of students enrolled in 2017, doubling the number of enrolled in Nursing and Accounting Sciences. The data can be seen in Chart 37.

Chart 37. Enrolled in Concepción

University/School	Career	Enrolled	Term
UNA – Veterinary Sciences School	Veterinary	440	6 years
UNA - “Dr. Andrés Barbero” Institute	Nursing	215	5 years
	Obstetrics	97	5 years
UCA – Legal Sciences School	Law	172	6 years
UCA – Accounting, Administrative and Economic Sciences School	Accounting Sciences	213	5 years
	Administrative Sciences	95	5 years
UCA – Education Sciences School	Teaching in Higher Education	61	1 year (Specialization)

Source: Own elaboration according to data of the DGEEC, 2017.

Chart 38 presents the number of graduates in a range of 4 years.

Chart 38. Number of graduated in Concepción according to the university, school, career years 2013 to 2016

University/School	Career	Number of graduated			
		2013	2014	2015	2016
UNA – Veterinary Sciences School	Veterinary	58	57	58	63
UNA - “Dr. Andrés Barbero” Institute	Nursing Obstetrics	24	50	25	60
UCA – Legal Sciences School	Juridical Sciences	s/d	s/d	16	17
UCA – Accounting, Administrative and Economic Sciences School	Accounting Sciences	s/d	s/d	16	15
	Administrative Sciences	s/d	s/d	9	14
UCA – Education Sciences School	Educational Sciences	s/d	s/d	15	17
	Social Work	s/d	s/d	11	15
	Teaching in Higher Education	s/d	s/d	37	33

Source: Own elaboration according to data of the DGEEC, 2017.

Educational Institutions in the AID

According to data recorded in the Municipal Development Plan of each Municipality (2016), in Concepción 60 educational institutions are enabled in urban areas and 50 in rural areas; Belén has 3 educational institutions in urban areas and 22 in rural areas; and in Horqueta there are 20 educational institutions in urban areas and 113 in rural areas. As for Loreto, the Local Health Plan designates 9 national schools and 32 basic schools.

In the Department of Concepción, professional training courses are offered by the government through SINAFOCAL and SNPP. In 2018, according to its management report, SINAFOCAL gave 9 courses on various topics, benefiting 234 men and 142 women. In the North zone (Concepción, San Pedro, Amambay, Canindeyú) 33 courses were given that year, constituting 7.7% of the total held in the country.

4.1.5.3. Health

This section presents statistical data related to the population of the Project's Area of Indirect Influence, in order to measure the demand for health services. Information related to the services available in the Project AID is provided below.

In Concepción and San Pedro, in 2018, a little more than 50% of women showed up for a medical consultation, while the average drops to 46.5% in Amambay. With respect to men, the averages remain below 50% in the three All departments, the lowest being in Amambay and the highest in San Pedro.

Chart 39 presents data related to the health status of the population of each department, recording whether they presented at least one medical consultation, either due to illness or accident, during 2018.

Chart 39. Total population, per department, gender and health status (%). Year 2018

Department, gender and health status	CONCEPCION		SAN PEDRO		AMAMBAY	
	Man	Woman	Man	Woman	Man	Woman

Total	124,338	123,357	225,411	199,370	80,534	86,478
Ill/suffer from an accident (%)	44.1	51.2	46.6	51.1	39.5	46.5
Healthy (%)	55.9	48.8	53.4	48.9	60.5	53.5

Source: DGEEC. EPHC 2017-2018

According to data from the 2017 statistical yearbook, the Department of Concepción had 214 hospital beds. In 2015, 70,842 medical and dental consultations were carried out at the IPS and in 2016, a total of 70,477.

In 2018, 1,154 deaths were registered, of which 17% were due to diseases of the circulatory system; 11.6% were due to tumors; 9.4% to diseases of the respiratory system; 7.9% for various types of accidents; and 7.4% for cerebrovascular diseases. The other deaths were for other reasons. 61.3% of the deaths were registered in people over 60 years of age. According to MSPBS records, in 2017 there were 29 deaths from motorcycle accidents in the Department.

On the other hand, according to data from the DGEEC, only a small proportion of the population of the department of Concepción has medical insurance, either private or from the IPS. Thus, although the records indicate a slight increase to 16.52% of coverage in 2015, in the last years for which data are available, the trend remains in less than 15% of the population. However, the records indicate relatively high percentages of the population that came to consult due to illness or accident. Chart 40 provides data in this regard.

Chart 40. Main indicators of health of the population of Concepción per year in % and absolute value

	2003	2004	2015	2016	2017
In percentage					
Population with medical insurance ⁽¹⁾	12.02	13.94	16.52	14.2	14.72
Access to health ⁽²⁾	63.79	53.03	79.5	78.4	71.48
In absolute value					
Population with medical insurance ⁽¹⁾	23,898	28,069	39,146	34,139	35,936
Access to health ⁽²⁾	15,337	21,299	55,999	82,696	92,788

⁽¹⁾ Includes IPS and other type on insurance

⁽²⁾ Includes sick population or the ones who suffer an accident and consulted

Source: DGEEC. Permanent Household Survey term 2003-2004-2015-2016-2017

In the district of Concepción and neighboring areas, the Concepción Volunteer Fire Department is the entity that helps victims of various kinds. However, according to conversations with referents of the entity, this type of services could be resented by the lack of budget, since they have difficulties to cover the cost of these.

4.1.5.4. Security, justice

This section contains information on security in the Project IIA. First, data related to violence and crime are provided, then details are given on justice and the institutions that intervene in the processes.

The content on crime and victimization that appears in this section was extracted from the Atlas of Violence and Insecurity in Paraguay (2018), which collects and analyzes objective data on insecurity from National Police records between 2010 and 2017; and from the 2017 National Victimization Survey. Information is collected at the departmental level in some cases, when it is clarified as such, all the other data mentioned correspond to the northern area comprised by Concepción, San Pedro and Amambay.

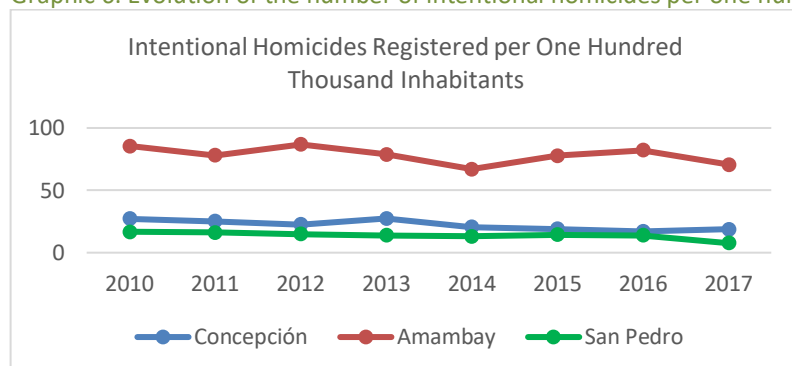
The rate of intentional homicides registered for every one hundred thousand inhabitants between 2010 and 2017 in the Department of Concepción was 18.85; while the hidden number of crimes (portion of crimes reported by victims in the National Victimization Survey that are not registered in the institutions in charge) in the northern region is 71.4%. The three departments present decreasing homicide registration rates, even so, it is the region with the highest homicide rate in the country. Chart 41 presents data corresponding to the three departments of the IIA, for the period 2010-2017.

Chart 41. Intentional homicide rate per one hundred thousand inhabitants, according to department, years 2010-2017

Homicide	2010	2011	2012	2013	2014	2015	2016	2017
Concepción	27.3	25.24	22.64	27.42	20.56	18.99	17.05	18.85
Amambay	85.37	78.1	86.78	78.73	67.03	77.86	82.17	70.53
San Pedro	16.79	16.17	15	13.83	13.11	14.41	13.99	7.63

Source: Atlas of violence and insecurity in Paraguay – 2018.

Graphic 6. Evolution of the number of intentional homicides per one hundred thousand inhabitants in the departments



Source: Own elaboration with data from the Atlas of the violence and insecurity in Paraguay – 2018.

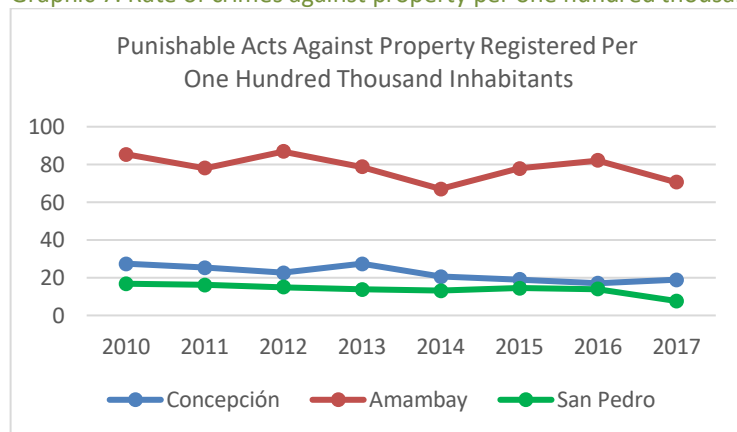
As for punishable acts against property, they have decreased in the three departments. In relation to 2010, in 2017 Concepción had a decrease of 40%, although in 2013 it had a much higher peak above the average for those years. As for Amambay, they decreased by 50% in 2017 compared to 2010; however, in 2011 there was a higher peak. This same situation occurred in the department of San Pedro in relation to the percentage of decrease in punishable acts and the peak recorded, as can be seen in Chart 42.

Chart 42. Punishable acts against property, por department, years 2010-2017

Punishable acts against property	2010	2011	2012	2013	2014	2015	2016	2017
Concepción	141.76	138.28	134.79	171.36	104.09	106.35	118.09	82.76
Amambay	315.94	475	357.45	335.6	265.57	146.93	148.27	165.39
San Pedro	155.63	190.98	130.52	120.05	121.94	135.81	108.56	75.3

Source: Own elaboration with data from the Atlas of the violence and insecurity in Paraguay – 2018.

Graphic 7. Rate of crimes against property per one hundred thousand inhabitants in the departments



Source: Own elaboration with data from the Altas of violence and insecurity in Paraguay – 2018.

With regard to victimization of the population, in the North zone (that is, the three departments of the IIA), 18.2% of the population has been the victim of crimes against the home, with theft in homes being the most recurrent event. Regarding the victimization of crimes against people, extortion is the most frequent fact with 18%. The highest percentage is observed in corruption victimization with 97.3%.

4.1.5.5. *Infrastructure and accessibility*

This section describes the main access routes to the Project's Area of Influence. The information is organized into the following three sections: ports, airports and road infrastructure.

Main Port son the Paraguay River

The Paraguay River is one of the access roads to the Department of Concepción; and to the area surveyed for the industrial component of the venture. The Concepción Local Health Plan indicates that, along its banks, north of Concepción, there are the following ports:

- Concepción Port
- Vallemí Port
- Risso Port: Lime port, produces hydrated lime.
- Fonciere Port: It is characterized by an important viewpoint and a large house dating from 1927.
- Max Port: Port "Tres Ollas". Currently a livestock establishment, in front of Pinasco Port.
- Itapucumí Port: Used by the cement and lime factory, in front of Pinasco Port.
- Arrecife Port: With dangerous reefs when the river falls, it is ideal for fishing dorado.
- Abente Port: cattle ranch port, close to the Napegue stream.
- Pagani Port: Today abandoned.
- Negro Port: Used by stays.
- Algesa Port: Used for loading and unloading cargo and freight.
- Old Port: Used for the embarkation of passengers and minor loads.
- Itapuá Port: North of Fonciere Port, used by lime scale.
- Guyrati Port: Used by the lime factory, located about 10 km from Itacuá Port.

Although the Municipal Development Plan of Concepción states that "despite the fact that it has a port, river traffic has declined compared to its beginnings", a good part of the production of calcareous products, and grains of the region is mobilized through the ports. Another company that bet on the waterway is Frigorífico Concepción, which invested in private ports to facilitate and reduce the costs of transporting livestock. In addition, the Paraguay River and its ports constitute a means of transport, communication and commerce used by the inhabitants of the riverside communities located north of Concepción, which are frequently isolated by the rains.

It is also considered relevant to mention that upstream from Concepción, already in the Department of Alto Paraguay, there is a mooring in Carmelo Peralta, but in front of said Municipality, is the city of Puerto Murtiño (Brazil), an important connection port between the land transport of the neighboring country with the traffic of the Paraguay-Paraná waterway.

Airports

In the Department of Concepción, there are 2 airports with limited infrastructure that are rarely used:

- Airport "Tte. Cnel. Carmelo Peralta" – City of Concepción
- Airport "Dr. Juan Plate" - San Lázaro.

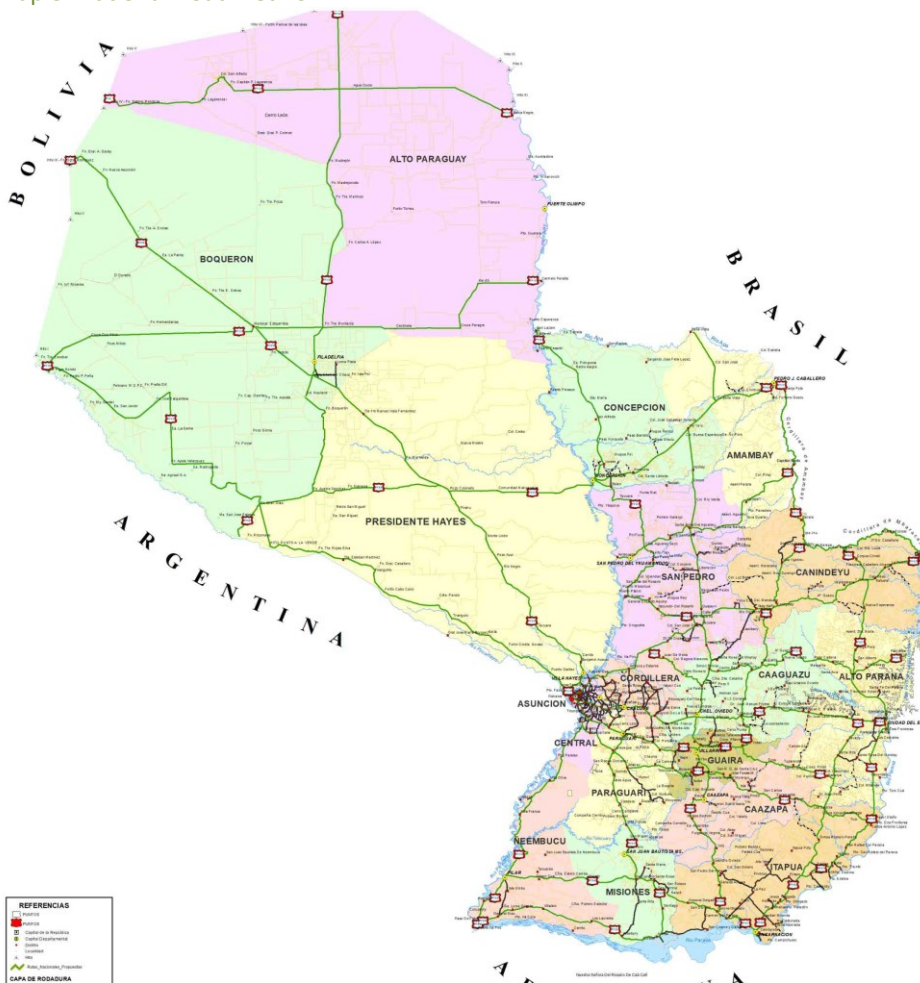
On the other hand, there are several landing strips located in the IIA, mainly in livestock establishments.

Road Infrastructure

For more than 50 years, the Paraguayan road network consisted of 12 national, departmental and municipal routes. In May 2019, the Ministry of Public Works and Communications (MOPC) classified and restructured the conformation of the National Road Network, expanding the number of national routes to a total of 22, as can be seen in map 3.

According to information published by the MOPC⁶⁰, the road network of the department of Concepción totals 3,213 km of national, departmental and neighborhood roads and routes, of which 19% are paved. In San Pedro, the road network reaches 5,806 km, of which 18% are paved and in Amambay, there are 2,666 km of road network, of which 12% are paved. These data are provided in Chart 43.

Map 3. National Road Network



Source: MOPC – Direction of Road Planning

60 Available at: <https://www.mopc.gov.py/mopcweb/index.php?cID=769> consultado el 23.01.2020.

Chart 43. Road network per department according to type

Type of Road Network	CONCEPCION		SAN PEDRO		AMAMBAY	
	Paved (Km)	Not paved (Km)	Paved (Km)	Not paved (Km)	Paved (Km)	Not paved (Km)
National	383.73	20.52	583.68	116.97	207.37	134.92
Departmental	97.8	327.51	268.54	193.45	40.03	343.58
Local	134.88	2248.16	199.13	4444.05	62.85	1877.04
TOTAL (km)	3213		5806		2666	
% paved	19%		18%		12%	

Source: MOPC: Direction of Road Planning (data July 2019)

As can be seen in Map 3, the following three national routes pass through the Project's IIA:

Route PY05: From EAST to WEST, with a length of 577 km. It begins in the city of Pedro Juan Caballero (Amambay), located on the border with Brazil; it crosses the department of Concepción passing through the city of Concepción; it crosses the Paraguay River through the Nanawa Bridge and continues in the department of Villa Hayes until it reaches Fortín Pilcomayo, on the border with Argentina.

Route PY22: From SOUTH to NORTH, with a length of 424 km. It begins in San Estanislao (San Pedro) at the junction with Route PY03; it passes through the cities General Aquino, Villa del Rosario, San Pedro del Ykuamandiyú; It enters the department of Concepción through the city of Belén, passes through Concepción, Loreto, San Alfredo and ends in San Lázaro.

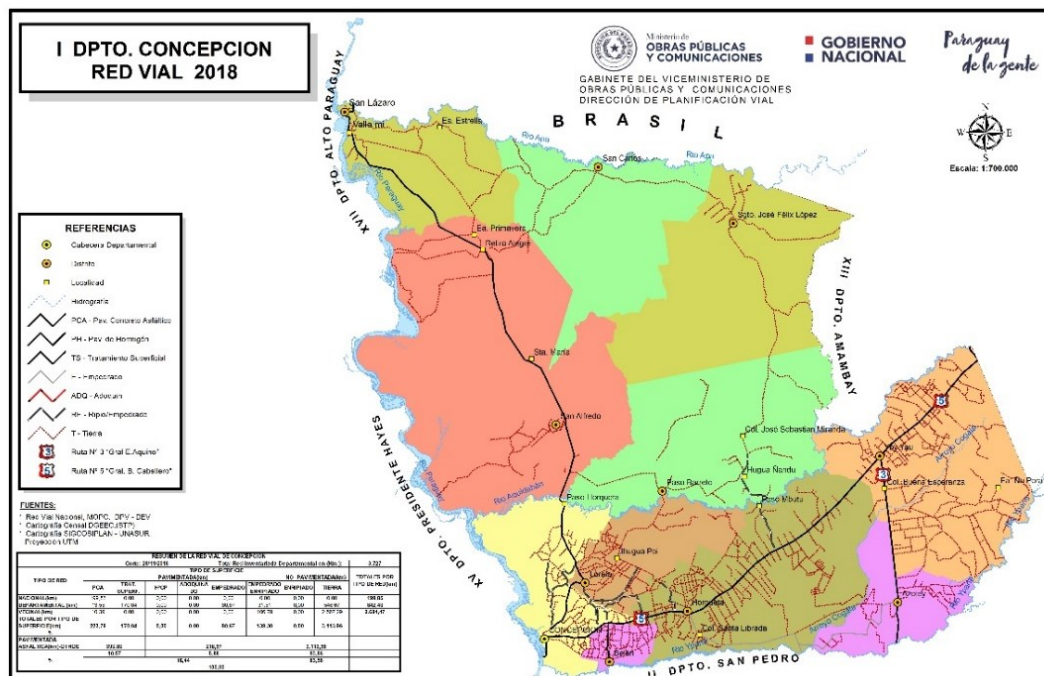
Route PY08: From SOUTH to NORTH, with a length of 588 km. It begins in Coronel Bogado (Itapúa), at the junction with Route PY01; it passes through the departments of Caazapá, Guairá, Caaguazú; enter San Pedro passing through San Estanislao: continue to Yby Yaú in Concepción and then to Bella Vista Norte in Amambay.

Maps 4 and 5 show in more detail the road network of the department of Concepción, indicating the type of paving of the roads and routes.

On the other hand, several routes and neighborhood roads link the towns of the Project IIA, some of which are currently undergoing improvement processes within the framework of the National Program for Neighborhood Roads and Bridges, executed by the MOPC in most part in the departments of the country. In the IIA, this program proposes interventions to improve bridges and roads according to the summary provided in the following chart 44⁶¹.

61 MOPC/DGSA-BID. Preliminary Environmental Impact Study. Neighborhood Roads Improvement Program - Eastern Region (PRL-1084). 2015.

Map 5. Road network department of Concepción



59

Chart 44. Bridges and roads in the process of improvement in the All

Department	Bridges		Roads
	Bridges (Amount)	Length (M.L.)	Section
Concepción	11	119	-
San Pedro	11	200	4
Amambay	8	86	-

Source: MOPC

Map 6, extracted from the Program's Preliminary Environmental Impact Study, shows the works and their location, in the department of Concepción.

With the execution of these works on access roads of the department, it is possible to perceive an increase in road connectivity in the intervention areas, especially in the areas where gravel roads were transformed into asphalt roads. This allows for an increase in traffic, including truckloads, and a reduction in travel times.

Regarding the AID of the Project, more specifically, in Concepción, the MOPC is developing activities for the construction, improvement and maintenance of access roads; in addition to building bridges and water systems in support of the communities. According to information provided by the MOPC Road Planning Directorate, the main works in progress in the Project's Area of Direct Influence are those detailed in chart 45.

Map 6. Description of road works and their coordinates in the department of Concepción

CONCEPCIÓN				
ORIGEN - DESTINO	Largo (m)	Ancho (m)	Tipo	Coordenadas UTM
Paso Barreto-Cruce X	30,0	4,0	PM	21K464281 7456246
RUTA V KM 21 - LAS PALMAS	7,0	3,0	PM	21K471782 7419193
CURUZU ÑU - ROBERTO L. PETIT	6,0	4,0	PM	21K458340 7430807
COSTA PUCU - MBOCAYATY	12,0	3,0	PM	21K459379 7425970
CONCEPCIÓN - MARIA AUXILIADORA	6,0	5,0	PM	21K460058 7412237
RUTA V - CALLE 12 NORTE	5,0	4,0	PM	21K508322 7439014
	6,0	4,0	PM	21K512919 7433374
RUTA V - CALLE 9 NORTE	20,0	3,0	PM	21K508006 7429573
RUTA V - CALLE 20 NORTE	6,0	4,0	PM	21K524506 7444456
	10,0	4,0	PM	21K526683 7441681
YBY YAU - COL. MEDALLA MILAGROSA	11,0	4,0	PM	21K551330 7458412
TOTAL	119,0			

Source: MOPC

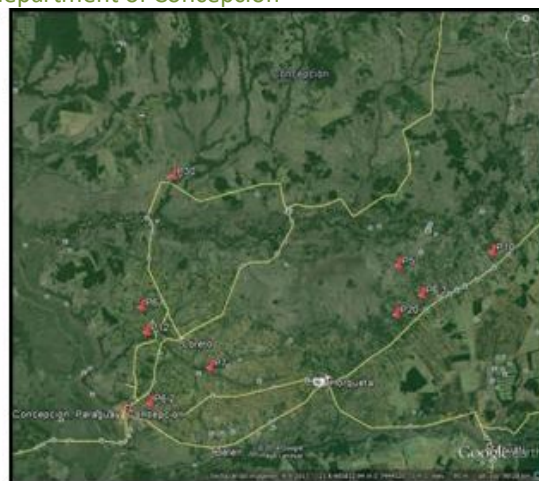


Imagen Satelital - Puentes Departamento de Concepción.

Chart 45. Infrastructure Works in course in the AID of the project (Dec. 2019)

Type	In course work	Length
Asphalt paving	Concepción - Vallemi Port and Access to Concepción Section (1.5 Km) and Variant (4.75 Km)	6.25 km
Asphalt paving on cobblestones	Section Horqueta - Río Ypané (Tacuatí) (Lot 1)	39 km
	Section Route 5 - Jhugua Ocampos - Ykua Jhovv - San Blas. Sta. Tanda. Lot 3	17.56 Km
	Section Loreto - Las Palmas - San Blas – Route 5. Sta. Part of the Direction of Roads. Lot 6.	15.1 Km
Rehabilitation and maintenance contract	Road 3. Road PY05 Section Concepción - Pozo Colorado Km 372+260 to Km 416+222. Lot 3	44 Km
Rehabilitation and maintenance	Route PY05. Section: Concepción – Yby Yaú (109 Km). Lot 2	109 Km
Sanitary sewer works	Construction of sanitary units for communities benefiting from the sanitary sewerage project for intermediate cities of the Eastern Region	
Processing facilities	Wastewater collection and treatment systems and improvement of the drinking water system for the city of Horqueta	

Source: MOPC- Direction of Road Planning

4.1.5.6. Means of Transportation

This section includes descriptions of the main means of transportation available to the population of the Project's Area of Direct Influence: River, air and land transportation.

River Transportation

The Paraguay River is navigable by vessels of greater draft, in the section that goes from the confluence with the Paraná River to Asunción; In the section from Asunción to Corumbá (Brazil) and passing through all the ports of the Department of Concepción, medium-sized vessels can navigate⁶². As it has already been presented, it is used to a great extent by vessels that carry out the transport of grains, lime, cement and livestock. Its affluents, the Apa, Aquidabán and Ypané rivers, are navigable only by small boats⁶³.

The Aquidabán Ship is considered an important means of transport, especially for the most isolated areas. This vessel transports products for sale and passengers between Concepción and Bahía Negra. It has weekly frequency, leaving on Tuesdays from Concepción and the trip lasts 3 days one way and 3 days back. It makes stops in all the ports of the department of Concepción and several riverside communities to offer its merchandise and to allow passengers to get on and off.

Some boats offer their services for recreational purposes (trips and fishing), leaving from Concepción: Barco Ten Caten, Barco Siete Cabrillas, Barco Santa Filomena, Agua Dulce Yacht, Cayman Yacht, El Dorado Yacht.

Air Transportation

⁶² MOPC-OPS/OMS Update of the Sectorial Analysis of Drinking Water and Sanitation of Paraguay. 2010.

⁶³ Municipal Development Plan. Concepción

The Military Air Transport Service (SETAM) is authorized to carry out flights for the transport of passengers; and has a resolution of approval of the current price catalog. The planned route includes departures from Asunción to Concepción, Puerto Casado, Vallemí, Fuerte Olimpo and Bahía Negra, with 2 weekly frequencies. This service was authorized by Resolution in April 2019, and there are no statistical data in this regard.

The lack of adequate airport infrastructure could be a factor why this segment of services does not show signs of growth in the Department of Concepción.

Groud Transportation

The city of Concepción is relatively well communicated by land with other main cities in the northern region of the country, and with Asunción. In general, transport companies only provide services to towns and cities located on national routes, without entering communities far from them. Chart 46 lists the transport companies that provide daily services to other cities from Concepción.

Chart 46. Ground transportation companies from y to Concepción

Destination / Origin	Transportation Company
Asunción	Norte Poty SRL
	NASA
	La Ovetense
	La Santaniana
Pedro Juan Caballero	Ciudad de Concepción S.A.
	Transporte y Turismo Ligero SRL
Vallemí	NASA
	Transporte y Turismo Ligero SRL

Source: Own elaboration.

The transport companies that provide services on the route to Vallemí, also ensure the transport of passengers between Concepción and Loreto. While the companies that go to Asunción (by Route PY05) and Pedro Juan Caballero provide services to the inhabitants of Horqueta. Regarding the connection with the city of Belén, a local company called Puerto Ybapobo provides services to said city via Belén.

The city of Concepción has not had urban public transport services (buses) for several years. According to local digital media "motorcycles have displaced the company that was dedicated to this area a decade ago"⁶⁴.

In fact, most of the people who live in the Department of Concepción travel by motorcycle. This can be verified by simple observation on a tour of the city of Concepción and the surrounding districts. Likewise, this preference for motorcycles is evidenced in the number of authorized vehicles. The following chart provides a summary of the vehicles licensed in the three All departments.

64 Concepción Noticias. <http://www.concepcion-py.com/2016/05/concepcion-esta-sin-transporte-urbano.html>

Chart 47. Number of vehicles enabled by type, according to department (2017)

Department	Total	Motorcycle	Cars	Pickup Trucks	Trucks	Buses	Others
Concepción	33,852	20,079	2,589	2,127	1,227	132	7,698
San Pedro	46,765	18,197	4,617	3,765	2,461	214	17,511
Amambay	49,475	26,030	6,105	2,918	1,538	160	12,724

Source: DGEEC, Statistical Yearbook, Year 2017.

In Concepción, almost 60% of authorized vehicles are motorcycles, far exceeding the number of cars and trucks (14%). The trend is similar in San Pedro and Amambay.

4.1.5.7. Technologies of the information and communication (TIC)

This section presents information related to the population's access to Information and Communication Technologies (ICT). First, statistical data on internet access are presented, then cell phone and / or personal computer ownership, and finally data on access to the telephone line.

According to data from the Permanent Household Survey, less than half of the population aged 10 years or more in Concepción had access to the internet in 2017, the percentage is even lower in San Pedro (almost 38%). The population of Amambay is the one that had the greatest access with almost 65%.

Chart 48. Population of 10 and more years by gender, according to the use of internet (%)

	CONCEPCION			SAN PEDRO			AMAMBAY		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Total	186,627	86,734	99,893	330,995	172,399	158,596	127,915	62,230	65,685
Used	46.05	47.07	45.17	37.63	39.16	35.96	64.61	62.57	66.55
Did not use	53.95	52.93	54.83	62.37	60.84	64.04	35.39	37.43	33.45

Source: DGEEC. Permanent Household Survey 2017

As can be seen in chart 49, almost all internet accesses were made from a cell phone. Second, "at home" is indicated with slightly higher percentages than "at work". This preference of use is common to the three departments and to both genders.

Chart 49. Population of 10 and more years who used internet by gender, according to access place (%)

	CONCEPCION			SAN PEDRO			AMAMBAY		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Total	85,946	40,826	45,120	124,537	67,503	57,034	82,648	38,936	43,712
At home	9.31	(*)	10.75	8.06	(*)	8.67	18.58	19.97	17.35
At work	9.14	(*)	(*)	6.88	(*)	(*)	14.89	17.12	12.9
In an educative institution	8.14	(*)	(*)	4.76	(*)	(*)	7.34	7.82	6.91
In another person's house	5.81	(*)	(*)				5.04	(*)	(*)
In a communitarian Access place							3.2	(*)	(*)
From a cell phone	97.07	97.55	96.63	98.65	97.74	99.72	98.35	98.32	98.37

Source: DGEEC. Permanent Household Survey 2017

The numbers mentioned above are directly related to the possibility of households to access durable goods, especially cell phones and computers, notebooks or similar equipment. According to data from 2017, in Concepción, 96.63% of households have a cell phone and 11.88% have a computer/notebook, while 9.35% have internet access⁶⁵. In San Pedro 95.97% of the homes have a cell phone; 8.62% have a computer and 6.83% have internet access⁶⁶. In Amambay 98.46% of households have a cell phone; 24.79% have a computer (7.25% tablet or similar) and 18.60% have internet access⁶⁷.

With regard to connection to the telephone line in Concepción 5,4%⁶⁸ of households have a fixed telephone line, while in San Pedro the figure is 4.21% and 11.45% in Amambay.

4.1.5.8. Media

This section presents the main means of communication available in the Project IIA, and those found in the Department of Concepción.

According to data reported by CONATEL in 2017⁶⁹, in the Department of Concepción, there are eight commercial FM radio stations and five AM radio stations with a valid license as of that date. Likewise, 13 TV stations are registered in the department. Chart 50 presents the data corresponding to the three departments.

Chart 50. Number of radio stations and TV services, per department. Year 2017

	Concepción	San Pedro	Amambay
FM Radio Station	8	9	8
AM Radio Station	5	2	4
TV Services	13	11	6

Source: CONATEL. Note PR No. 1138/2017

The following charts (51, 52 and 53) include details of the main media in Concepción, by type of media:

Chart 51. FM comercial radio stations – department of Concepción

	Indicative	Station	Licensee	Frequency (MHz)	Place	Decree Nº / Resolution	Date
1	ZPV 36	Ita Porá FM	Integración S.A	98.9	Vallemí	587/00	09/01/2000
2	ZPV 45	Aquidabán	María R. Cristaldo Leguizamón	100.5	Concepción	3881/94	05/25/1994
3	ZPV 48	Los Ángeles FM	Liz Naida Giménez Ramos	89.9	Horqueta	1077/2002	09/03/2002
4	ZPV 65	Continental FM	Cesar Raúl Coelho de Souza Ibarra	95.3	Horqueta	9084/91	04/04/1991
5	ZPV 184	Norte Comunicaciones	José Alberto González Mármol	94.5	Concepción	397/99	09/09/1999
6	ZPV 478	Kaagata Publicidad 100.3 MHz	Nilda Concepción Canale de Silva	100.3	Yby Yauú	1692/2004	12/02/2004
7	ZPV 509	GlobalMix FM	José Adalberto Pavón	95.9	Concepción	901/2010	08/26/2010
8	ZPV 510	La Favorita FM	Noelia Rocío Irala Insfrán	93.3	Yby Yauú	901/2010	08/26/2010

Chart 52. AM radio stations – Department of Concepción

65 DGEEC. Triptych Permanent Household Survey – EPH 2017 – Departament of Concepción – August 2018

66 DGEEC. Triptych Permanent Household Survey – EPH 2017 – Departament of San Pedro – August 2018

67 DGEEC. Triptych Permanent Household Survey – EPH 2017 – Departament of Amambay – August 2018

68 DGEEC. Departmental Yearly Results– EPHC 2017-2018.

69 National Commission of Telecommunications CONATEL. Note PR No. 1138/2017. Recibed by the H. Chamber of Senators date 07/07/2017

	Indicative	Station	Licensee	Frequency (MHz)	Place	Decree Nº / Resolution	Date
1	ZP 8	Radio Concepción	Sergio Enrique Dacak	1380	Concepción	1290/89	06/27/1989
2	ZP 37	Radio Yby Yaú	Reichardt	1360	Yby Yaú	29291/88	07/20/1988
3	ZP 74	Radio Regional AM	Myryan Stella Bareiro de Denis	660	Concepción	1138/2012	08/25/2012
4	ZP 29	Radio Vallemí	Industria Nacional del Cemento	1450	Vallemí	1290/89	06/27/1989
5	ZP 42	Radio Guyra Campana	Guyra Campana SRL	1420	Horgueta	1290/89	06/27/1989

Chart 53. TV Service – Department of Concepción

	Indicative	Station	Type of Station	Licensee	Place	Decree Nº / Resolution	Date
1	ZPD 277	Rep. Telefuturo - Ch 3+	Relay	TV Acción S.A.	Yby Yaú	10089/95	08/12/1995
2	ZPD 272	Rep. Telefuturo - Ch 9+	Relay	TV Acción S.A.	Concepción	10089/95	08/12/1995
3	ZPD 315	Rep. Red Guarani - Ch 18	Relay	Tevedos S.A.	Concepción	1292/2008	12/24/2008
4	ZPD 294	Est. Base Canal 40 TV Concepción - Ch 40	Base Station	Televisión Concepción S.A	Concepción	577/2006	05/17/2006
5	ZPV 927	Rep. SNT Cerro Corá - Ch 11	Relay	Televisión Cerro Corá S.A	Concepción	15858/92	12/21/1992
6	ZPD 683	Rep. SNT Cerro Corá - Ch 12+	Relay	Televisión Cerro Corá S.A	Vallemí	177/2011	02/03/2011
7	ZPD684	Rep. SNT Cerro Corá - Ch 13	Relay	Televisión Cerro Corá S.A	Yby Yaú	177/2011	02/03/2011
8	ZPV 914*	Rep. El 13 - Ch 7	Relay	Unicanal S.A.	Concepción	9948/91	06/18/1991
9	ZPV 910*	Rep. El 13 - Ch 10	Relay	Unicanal S.A.	Vallemí	9948/91	06/18/1991
10	ZPD 675	Rep. Paravisión - Ch 4+	Relay	Paravisión S.A	Vallemí	177/2011	02/03/2011
11	ZPD 651	Rep. Paravisión - Ch 5	Relay	Paravisión S.A	Concepción	12938/96	04/12/1996
12	ZPD 676	Rep. Paravisión - Ch 8+	Relay	Paravisión S.A	Yby Yaú	177/2011	02/03/2011
13	ZPD 299	Rep. La Tele - Ch 4-	Relay	Hispanoamérica TV del Paraguay S.A	Concepción	790/2007	07/20/2007

With regard to the written press, all national newspapers are available in Concepción, San Pedro and Amambay, including the following: ABC, Ultima Hora, La Nación, Crónica, Popular, Hoy and 5 Días.

Regarding local digital media in the AID, it can be mentioned:

Chart 54. Digital local communication media in the AID

Name	Link
Concepción al día. Interactive Magazine of the Perla del Norte	http://www.concepcion-py.com/ ; https://www.facebook.com/concepcionaldiapy/
Concepción Digital. Digital Creative Journalism	https://www.concepciondigital.com/
Concepción informa	https://www.facebook.com/pages/category/Media-News-Company/Concepci%C3%B3n-Informa-
Horqueta Digital	https://www.facebook.com/HorquetaDigitaldeNoticias/
Horqueta Informa	https://www.facebook.com/pages/category/Media/Horqueta-Informa-

Source: Own elaboration

No digital media were found for Belén and Loreto.

4.1.5.9. Tourist Services and Accommodation

This section presents information on available tourist services and rental capacity of the Project's Area of Influence.

For the development of information on rental capacity, data have been obtained from the Ministry of Tourism of the Government and SENATUR (National Tourism Secretariat). The Department of Concepción has several tourist attractions that, according to the Local Health Plan (2014), contribute as an important source of income.

The city of Concepción preserves its historic center and a barracks from the time of the War of the Triple Alliance, both witnesses of bygone times, as well as the Fort of San Carlos, on the Apa River, from the colonial era. The Kurusu Isabel oratory, near the departmental capital, is a place of pilgrimage.

The region has countless rivers and streams that offer the possibility of water sports, fishing, sailing and beaches. Numerous spas were installed in the area. Ecotourism services are offered at the crystalline Tagatiya Stream and the Aquidabán River. Some boats offer river tourism services on the Paraguay River, especially walks and fishing. There are establishments that offer stay tourism (camping, horseback riding, camping etc.); in addition, the use of beaches and lagoons on their properties. In Vallemí, tours of the characteristic caves of the place are offered, while it is possible to visit the hills of San Luis and Paso Bravo.

According to official records obtained from the Ministry of Tourism of the Interior, in the department of Concepción, there are 16 providers of tourist services; in addition to the accommodations, most of which offer gastronomic services. They can be classified into: 3 gastronomic places, 6 travel and transport agencies, 4 tourist guides and 3 that offer other services. In recent years, SENATUR has promoted a program of Tourist Inns, registering 2 in Concepción: Posada Doña Preta (20 beds) and Posada Isabel (60 beds), both in Vallemí. Regarding the rental capacity of the AID, the results are presented in Chart 55.

Chart 55. Settlements, romos and beds in the AID, per district

District	Number of Settlements	Number of Rooms	Number of Beds
Concepción	20	476	960
Belén	3	25	52
Horqueta (1)	5	22	43
Loreto	2	18	52
Total	30	541	1107

Source: Tourism Secretary, Concepción Governorate; SENATUR. Own elaboration

(1) Withou data: 3 settlements; (2) without data: 1 settlement; (*) Data is added from Vallemí and Yby Yau (partial)

4.1.5.10. State Presence

This item presents the public institutions that have a presence in the department of Concepción and in the AID districts. Likewise, a list of instances of citizen participation in which State representatives attend has been included.

In the following chart 56, the institutions with a presence in the department of Concepción are listed, marking those that also have a presence in the AID municipalities.

Chart 56. Public institutions present in the municipalities

Institutions	Concepción	Belén	Loreto	Horqueta
Departmental or Regional				
Governorate	X			
Secretary of the Environment of the Governorate	X			
Secretary of Tourism of the Governorate	X			
Secretary of Health of the Governorate	X			
Ministry of Agriculture and Livestock (MAG) - Directorate of Agrarian and Livestock Extension (ALAT)	X	X	X	X
Regional Office, Ministry of Industry and Commerce (ORMIC)	X			
Ministry of Public Health and Social Welfare (MSPyBS), First Health Region (Concepción)	X			
Ministry of Education and Sciences (MEC), Departmental Coordination of Educational Supervisions / Supervisions	X			
Ministry of Urbanism, Housing and Habitat (MUVH), Regional Agency No. 6	X			
District				
Municipality	X	X	X	X
Municipal board	X	X	X	X
Municipal Council for the Rights of Children and Adolescents (CODENI)	X	X	X	X
National				
Ministry of Justice (MJ), Penitentiaries	X			
Ministry of Finance (MH), Undersecretary of Taxation	X			
Ministry of Public Works and Communications (MOPC)	X			
Ministry of Social Development (MDS)	X	X	X	X
Ministry of Industry and Commerce (MIC)	X			
Ministry of Justice (MJ)	X			
Judicial District, Justice of the Peace	X	X	X	X
Public Ministry (MP) or Prosecutor's Office	X			X

Institutions	Concepción	Belén	Loreto	Horqueta
Superior Court of Electoral Justice (TSJE)	X			
Civil registration	X	X	X	X
Electoral Registry	X	X	X	X
National Police, Police Stations	X	X	X	X
Military Forces: 4th Infantry Regiment and Military Hospital	X			
National Institute for Rural and Land Development (INDERT)	X		X	X
National Plant and Seed Quality Service (SENAVE)	X			X
National Service of Quality and Animal Health (SENACSA)	X	X		X
National Malaria Eradication Service (SENEPA)	X			
National Service of Environmental Sanitation (SENASA)	X			X
National Malaria Eradication Service (SENEPA)				X
National Forest Institute (INFONA)	X			
Regional Office for Fisheries of the Ministry of the Environment and Sustainable Development (MADES)	X			
Regional Environmental Center of the Ministry of the Environment and Sustainable Development (MADES)				X
Directorate of Agrarian Education (DEAg), Agricultural School of Concepción	X			
National Land Registry Service	X			
National Directorate of Civil Aeronautics (DINAC)	X			
Others				
Institute of Social Welfare (IPS), Regional Hospital	X			X
National Electricity Administration (ANDE)	X			X
Sanitary Service Company of Paraguay S.A. (ESSAP)	X			
Paraguayan Communication Company (COPACO)	X	X	X	X
Paraguayan Mail	X	X	X	X
National University of Concepción (UNC)	X		X	X
National University of Asunción (UNA)	X		X	
National Development Bank (BNF)	X		X	X
Agricultural Credit for Habilitation (CAH)	X		X	X
Livestock Fund (FG)	X			
National Administration of Navigation and Ports (ANNP)	X			
National Customs Directorate	X			
National Service for Professional Promotion (SNPP)	X			

Source: Local Health Plan, Municipal Development Plan. Own elaboration.

In addition, different instances of citizen participation have been created with the participation of State representatives, which are listed in chart 57.

Chart 57. Instance of citizen participation, with the participation of State representatives

Dependency	Concepción	Belén	Loreto	Horqueta
Municipal Development Council	X	X		X
Regional Health Council	X			
Local Health Council	X	X	X	X
District Board of Education	X			

Source: Local Health Plan, Municipal Development Plan. Own elaboration.

The Municipal Development Council is an instance of citizen participation, where the interaction of the public, private and civil society sectors is established, where joint actions are coordinated, articulated and implemented,

for the benefit of the community. 7 Work Tables were formed for the Municipalities of Concepción, Belén and Horqueta: Productive, Health, Environmental, Public Safety, Children and Adolescents, Infrastructure, Education.

4.1.6. Land Use

This chapter contains information on land use in the Project's Area of Indirect Influence and in districts of the department of Concepción.

Taking into account the agricultural vocation of the area, which has a direct relationship with the economy, as shown in section 4.1.4. Economy; where, among others, specific data related to the farms and their productive uses are presented. In order to clarify the issue of land use, some tables already included in the section on economics are repeated here, referring to farms and their uses. As in many other cases, the information cannot always be compared, due to differences in the survey methodology; however, it contributes to the analysis.

The predominant activity in the area, livestock, occupies three-quarters of the territory of the department according to the publication "Concepción, demographic and socioeconomic characteristics, 2002", occupying 5% of the EAP, while only 4% of the total of the surface is used in agriculture, which occupies more than 38% of the EAP. The forested area represents 17% of all the lands of the department, according to data from the Agricultural Survey by Sampling carried out in 2002 by the Directorate of Agricultural Censuses and Statistics of the Ministry of Agriculture and Livestock (Pereira, 2008).

The Agricultural Survey by Sampling (2002), cited by the publication "Concepción, demographic and socioeconomic characteristics" refers that of the territory used for livestock, 76% is used for natural and implanted pastures, 17% are natural or cultivated forests and the rest are temporary and permanent crops, are fallow or have other uses. Pereira mentions that the publication "Territory and Population" indicates that there are 54 farms owned by Brazilian owners totaling an area of around 100,000 hectares in the district of Concepción. Likewise, he indicates that there are about eight ranches with almost 50,000 hectares in the department.

For its part, the 2008 Agricultural Census includes data related to the number of farms, according to use by department and number of hectares according to use by department, as can be seen in charts 58 and 59⁷⁰.

Chart 58. Land according to its usage in number of farms, by department on 2008

Department	Number of farms with land	Farms with permanent temporary crops and vegetables	Farms with natural or cultivated pasture	Farms with natural forests or forest plantations	Farms with fallow land	Farms with land destined for other uses
Concepción	17,377	15,285	10,071	6,414	7,485	15,583
San Pedro	45,875	42,889	23,866	18,468	24,154	40,784
Amambay	4,795	3,969	2,726	2,454	1,745	3,261
TOTAL, ESTIMATED All	68,047	62,143	36,663	27,336	33,384	59,628

Source: National Agricultural Census 2008. Own elaboration

Chart 59. Land according to its number in terms of area, by department on 2008

70 The analysis of this information was carried out in the section on economics.

Department	Total Area (Ha).	Farms with permanent temporary crops and vegetables	Farms with natural or cultivated pasture	Farms with natural forests or forest plantations	Farms with fallow land	Farms with land destined for other uses
Concepción	1,619,416	71,431	1,218,911	233,300	50,394	4,538
San Pedro	1,739,232	321,156	909,500	276,656	81,091	150,828
Amambay	1,217,077	134,925	806,876	224,785	28,567	21,924
TOTAL, ESTIMATED All	4,575,725	527,512	2,935,287	734,741	160,052	177,290

Source: National Agricultural Census 2008. Own elaboration

According to Palau (2019), analyzing the report of the Statistical Synthesis of Agricultural Production 2017-2018 prepared by the Ministry of Agriculture and Livestock (MAG), it can be observed that the hectares devoted to soy cultivation in Concepción total 40,355 hectares. Corn occupies 8,222 ha, sugar cane 321 ha and rice 51 ha. Peasant family agriculture covers 21,443 ha, of which about 11,000 ha were used for manioc cultivation.

Regarding protected areas, the Municipal Development Plan of Concepción, of the year 2016, mentions the following:

- Range of mountains San Luis, with an area of 70,000 hectares.
- Itapucumí, with an area of 45,000 hectares.
- Estrella de Concepción, extension 2,400 hectares.
- Laguna Negra, an area of 10 hectares, is in danger of extinction.

The district of Concepción has 8,490 km², the Municipal Development Plan (2016) mentions that, according to the Atlas of the DGEEC, the lands to the north and east of the department, in the proximity of the Apa and Paraguay rivers, are high and with some isolated hills of relative elevation. The center and north are of low and flat topography, with extensive pastures for grazing, which alternate with forested sectors. The southern part has higher ground. In the district of Concepción, the lands are high, slightly sloping, with forests of timber trees, used for cabinetmaking and construction.

Regarding the distribution of land by districts, according to data from the 2008 Agricultural Census, Concepción is the district with the largest number of farms and area, followed by Yby Yaú and Horqueta. It is worth mentioning that the surfaces of these two districts were modified after the Census, due to landslides and the creation of new districts. Likewise, the fact that the vast majority of farms are managed by a single producer in the four AID districts, as well as in the entire department of Concepción, stands out. Chart 60 presents data in this regard.

Chart 60. Land distribution by district, department of Concepción

Districts of the Department of Concepción	Number of Lands	Total Area	Farm Management				
			Un Solo productor	Dos o más productores asociados de hecho	Una empresa o sociedad legalmente constituida	El Estado	Otros
Concepción	4,214	924,385	4,083	61	59	2	9
Belén	1,479	16,080	1,421	57	1	-	-
Horqueta	7,075	195,727	6,870	183	17	1	4
Loreto	2,062	41,560	2,032	28	2	-	-
San Carlos del Apa	86	62,146	77	9	-	-	-
San Lázaro	219	56,161	199	19	1	-	-
Yby Yau	2,242	323,357	2,127	74	35	1	5

Source: National Agricultural Census 2008. Own elaboration

The dominance of a single producer is verified in all the farm management strata, either by use of family labor or hired as day laborers.

Public Colonies⁷¹

According to Rojas and Areco (2017), from 1891 to 2010, 61 colonies have been formed totaling 388,247 hectares with 16,519 lots (almost 5,000 in the district of Concepción according to data provided by the local office); constituting 7% of the total authorized lots in the country. The average number of hectares per lot is 24. These colonies constitute 21% of the departmental territory. Of the 61 neighborhoods, 36% are in Horqueta, 23% are in the Concepción district, 18% are in Loreto, and the rest are in the other districts. Chart 61 presents a summary of the data of the Public Colonies formed between 1891 and 2010.

Chart 61. Public colonies formed between 1891 and 2010

Department	Number	Hectares	Lots	Average
Concepción	61	388.247	16.519	24
San Pedro	143	562.247	38.768	15
Amambay	42	176.605	8.626	20

Source: Elaborated by Rojas and Areco, 2017.

Rojas and Areco (2017) conclude: “The most frequently observed changes in the colonies, between the time of their formation and the present, were: 1) the reduction in the area of the colonies; 2) the significant increase in the number of lots in them; and 3) the sharp drop in the average size of the lots and the consequent increasing minifundization of the peasant farms, moving away from the necessary basic surface, established in the Agrarian Statute”.

There are also the so-called “communal fields”; that is, surfaces for free common use of the community, this for productive purposes. These can be enabled in the agricultural colonial settlements (whether official or private), this from what is described in Law 1863/02 establishing the Agrarian Statute, in its chapter IV⁷².

⁷¹ Peasant colonies (or settlements), legally recognized by the National Institute for Rural and Land Development (INDERT), the official entity in charge of land policy in the country.

⁷² Law N° 1863/02 of Establishment of the Agrarian Statute. Chapter IV Of the Communal Fields. <http://www.bacn.gov.py/leyes-paraguayas/3124/establece-el-estatuto-agrario>

During the work of collecting information in the field, residents of the localities near the area surveyed for the installation of the mill, mentioned belonging to groups that have **communal** fields, this in the communities of Curuzu Ñu and Mbocayaty (item 4.2.5.3: Economic activities and income).

4.1.7. Use of Water Resources

This section presents information on the use of water resources in the Project's Area of Influence. Considering that the subject has already been dealt with in previous items, general data on home use are provided, and other uses of the resource are incorporated.

In the document "Uses and governance of water in Paraguay", prepared by UNDP (2016) mentions that the department of Concepción is located on the Quaternary aquifer, using 60% to meet the needs of its inhabitants. The other 40% do so through surface waters.

According to the Ministry of Public Health and Social Welfare, "94% of the rural population of our country can access drinking water"⁷³. However, despite the progress, there is still a sector of the population that does not have the service. One of the strategies at the country level to address the problem of access to water in rural areas was the interventions of the National Environmental Sanitation Service (SENASA), in order for the population to organize itself through boards or commissions for administration and maintenance. systems.

The provision of water service at the country level in urban areas is in charge of the ESSAP (the only concessionaire of the drinking water service, and attending to its origins, in the former CORPOSANA, it serves communities of more than 10,000 inhabitants), in areas rural areas by SENASA (it normally serves populations of less than 10,000 inhabitants, although there are cases where the population supplied by the Sanitation Boards is higher) and there are also other providers.

Regarding home use of water, according to the Environmental Statistical Compendium (2017), the department of Concepción has an ESSAP provider, and 837 from SENASA and a total of 97 correspond to private providers, neighborhood commissions and others; according to data provided by ERSSAN. ESSAP has 7,572 connections; while SENASA 19,624. There are also 6,689 connections that correspond to other providers. ESSAP takes the water from the Paraguay River to supply its users.

Regarding sanitary sewerage, ESSAP is the only one that provides this service in the capital of the department of Concepción with 3,691 connections, which constitutes approximately 7% of the total population of the department and 20% of the district of Concepción corresponding to the year 2017. The other places in the department do not have this service.

In the city of Concepción, in 2018, a total of 7,842 water connections were registered, with the population supplied with drinking water being 39,210 people, based on an average calculation of five inhabitants per dwelling; according to information contained in the Environmental Statistics compendium (2018).

In addition, it should be noted that the evolution of drinking water connections in the city of Concepción has been from 5,246 in 2008 to 7,572 in 2017, which constitutes an increase of more than 44% in less than ten years. That meant going from 26,230 people with drinking water supply to 37,860 in the aforementioned period. Likewise,

73 Access to water in rural areas is a priority for the National government. May, 2017. Available at: <https://www.mspbs.gov.py/portal/12119/acceso-a-agua-en-zonas-rurales-es-prioridad-para-el-gobierno-nacional.html>

the connection to the sanitary sewer network went from 2,104 in 2008 to 3,691 in 2017, increasing by 75%. The benefited population rose from 10,520 to 18,455 people.

Another aspect is related to navigation. In this sense, the Paraguay River, which divides the country into two natural regions (Eastern and Western or Chaco), originates in Brazil, empties into the Paraná and empties into the Atlantic Ocean through the Río de la Plata. It is navigable by small vessels throughout its entire length and by large draft vessels during most of the year; except when low water cycles are recorded that affect navigability due to low water. This situation affects the river transport of cargo and passengers. Among the consequences are: increased travel time, reduced loading capacity of vessels or the fact that some deep draft vessels are stranded until the river level rises again.



Source: ABC Color, Año 2019.

Some press media also mention during the decrease in the water level registered in the years 2019 and 2020; that the “downspout lets us see, from the local port, a huge ravine on Isla Chaco’i”⁷⁴; the difficulty of navigation since “for example, barges must do so in a fractional way, that is, in parts”; It also refers to the fact that “some boats are stranded and that others would stop making trips if the situation does not improve”⁷⁵.

In 2020 there is a historical drop in the level of the Paraguay River after more than 50 years; and it is estimated that in April 2021 this will again reach optimal levels of navigability, as indicated by the head of the ANNP Department of Hydrology.⁷⁶

The amount of water that circulates varies in time and space; in extreme cases it can produce periods of drought such as those mentioned or floods; the latter are registered in different parts of the department. In this sense, the floods of the river or internal streams produce economic losses and diseases, generate impacts on both agricultural and livestock production; as well as on the roads that serve as a connection between communities.

The river is also vital for many communities to have access to basic supplies. Such is the case of the riverside community of Bahía Negra, where once a week from the city of Concepción merchandise is transported by boat so that the locals can make purchases of products such as fruits, vegetables, clothing and other items.

74 ABC Color. Visible low water in Concepción. November, 2019. Available at: <https://www.abc.com.py/edicion-impresa/economia/2019/11/26/visible-estiaje-en-concepcion/>

75 Digital Camisa 12. Concepción: Navigation becomes more and more difficult and some trips could be suspended. October, 2020. Available at: <http://www.camisa12.com.py/concepcion-navegacion-se-dificulta-cada-vez-mas-y-podrian-ser-suspendidos-algunos-viajes-p10105.html>

76 Paraguayan Information Agency (IP). ANNP reports that the Paraguay River managed to rebound 30 cm after a historic downspout. Available at: <https://www.ip.gov.py/ip/annp-reporta-que-el-rio-paraguay-logro-repuntar-30-cm-tras-bajante-historica/> NOVIEMBRE 2020

The waters of the Paraguay River also serve for the operation of local industries that are supplied by the river. This is the case of Frigorífico Concepción, both in the meat and tannery industries. This industry captures water from the river, makes it drinkable in its own treatment plant, uses it, reconditions it through a decontamination process and returns it to the river. The Belén refrigeration company uses the waters of the Ypané to carry out its operations.

As indicated in the UNDP document (2006)⁷⁷, citing Facetti, during the slaughter process, the average water used is 300 and 700 liters per beef, varying according to the availability of the product; which suggests the use of high volumes of the resource in the industries of the sector.

It should be noted that there is no record of the percentage of water used by agricultural, livestock and industrial activities in the country.

Likewise, fishermen use the river as a way of life; fishing is used both for consumption and for sale. There are two fishermen's associations in the city, one of which is inactive. The Nanawa Professional Fishermen Association has 25 members and they market their fish at the roundabout at the entrance to the city.

On the island of Chaco'i, located in front of the city of Concepción on the banks of the Paraguay River, a group of 30 people is part of the Union "Boteros Unidos Concepción Puerto Viejo". 100% of the people who work in the industry are associated with the union; and one of the members is a woman. These people are dedicated to transferring passengers from the island to the urban center of the city of Concepción and vice versa.

The former has the need to cross the river daily to carry out their work activities or have access to health services, education, supply of food products or other uses such as clothing, fuel, and others. They also transfer those visitors who wish to reach the island from the city of Concepción, who preferably go to the site for recreational fishing.



Source: Members of the Boat drivers Union of Concepción. Field Record 2020.

The river area is widely used as a place of recreation. It is usually fished upstream and downstream. The most popular areas for this activity include: 7 Puntas, Ypané, Aquidabán; others go to the area of Peña Hermosa and Bahía Negra.

Likewise, as mentioned previously, the river is an important means of communication, since ships, boats and barges cross its waters to reach various locations such as Puerto Pinasco, Puerto Casado, Vallemí, Fuerte Olimpo,

77 PNUD. Uses and water governance in Paraguay. 2006. Available at:
https://www.py.undp.org/content/paraguay/es/home/library/democratic_governance/usos-y-gobernabilidad-del-agua-en-paraguay.html

transporting food, fuel and passengers. The Aquidabán ship makes regular trips once a week from Asunción to Bahía Negra.

On the other hand, the Apa, Aquidabán and Ypané rivers; affluent of the Paraguay River, are navigable by small boats. There are also streams and estuaries that account for the availability of water resources in the area; which presents opportunities for the development of tourism. Promoting tourism can mean other sources of employment for the area.



Source: Concepción. Field Record 2020

Regarding the recreational use of water resources, there are currently 18 spas, of which 5 are authorized by MADES. Taking into account the high temperatures in the country, annually the increase of spas in the area can be observed, these in certain cases do not meet the optimal conditions for those who resort to them and as mentioned, they do not have the corresponding authorization by the MADES. Chart 62 lists the spas.

On the other hand, from Concepción, there are options within the city for walking and fishing trips. The boats Ten Caten, Siete Cabrillas and Santa Filomena are some of those that offer this service. They are private services available to those interested.

Chart 62. Watering places of the department of Concepción

Number of watering places	District	Enabled by MADES
2	Belén	1
7	Concepción	0
4	Horqueta	1
4	San Alfredo	2
1	Yby Yaú	1
Total: 18	5 districts	5 enabled

Source: Own elaboration con información proveída por la Secretaría de Turismo de la Gobernación

On the Aquidabán river in Paso Horqueta, 40 km from Concepción, on the route to Vallemí it has public beaches. On the same river, there are also recreational spaces in Paso Barreto (65 km from Concepción); and Paso Urunday, Horqueta district, which is distant about 15 km from the Bernardino Caballero route, at km 70.

In Vallemí, there is a municipal waterfront on the Paraguay River. Also, 4 km from the city, the Apa River offers an immense sandy area that is used by visitors.

The Tagatiyá stream, located in the San Alfredo district, is one of the department's greatest tourist attractions. It runs on a calcareous base and allows the bottom to be seen through its transparent waters.

4.2. Area of Direct Influence (AID)

This section describes the main features in terms of demographic, social, cultural and economic indicators of the districts that make up the project's AID; referenced in item 2.3 of this study.

In order to organize existing information; the content was structured in two sections:

- a. Summary of the characteristics of the districts that make up the AID. In order to complement the quantitative records already indicated in the AII characterization section referring to the AID.
- b. Summary of micro-territories identified in the AID from the communication routes that lead to the prospected property area. It will also be possible to access elements of the consultation process with key actors as central contributions for the characterization of the territory.

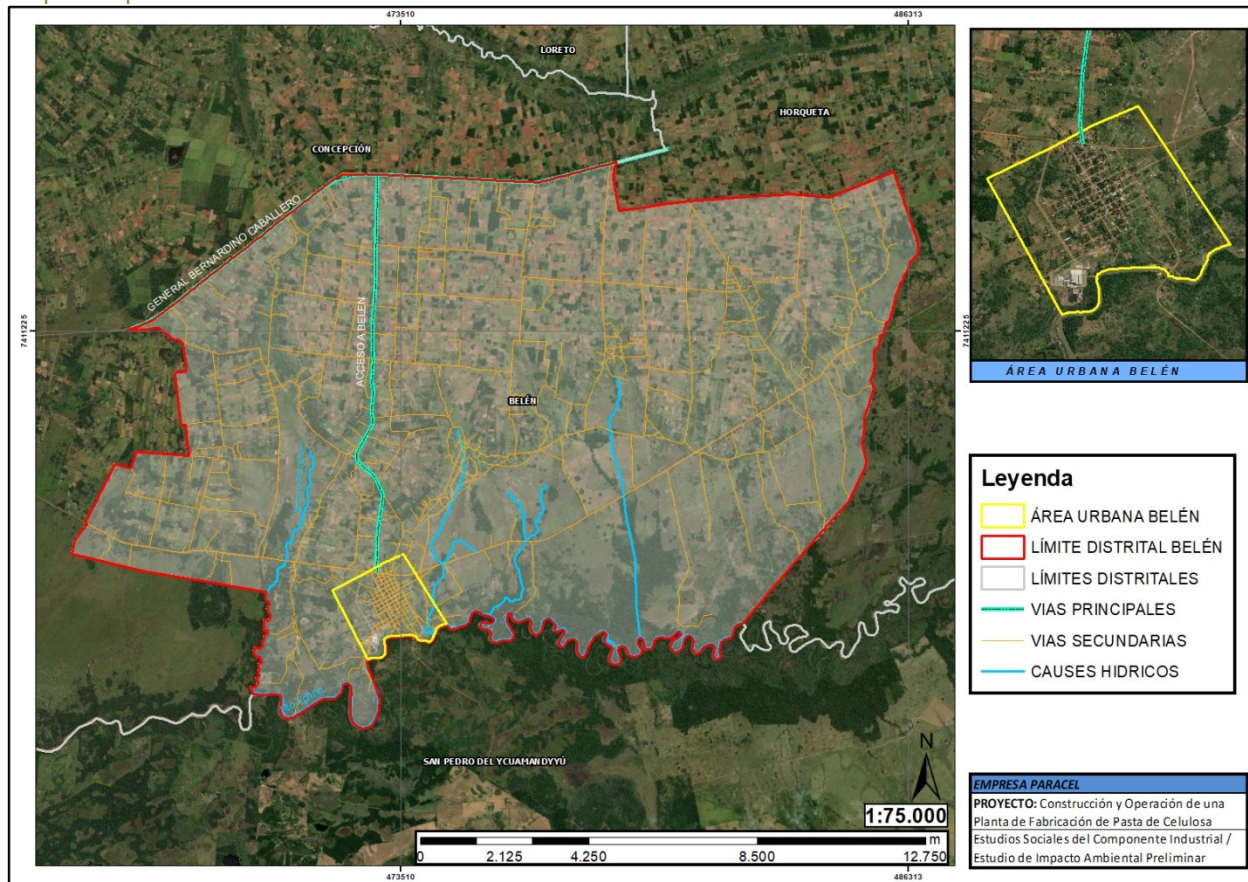
It is important to note that, for the characterization of the districts studied for the AID, 3 main Sources have been taken into account (Local Health Plan 2014-2016 of each district, Municipal Development Plan (PDM) and the DGECC) as they do not have from other updated bibliographic sources.

4.2.1. Belén's District

Illustration 1. Picture of an access road to the city



Map 7. Map of Belén's District



General Characteristics

The city of Belén, in the department of Concepción, was founded on August 23, 1760, by Francisco José Sánchez Labrador and Hernández S.J. It is located 21 km from the departmental capital.

It is located on the banks of the Ypané River. It limits to the north with the districts of Concepción and Horqueta, to the south with the Municipality of San Pedro, to the east with the district of Horqueta and to the west with the district of Concepción. Its main road accesses are Route V General Bernardino Caballero and Route III Elizardo Aquino and a bridge located over the Ypané River⁷⁸.

As mentioned, it is located 21 km away from the city of Concepción and 437⁷⁹ km from the capital of the country. It has an area of 215 km², distributed in rural and urban areas. In 1917, 1 colony was created, corresponding to 433 lots and 7,408 hectares⁸⁰.

78 Belén municipal development plan. Concepción Department. 2016. Available at <https://www.cird.org.py/institucional/documentos/PDM%20Belen.pdf>

79 Road distance from the capital of the country by Route 9 Don Carlos A. López

80 Rojas, L. and Areco, A. (2017). The Peasant Colonies in Paraguay.

Chart 63. Complementary information about Belén's District

Population	Regarding the population, the projection for 2019 is 13,014 inhabitants (6,766 men and 6,248 women) and for 2020 it is 13,215 inhabitants (being 6,874 men and 6,341 women) ⁸¹ . Of which, 73 inhabitants correspond to the indigenous population (being 39 men and 34 women) ⁸² of the rural area.
Economic Activity	The main economic activities are agriculture (fruits, yerba mate), industries, meat processing plants, tannery, shops and forestry activities
Tourism	For the exploitation of tourism, the city of Belén has five peculiarities that characterize it, Belén is the point where the tropic of Capricorn crosses the country; the mansions with colonial architecture that they conserve in the city; the spas located on the banks of the Ypané River, Pororó and Paso Pedroso; ecological tourism and stay and the Jesuit Ruins of Purutue Ka'í ⁸³ which is located in the Urundey Pass 3.5km north on the way to Horqueta.
Health	The district health service is organized as follows: 1 Belén Health Center, 1 USF, 1 Maternal and Child Center of the SOS Village (gynecological care, childbirth, general medical clinic, laboratory and pharmacy), 5 Medicine Kits, 1 Private Family Medicine Clinic, 2 Empirical Midwives, Naturalist Doctors. ⁸⁴
Education	In the district there is access to 3 educational centers located in the urban area and 22 in the rural area ⁸⁵ .
Drinking Water and Energy	The drinking water service is provided by the Urban and Rural Sanitation Boards and the electric power by the National Electricity Administration (ANDE).
Sewage System	In urban areas, modern toilets with septic tanks predominate, they do not have a sewage system or network, and in rural areas, common toilets or latrines predominate
Garbage collection/disposal/treatment	They do not have garbage collection service, the way to eliminate garbage is burning or burying.

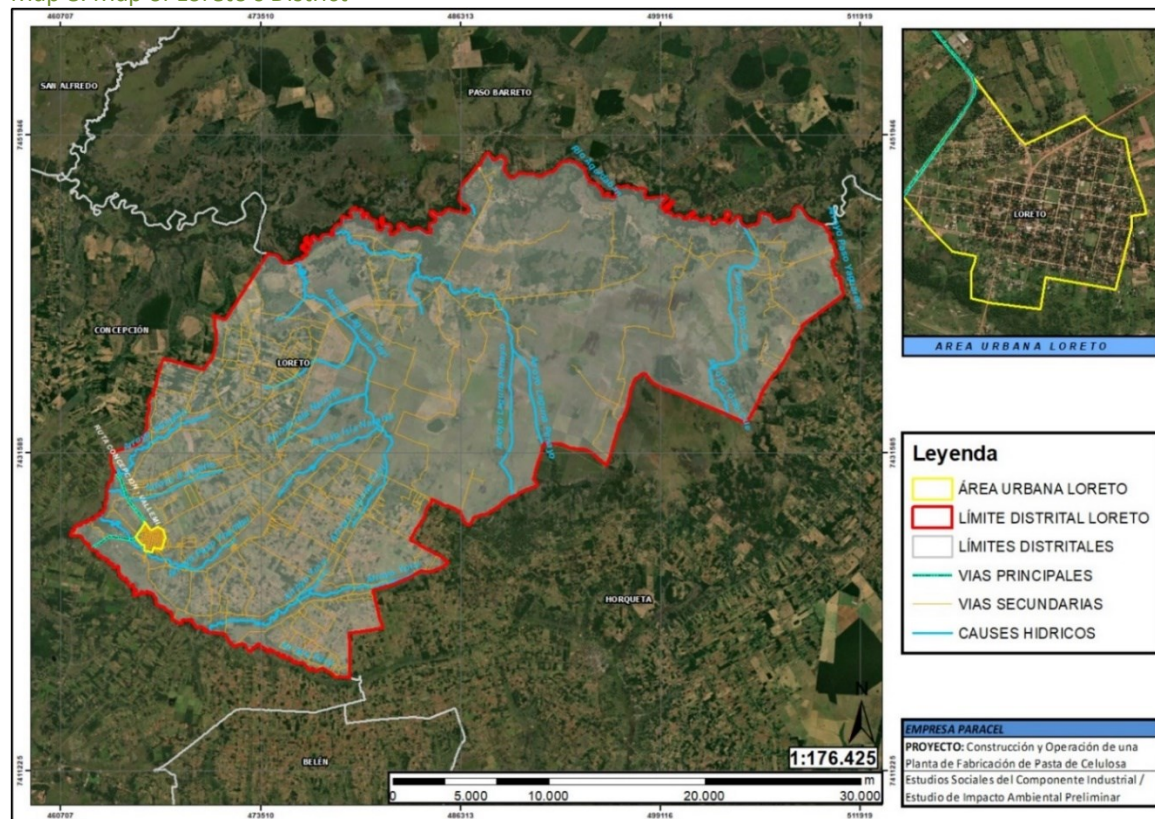
Illustration 2. Picture of the city of Belén, representation of the indigenous culture



- 81 DGECC. Concepción Department. Estimated and projected population, by district, gender and age groups, 2000-2025. Available at: <https://www.dgeec.gov.py/vt/default.php?publicacion=2>
- 82 DGECC. III National Census of Population and Housing for Indigenous Peoples, 2012. Available at <https://www.dgeec.gov.py/default.php?publicacion=33>
- 83 Belén municipal development plan. Concepción Department. 2016. Available at <https://www.cird.org.py/institucional/documentos/PDM%20Belen.pdf>
- 84 Belén Local Health Plan, Concepción Department 2014-2016. Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Belen.pdf
- 85 Belén Local Health Plan, Concepción Department 2014-2016. Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Belen.pdf

4.2.2. Loreto's District

Map 8. Map of Loreto's District



General Characteristics

The city of Loreto was founded on December 10, 1792 by the Jesuits. It is located 20 km from the City of Concepción and 437⁸⁶ km from Asunción. It limits with the districts of Horqueta, Belén and Concepción. The city can be accessed by routes III Elizardo Aquino, V Bernardino Caballero and Coronel Franco-Chaco. It has an area of 996 km². Organized in 31 rural companies and 4 urban neighborhoods⁸⁷. From 1964 to 1981, 11 colonies were created, corresponding to 1969 lots and 46,323 hectares⁸⁸.

⁸⁶ Road distance from Asunción through Pozo Colorado.

⁸⁷ Loreto Municipal Development Plan. Concepción Department. 2016. Available at <http://www.municipalidadloreto.gov.py/wp-content/uploads/2014/11/plan-de-desarrollo-distrital-loreto2016.pdf>

⁸⁸ Rojas, L. and Areco, A. (2017). Peasant Colonies in Paraguay.

Illustration 3. Pictures of the access of Loreto



Chart 64. Complementary information about Loreto's District

Population	Regarding the population, the projection for 2019 is 18,791 inhabitants (9,973 men and 8,818 women) and for 2020 it is 18,879 inhabitants (being 10,034 men and 8,846 women) ⁸⁹ .
Economic Activity	The economic activities that predominate are agriculture (sesame, watermelon, melon, manioc, vegetables, etc.) on a small scale, production for consumption at the local and departmental level ⁹⁰ , livestock, crafts (crafts, textiles, painting on canvas, etc.), wood industries, shops, fairgrounds, etc. ⁹¹
Tourism	In the district, the places taken into account to visit as tourist sites are the spas, giant statues in the squares, the church, the Aquidabán River and streams, and the Prayer House dedicated to the Virgin of Tuparendá ⁹² . The view of the city is complemented by the old and large houses and rural houses. In one of them, the trophies of Mcal. José Félix Estigarribia ⁹³ .
Means of Communication and Transport	They have fixed telephony and internet service by the Paraguayan Communications Company (COPACO), as well as mobile telephony and internet access by private companies. Air channels and cable channels, AM and FM radios (community and commercial radios). The district does not have local transport service, they do use intercity and long-distance transport and private means. The main accesses are by Route V General Bernardino Caballero, Route III Gral. Elizardo Aquino and Coronel Franco-Chaco. There is also the branch of the National Post Office of Paraguay (DINACOPA)
Health	In Loreto they have 1 Health Center, 2 Health Posts, 1 USF, 1 Dispensary, 1 Social Pharmacy, 6 Private Pharmacies and 15 Empirical Midwives
Education	In the municipality there are 9 national schools and 32 basic schools
Drinking Water and Energy	The drinking water used in the area comes from the sanitation boards. They have electric power service.
Sewage System	The District does not have a drainage network. Only 16% in urban areas have modern bathrooms with septic tanks and septic tanks, and 72% corresponding to rural areas use latrines.
Garbage collection/disposal/treatment	According to data from institutional interviews, the municipality has a municipal landfill, a part of the urban area accesses the collection service and in the rural area they eliminate by burning or burying.

Illustration 4. Picture of the City of Loreto

89 DGECC. Concepción Department. Estimated and projected population, by district, sex and age groups, 2000-2025. Available at: <https://www.dgeec.gov.py/vt/default.php?publicacion=2>

90 Loreto Municipal Development Plan. Concepción Department. 2016. Available at <http://www.municipalidadloreto.gov.py/wp-content/uploads/2014/11/plan-de-desarrollo-distrital-loreto2016.pdf>

91 Loreto Health Plan. Concepción Department. 2016. Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Loreto.pdf

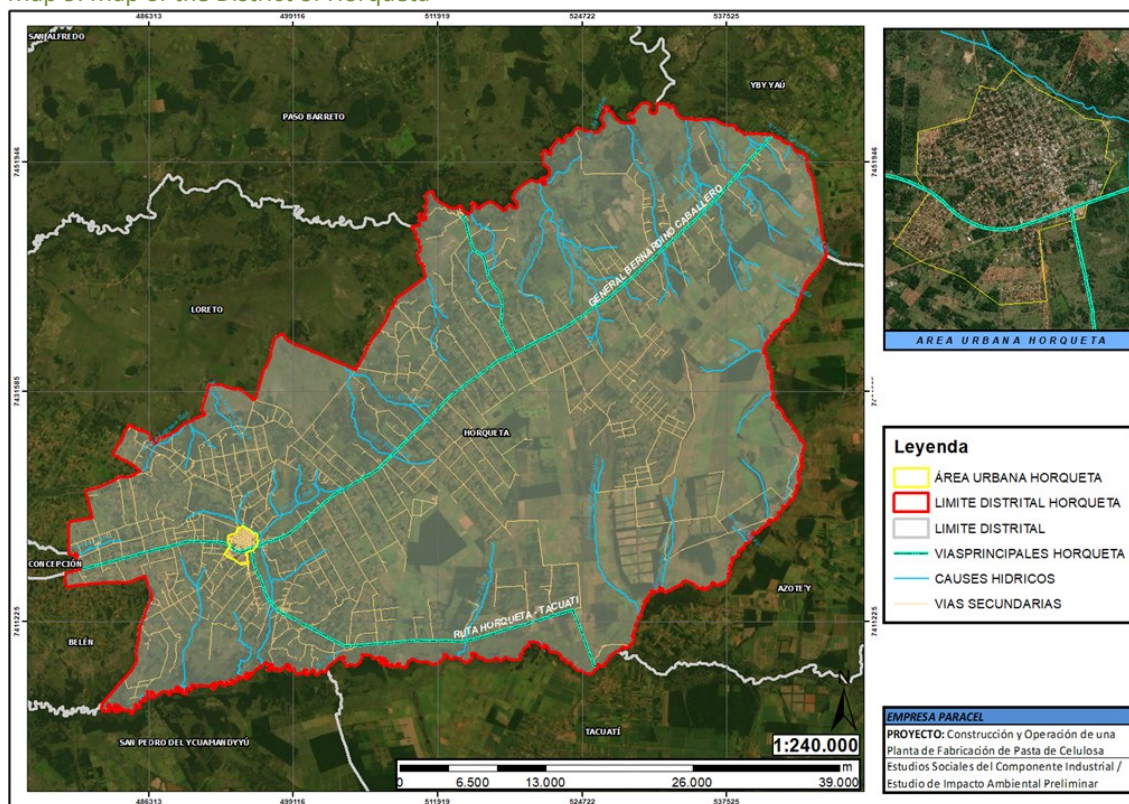
92 Loreto Health Plan. Concepción Department. 2016. Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Loreto.pdf

93 Loreto Municipal Development Plan. Concepción Department. 2016. Available at <http://www.municipalidadloreto.gov.py/wp-content/uploads/2014/11/plan-de-desarrollo-distrital-loreto2016.pdf>



4.2.3. Horqueta's District

Map 9. Map of the District of Horqueta



General Characteristics

The city of Horqueta was founded on May 10, 1793, by Juan Manuel Gamarra and Andrés Salinas. It is located 50 km from the City of Concepción and 434⁹⁴ km from Asunción, 172 km from Punta Porá (Brazil). It limits to the north with the districts of Loreto, Concepción and the Río Aquidabán, to the south with the Río Ypané, to the east with the district of Yby Yau and to the west with the districts of Concepción and Belén. It has an area of 2,925 km²

94 Road distance, from Asunción along the Transchaco Route and Route 5 General Bernardino Caballero

distributed in urban and rural areas⁹⁵. From 1917 to 2001, 22 colonies were created, corresponding to 6,957 lots and 124,391 hectares⁹⁶.

Chart 65. Complementary information about Horqueta's District

Population	Regarding the population, the projection for 2019 is 62,008 inhabitants (32,152 men and 29,856 women) and for 2020 it is 62,664 inhabitants (32,477 men and 30,187 women). ⁹⁷ Of which, 339 inhabitants correspond to the indigenous population (162 being men and 177 women) ⁹⁸ all from the rural area.
Economic Activity	The main activities of the district are agriculture (ka'a he'ê, cotton, spruce, beans, manioc, corn, fruits, yerba mate), shops and industries (agricultural products, cotton remover, oil mill, tannery, sawmills, logging) ⁹⁹ .
Tourism	The district has the museum called Las Raíces de Horqueta, Luis Alberto del Paraná Museum (Radio Guyrá Campana), Virgen del Rosario Church, José Antequera y Castro Square ¹⁰⁰ and the white sand beaches on the banks of the Aquidabán River, Paso Horqueta and the Bridge from Paso Horqueta ¹⁰¹ .
Means of Communication and Transport	According to information obtained in institutional interviews, in Horqueta there is access to fixed telephony and internet services by the Paraguayan Communications Company (COPACO), as well as mobile telephony and internet access by private companies, there are air channels and channels cable and AM and FM radios (community and commercial radios). Currently there is no local public transport service, the means of transport used are intercity or long-distance buses and private means. The main accesses are Route V General Bernardino Caballero and Route III Gral. Elizardo Aquino. There is also the branch of the National Post Office of Paraguay (DINACOPA)
Health	The Horqueta District Hospital, 11 USF and 7 Health Posts operate in the district ¹⁰² .
Education	According to the Municipality's Development Plan (2016), the district has access to 20 urban and 113 rural educational institutions, corresponding to subsidized initial, basic, secondary, public and private education. And higher education, public and private, with undergraduate and graduate degrees, at the following universities: Intercontinental Technological University (UTIC), San Carlos University, National University of Concepción (UNC), the Polytechnic and Artistic University of Paraguay (UPAP). Likewise, the Horqueta Teacher Training Institute (IFD Horqueta)
Drinking Water and Energy	The drinking water used in urban and rural areas is the running water system (80%) and the least used is well water (20%) ¹⁰³ . Access to electricity is provided by the Costa Romero Sub Static, which processes the energy from the Itaipu Hydroelectric Power Plant for the entire north ¹⁰⁴ .

95 Horqueta Municipal Development Plan. Concepción Department. 2016.Available at <https://www.cird.org.py/institucional/documentos/PDM%20Horqueta.pdf>

96 Rojas, L. and Areco, A. (2017). Peasant Colonies in Paraguay.

97 DGEEC. Concepción Department. Estimated and projected population, by district, sex and age groups, 2000-2025. Available at: <https://www.dgeec.gov.py/vt/default.php?publicacion=2>

98 DGEEC. III National Census of Population and Housing for Indigenous Peoples, 2012. Available at <https://www.dgeec.gov.py/default.php?publicacion=33>

99 Horqueta Local Health Plan. Concepción Department. 2016.Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Horqueta.pdf

100 Internal tourism Paraguay. Available at <https://turismointernoparaguay.blogspot.com/2015/01/concepcion-atractivos-museos-y-centros.html>

101 Horqueta Municipal Development Plan. Concepción Department. 2016.Available at <https://www.cird.org.py/institucional/documentos/PDM%20Horqueta.pdf>

102 Horqueta Local Health Plan. Concepción Department. 2016.Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Horqueta.pdf

103 Horqueta Local Health Plan. Concepción Department. 2016.Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Horqueta.pdf

104 Horqueta Municipal Development Plan. Concepción Department. 2016.Available at <https://www.cird.org.py/institucional/documentos/PDM%20Horqueta.pdf>

Sewage System	The District does not have a drainage network. Only 16% in urban areas have modern bathrooms with septic tanks and septic tanks, and 72% corresponding to rural areas use latrines.
Garbage Collection/ Disposal/ Treatment	Regarding the garbage collection service, although the municipality has a municipal landfill, only a part of the urban area accesses the collection service and in the rural area they eliminate by burning or burying ¹⁰⁵ .

Illustration 5. Picture of Horqueta



4.2.4. Concepción's District

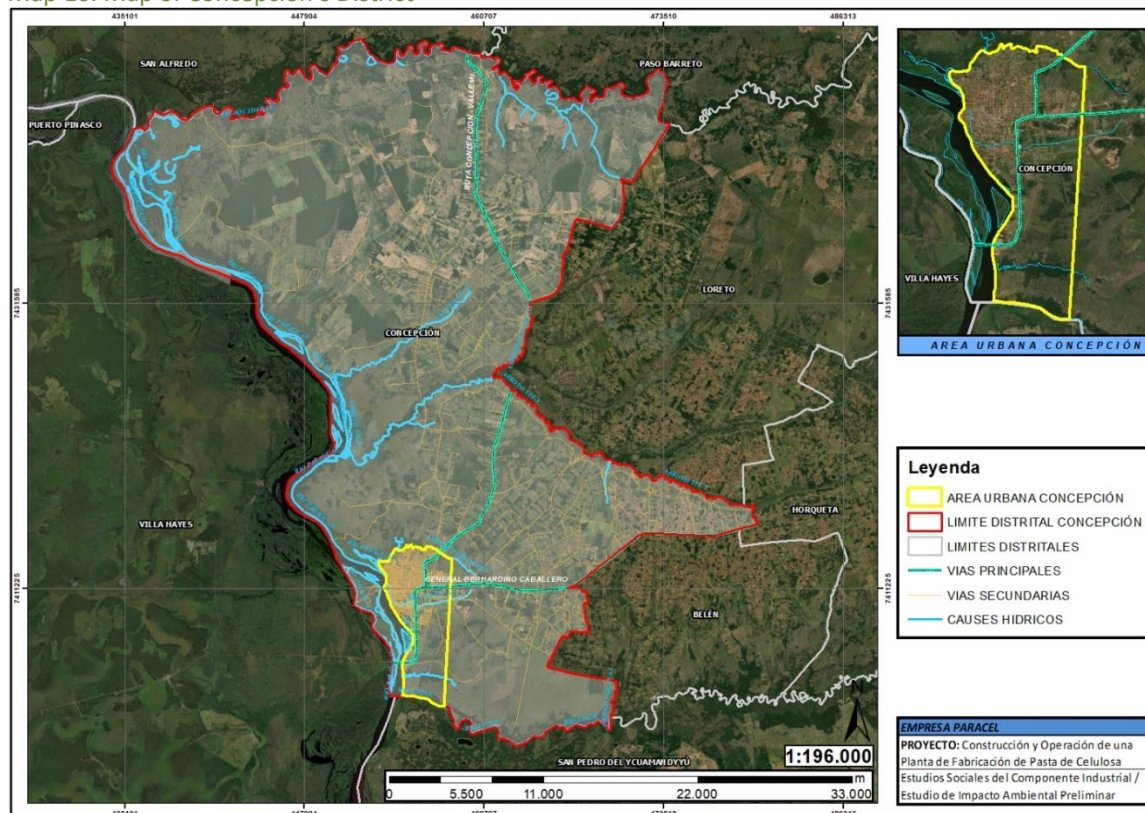
Características generales

The city of Concepción is the capital of the Department. It was founded on May 25, 1773, by Colonel Agustín Fernando de Pinedo. It is located on the banks of the Paraguay River, with fluvial access (Puerto de Concepción), air (Concepción Airport, Tte. Col. Carmelo Peralta) and land (Route V General Bernardino Caballero that connects with the other districts)¹⁰⁶.

¹⁰⁵ Horqueta Local Health Plan. Concepción Department. 2016. Available at https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Horqueta.pdf

¹⁰⁶ Concepción Municipal Development Plan. Concepción Department. 2016.

Map 10. Map of Concepción's District



It limits to the north with the Municipality of San Alfredo, to the south with the district of Belén and San Pedro, to the east with the districts of Paso Barreto, Belén and Loreto and to the west with the Paraguay River that separates it from the district of Presidente Hayes. It is located at a distance of 415¹⁰⁷ km from the capital of the country. It has an area of 8,490 km² ¹⁰⁸ distributed in rural and urban areas. From 1918 to 2008, 14 colonies were created, corresponding to 4,408 lots and 113,807 hectares¹⁰⁹.

Chart 66. Complementary information about Concepción's District

Population	Regarding the population, the projection for 2019 is 85,876 inhabitants (43,306 men and 42,570 women) and for 2020 it is 87,215 inhabitants (44,034 men and 43,181 women) ¹¹⁰ . Of which, 774 inhabitants belong to the indigenous population (407 men and 367 women), 393 in the rural area (206 men and 187 women) and 381 (407 men and 367 women) ¹¹¹ in the urban area.
Economic Activity	In relation to economic activity, the district is characterized by agricultural and livestock production, shops, officials of public institutions and industries. Among the main agricultural activities are the production of sugar cane, corn, sesame, pineapple and watermelon among others; among livestock, bovine production in general and small livestock. Related to the latter, in the district there are important

¹⁰⁷ Distancia vial, por Ruta 9 Transchaco Carlos A. López – Pozo Colorado – Puente Nanawa Coronel Rafael Franco

¹⁰⁸ Local Health Plan, Concepción Department 2014/2016. Available at: https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Concepcion.pdf

¹⁰⁹ Rojas, L. and Areco, A. (2017). The Peasant Colonies in Paraguay.

¹¹⁰ DGEEC. Concepción Department. Estimated and projected population, by district, gender and age groups, 2000-2025. Available at: <https://www.dgeec.gov.py/vt/default.php?publicacion=2>

¹¹¹ DGEEC. III National Census of Population and Housing for Indigenous Peoples, 2012. Available at <https://www.dgeec.gov.py/default.php?publicacion=33>

	slaughterhouses, cold stores and saddlery ¹¹² . In addition, the port of Concepción, which is the main port of the city with the most commercial and people traffic.
Tourism	In the City of Concepción, as part of tourism, the Municipal Museum of the Villa Real Barracks and the Diocesan and Historical Museum of Concepción are located, where objects from the time of the Chaco War and the Triple War are still kept. Alliance; the Locomotive that worked until 1960 ¹¹³ and the House of Culture Carlos Colombino de Concepción ¹¹⁴ where old objects are also preserved.
Means of Communication and Transport	In the district there is access to landline and internet services by the Paraguayan Communications Company (COPACO), as well as mobile telephony and internet access by private companies, air channels and cable channels, and AM and FM radios (radio stations).). There is no local public transport service, the means of transport used are intercity or long-distance buses, and as private means they use motorcycles, cars and trucks. In addition, the Port of Concepción and the Concepción Airport “Tte. Cnel. Carmelo Peralta”. There is also the branch of the National Post Office of Paraguay (DINACOPA) ¹¹⁵ and private services such as MC Courier Agencia Concepción, A.Y.A Correo Privado, J.F. Courier SRL.
Health	The health service is in charge of the Ministry of Public Health and Social Welfare (MSPyBS) through the 1st Sanitary Region of the country, there is the Concepción Regional Hospital, 14 Family Health Units (USF), 2 community dispensaries, 2 Health Posts, 1 Indigenous Mobile Unit and the Regional Hospital of the Social Security Institute (IPS). ¹¹⁶ You can also access private health services, clinics, sanatoriums, clinics, laboratories and pharmacies.
Education	According to the Municipal Development Plan of Concepción (2016), in the district there are 60 educational institutions enabled in the urban area and 50 in the rural area, corresponding to subsidized initial, basic, secondary, public and private education. Regarding higher education, there is the National University of Concepción (UNC) with undergraduate and postgraduate degrees, and the private ones, Nuestra Señora de la Asunción Catholic University (UC), the Polytechnic and Artistic University of Paraguay (UPAP), UniNorte Comunitaria de Concepción and the Intercontinental Technological University (UTIC)
Drinking Water and Energy	The drinking water service is provided by the Empresa de Servicios Sanitarios del Paraguay S.A. (ESSAP) and the Sanitation Boards, electric power, the National Electricity Administration (ANDE)
Sewage System	In urban areas, modern toilets with wells or septic chambers predominate, but there is no sewage system or network, and latrines predominate in rural areas
Garbage Collection/ Disposal/ Treatment	In the urban area of the district, the garbage collection service is in charge of the municipality, not all neighborhoods have coverage and there is a municipal dump. Health institutions have a system for collecting and treating pathological waste, however, in rural areas, since they do not have a garbage collection service or municipal landfill, the way to eliminate garbage is by burning or burying it

112 Local Health Plan of Concepción, Departament of Concepción. 2014/2016.

113 Local Health Plan of Concepción, Departament of Concepción. 2014/2016.

114 SNC. Available at: en <http://www.cultura.gov.py/2014/05/se-inauguro-la-casa-de-la-cultura-carlos-colombino-de-concepcion/>

115 Paraguayan mail <http://www.correoparaguay.gov.py/index.php/noticias/correo-de-concepcion-esta-en-zona-centrica>

116 Local Health Plan of Concepción, Departament of Concepción. 2014/2016. Available at: https://www.cird.org.py/institucional/documentos/Plan_Local_Salud_Concepcion.pdf

Illustration 6. “Nanawa” Bridge, on the Paraguay River, city of Concepción



The urban area of the Concepción district encompasses 16 neighborhoods and the rural area is made up of 16 companies¹¹⁷. It should be noted that in 2014 Law No. 5328 was enacted¹¹⁸ which modifies Article 3 of Law No. 426 “on the Political Division of the Territory of the Republic”. For the purposes of the Law, the island located in front of the urban center of the municipality of Concepción, better known as Chaco’i, is annexed to the first department of the country.

The community has around 400 families. Among the main means of subsistence, there are trades for daily wages in the city of Concepción (mainly in the areas of masonry and domestic service); About 30 families are “canoeists” and their income depends on the number of trips they make per day; Others are dedicated to the itinerant sale of drinks and food on the beach, considering the influx of people who visit the area for leisure and recreation. Likewise, a sector of the population raises small livestock and produces milk for consumption. In the areas closest to the Nanawa Bridge they have farms for consumption and some work as workers in the ranches in the Chaco.

4.2.5. Mapping, Characterization and Analysis of Micro-territories

4.2.5.1. Identification and presentation of the micro-territories

In this section, as referred to in item 2.3: Description of the areas of influence, information related to the communities identified in an approximate radius of 5 km around the area surveyed for the construction of the mill is presented.

It should be noted that taking into account the access roads located on the Vallemí-Concepción paved road, the peculiarity of the territory and the interconnections through the existing communication routes, it was considered pertinent to make a description of the micro-territories that are in a radius of 13 km around the project's property area, thus widening the 5km cut initially defined.

In this sense, the experience provided by field work during the information gathering period allows for the incorporation of some categories of analysis to refer to aspects in terms of territory. The characteristics indicated here were collected through community interviews and focus groups as part of the information gathering strategy. The data are constructed from the contribution of key actors in the area such as: representatives of neighborhood commissions, productive committees, water, health, education commissions, grassroots referents of the churches, young people and old inhabitants of the area; in order to contribute elements from different representative population groups.

It should be noted that given the lack of systematized information regarding the limits and names of the

¹¹⁷ Local Health Plan, 2014

¹¹⁸ Law Nº 5328. Available at: <https://www.bacn.gov.py/leyes-paraguayas/3035/modifica-el-articulo-3-de-la-ley-n-426-del-7-de-diciembre-de-1973-que-establece-la-division-politica-del-territorio-de-la-republica>

communities located in rural areas of the Concepción district; the territory was organized from the perspective of local actors.

It is pertinent to highlight that the division presented in this section is an approximation based on the stories, the rescued perception and the observation records made; covering aspects related to identity, cohesion, organization, common interests, communication channels, institutions, ways of life and other elements of significance for the inhabitants of the area.

In order to better visualize the relationship system and the degree of existing interdependence, it was appropriate to subdivide the study area into 2 micro-regions; based on the coverage area assigned to the health units and the degree of proximity of the localities.

In this sense, it should be noted that the Family Health Units are formed under the assignment of a territory of responsibility; composed of “social micro-territories” (communities) in order to provide health coverage to a specific population.

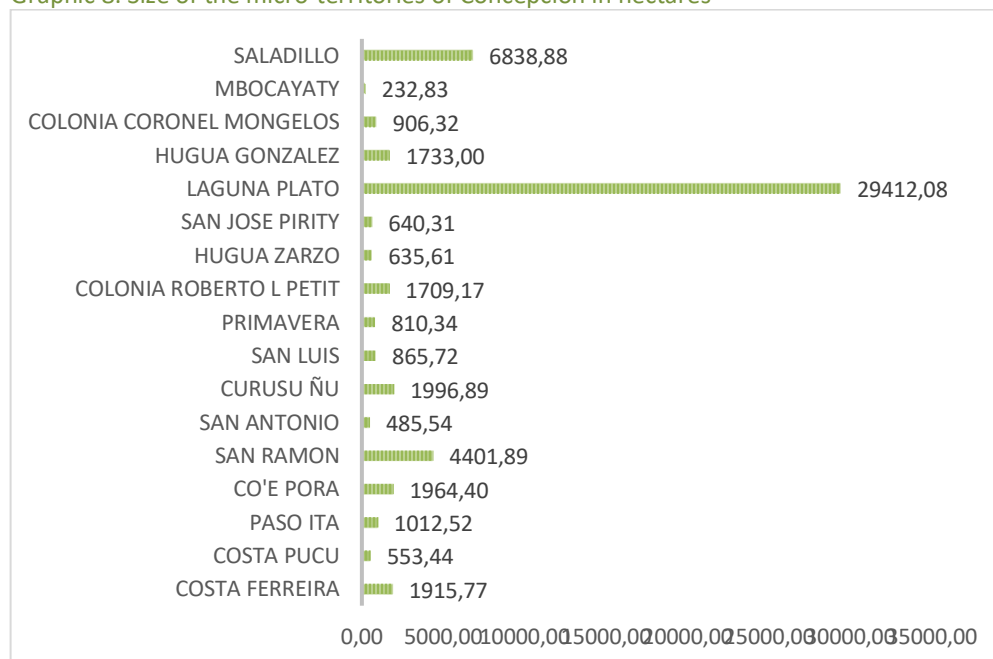
In accordance with what is stated in the previous paragraph, the denomination of micro-territories is acquired in order to name all those communities identified from the existing communication channels. Considering, those that are used to interconnect the communities and, on the other hand, those roads that lead to the prospected property area. Next, the distribution of communities by microregion determined for the purposes of this study is graphed.

Illustration 7. System of relationships and level of Independence



The microregions cover an estimated total of 56,114 hectares. Being the community of Mbocayaty the smallest; and Laguna Plato the largest; according to data from the General Directorate of Surveys, Statistics and Censuses for the year 2012 referred to in graph 8 below.

Graphic 8. Size of the micro-territories of Concepción in hectares



Source: Elaboration based on data of the General Direction of Surveys, Statistics and Census; year 2012.

In addition to the spatial dimensions, in terms of local capacities and available conditions, the following aspects were observed at a social and cultural level:

The presence of public institutions such as educational, health or security institutions are established by areas of intervention. That is, they are used by residents of various micro-territories. In this sense, it is worth highlighting the following:

- The communities of Col. Roberto L. Petit, Callejón San Antonio and Jhugua González are where the units that provide primary health care to a total of 4618 inhabitants are concentrated; Except for the micro-territories of Colonia Primavera and Costa Ferreira that belong to other health agencies.
- Although 83% of the micro-territories have public schools, only schools were registered in the localities of Saladillo, Col. Cnel. Mongelós, Curuzu Ñu and Colony Primavera.
- In terms of security, there is a police station in Colony Roberto L. Petit and a Police Station in Laguna Plato.

Internal roads are networks that link and interconnect micro-territories, enable the exchange of products and access to the communities where health, safety and education service institutions are concentrated. In addition, they constitute routes of connection with the paved routes and the urban centers of the cities.

In this sense, Saladillo and Costa Ferreira are the main communication routes used by the inhabitants of the area.

Organization and Participation are aspects that give cohesion to the territory. It was observed that all the communities have established and recognized neighborhood commissions. In addition, each micro-territory has commissions that are activated according to specific needs by defined area of action (water, health, education, roads and others) in order to improve the quality of life of the inhabitants.

Likewise, there were cases where the productive committees of each community are linked or unionized in Associations, which in turn bring together committees from different localities; evidencing a degree of exchange

and participation.

Spaces for expresión and Social Interaction based on recreational activities, sporting events and celebrations of a festive, cultural and/or religious nature organized by micro-territories where residents from neighboring communities also participate.

These elements show that when naming the territory there are aspects, perceptions and behaviors that endow the identified micro-territories as part of a symbolic unit; evidencing the dynamism and integration of the area in multiple dimensions of daily life.

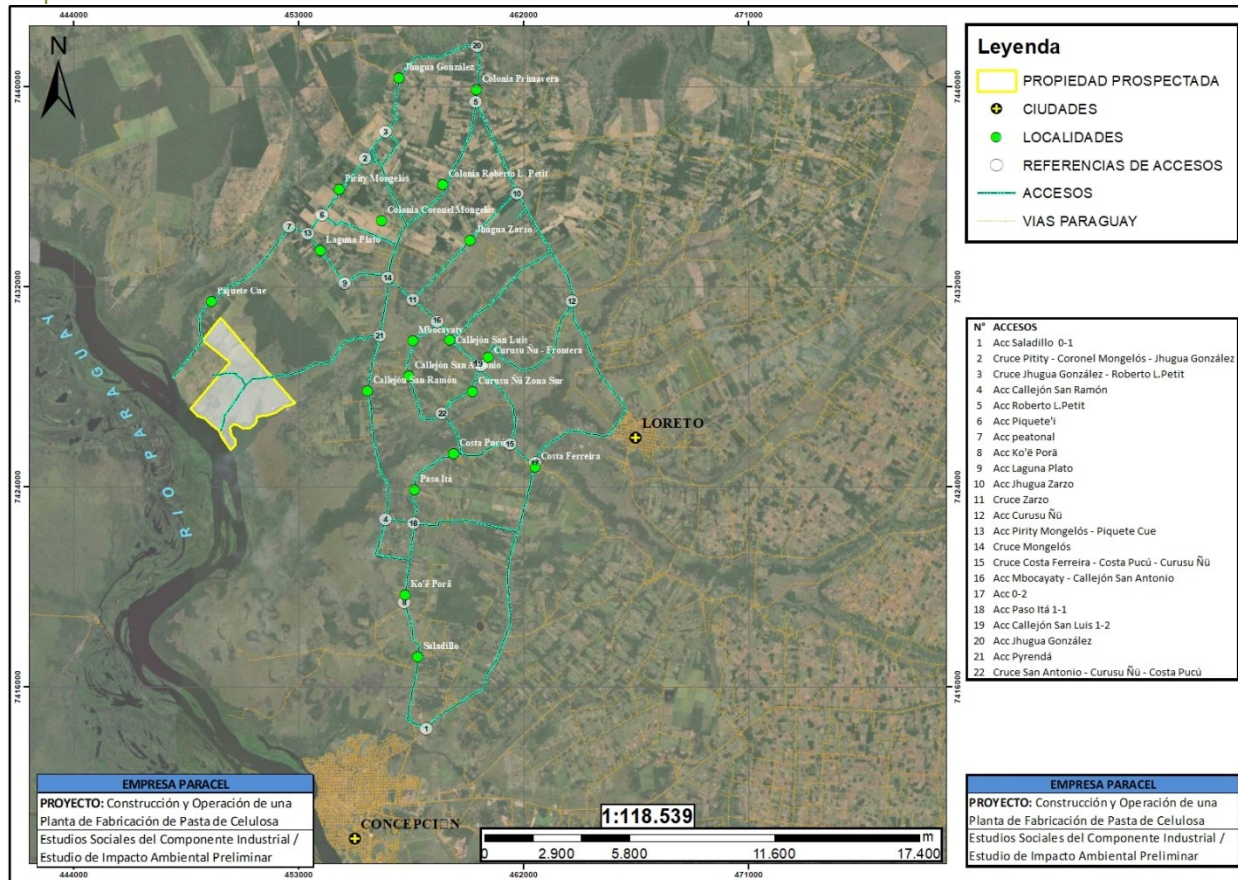
4.2.5.2. Characterization of each identified micro-territory

Map 10 shows the record of 18 micro-territories that are structured in this document according to study areas of influence. In addition, as a strategy for approaching the territory, the roads that interconnect the communities and lead to the prospected property area are referenced.

The micro-territories are described from the observed spatial characteristics, the relationships and interconnections established in the social and geographical sphere and the perception of the key informants; endowing with qualities that confer a collective identity of the population that can be visualized in greater detail in the subsequent paragraphs.

The information presented in this section is based on field records prepared from community interviews with key referents in the area, within the framework of the socioeconomic characterization of the project's AID. It should be noted that the territory has the peculiarity of being a rural area, and in its entirety depends on the municipality of Concepción.




Map 11. Identified micro-territories





The following chart records information related to the mapped micro-territories; which are expressed below according to the volume of data obtained by community in relation to:





- Year of conformation
- Approximate distance in relation to the mill (distance in a straight line),
- Approximate distance in relation to the departmental capital (distance measured by route),
- Boundary micro-territories,
- Access roads,
- Special features and,
- Main holidays.




Chart 67. Descriptive summary of identified micro-territories

Micro-territories	Description
 <p>Colony Roberto L. Petit- Approximated distance in relation to the mill: 6.81 km.</p>	<p>Approximate distance from Concepción: it is located about 23 km from the departmental capital.</p> <p>Bordering micro-territories: Colony Cnel. Mongelós, Mongelós Pirity, Jhugua González, Jhugua Zarzo.</p> <p>Most used Access roads to the community: From Concepción, through Saladillo, through San Ramón and an intersection known by the residents as the Mongelós crossing (Piquete Cue access). From Loreto, through Costa Ferreira, through Curuzu Ñu and Luis Alley. Less frequently used: Paved road Vallemí - Concepción, access Jhugua González. Paved road Vallemí - Concepción, access Jhugua Zarzo.</p> <p>Particularities: This micro-territory acts as a focus or center for communities in the area, since it is home to health, safety and education institutions and a horse race where horse races are held. In addition, due to its location it is used as a meeting point for meetings by different community organizations. The USF construction works are expected to be completed in 2021. Temporary attention is provided to the ACPN premises located in the neighboring community of Colonia Cnel. Mongelós.</p> <p>Main Festivity: Cristo Rey, is celebrated on the third Sunday of November.</p>
 <p>Colony Cnel. Mongelos Approximated distance in relation to the mill: 6.67km.</p>	<p>Year of conformation: It was formed in 1921.</p> <p>Approximate distance from Concepción: it is located about 21km from the departmental capital.</p> <p>Bordering micro-territories: Colony Roberto L. Petit, Pirity Mongelós, Laguna Plato.</p> <p>Most used access roads to the community: The community of Colonia Coronel Mongelós is connected through local roads (all weather), the most used accesses being the same as those indicated in the description of the community of Colonia Roberto L. Petit.</p> <p>Particularities: A street divides the towns of Colony Cnel. Mongelós and Colony Roberto L. Petit. The School and College are located 500 meters from Police Station 18 in the neighboring town. At the organizational level, they are adhered in favor of the request for the district of Paso Horqueta; like other residents of neighboring communities.</p> <p>Main Festivity: On September 24 the day of the Virgen de las Mercedes is celebrated; Patron Saint of the community.</p>
 <p>Pirity Mongelós Approximated distance in relation to the mill: 4.54 km</p>	<p>Approximate distance from Concepción: It is located approximately 25 km north of the capital of the department.</p> <p>Bordering micro-territories: The neighboring communities are Colony Cnel. Mongelós, Colony Roberto L. Petit and Jhugua González.</p> <p>Most used access roads to the community: Cruce Mongelós, which connects the San Ramón Alley road with Saladillo (from Concepción), passing through Laguna Plato; and the Intersection between Colony Roberto L. Petit and Jhugua González.</p> <p>Particularities: It is called Pirity because in the area there is a pirizal of water. About 45 families live. The community has a school; attended by boys and girls from the area and neighboring communities such as Laguna Plato and Piquete Cue.</p> <p>Main Festivity: San José, March 19.</p>

	<p>Approximate distance from Concepción: it is located 23 km from the departmental capital.</p> <p>Bordering micro-territories: Colony Roberto L. Petit, Colony Cnel. Mongelós, San Luis Alley.</p> <p>Year of conformation: In 1950 the first six settlers settled in the area; is recognized as a community in 1988.</p> <p>Most used access roads to the community: Most used access roads to the community: It can be accessed through the Vallemí-Concepción asphalt road; using the San Ramón Alley local road, connecting with Saladillo from Concepción. Another alternative is to enter through the town of Costa Ferreira, passing through the community of Curuzu Ñu and San Luis Alley, up to the intersection known as Zarzo crossing.</p> <p>Particularities: Approximately 25 houses and 50 families are registered. The area has a school up to 6th grade. Most continue their studies at the school of Cnel. Mongelós.</p> <p>Main Festivity: Sagrada Familia, is celebrated on the last Sunday in December. There are bullfights, lottery games, Mass, Baptism, First Communion, and parties.</p>
<p>Jhugua Zarzo Approximated distance in relation to the mill: 7.56km.</p>	
	<p>Approximate distance from Concepción: It is located 22 km north of the urban area of the city of Concepción.</p> <p>Year of conformation: It was formed approximately 100 years ago, as was the neighboring community of Piquete Cue.</p> <p>Bordering micro-territories: Piquete Cue, Pirity Mongelós.</p> <p>Most used access roads to the community: One of the ways to access the area is through the Mongelós junction that joins the road to the town of San Ramón Alley with Saladillo (from Concepción); or through the intersection of Colony Roberto L. Petit and Jhugua González, passing through Pirity Mongelós.</p> <p>Particularities: Through the Pro Health Commission, the creation of a Health Post was requested and construction works are expected to begin in the course of 2020.</p> <p>Main Festivity: December 8th, Virgen de Caacupé.</p>
<p>Laguna Plato Approximated distance in relation to the mill: 3.43km.</p>	
	<p>Approximate distance from Concepción: it is located 28km from the departmental capital.</p> <p>Bordering micro-territories: Jhugua González, Colony Roberto L. Petit.</p> <p>This micro-territory is located in the district of Concepción, approximately 14 km from the city of Loreto.</p> <p>Most used access roads to the community: The community can be accessed by the Vallemí - Concepción route or by entering the side of Police Station 18 in Colony Roberto L. Petit.</p> <p>Particularities: In the area there are an average of 80 homes and a total of 250 people. They have educational institutions and receive medical attention in Paso Horqueta.</p> <p>Main Festivity: San Miguel, September 29.</p>
<p>Colony Primavera Approximated distance in relation to the mill: 12.46km.</p>	<p>Approximate distance from Concepción: it is about 25 km from the departmental capital.</p> <p>Bordering micro-territories: Mbocayaty, Curuzu Ñu, Jhugua Zarzo.</p> <p>Most used access roads to the community: From Loreto, via the Costa Ferreira access, passing the Costa Pucu and Curuzu Ñu junction.</p> <p>From Concepción, by access to Saladillo, passing through Co'ê Porâ crossing located in San Ramón Alley - Paso Itá, Costa Pucu and Curuzu Ñu.</p> <p>From Concepción, by access to Saladillo, passing through Co'ê Porâ, San Ramón, the intersection known as the Mongelós crossing (access to Piquete Cue), Colon Roberto L. Petit and the Jhugua Zarzo crossing.</p> <p>Particularities: There are approximately 60 homes in the area. It has the peculiarity</p>

<p>San Luis Alley Approximated distance in relation to the mill: 6.65km.</p>	<p>of periodically bringing together residents of Tres Cerros, San Alfredo, Paso Barreto, Loreto, Mbocayaty, Jhugua Po'i, Concepción, Piquete Cue, San Ramón Alley, San Antonio Alley, San Luis Alley, Laguna Plato, Potrerito and others; due to the fact they have a Lazo club where they meet with groups of Laceros.</p> <p>Work is currently underway for the construction of a concrete bridge that will facilitate the connection with the Vallemi-Concepción road. This road is mostly used by residents of the communities of San Luis Alley, Jhugua Zarzo, Colony Roberto L. Petit, Colony Coronel Mongelós, Pirity Mongelós and Jhugua González.</p> <p>Main Festivity: On June 21 is celebrated the day of San Luis González</p>
	<p>Approximate distance from Concepción: it is located 28 km from the departmental city.</p> <p>Bordering micro-territories: The neighboring communities are Colony Roberto L. Petit, Pirity Mongelós and Colony Primavera</p> <p>Most used means of communication: The main access to the community is the asphalt road Vallemí - Concepción. You can also use the neighborhood road of Colony Roberto L. Petit and Colony Coronel Mongelós, which connects with Saladillo from Concepción.</p>
<p>Jhugua González Approximated distance in relation to the mill: 9.61km.</p>	<p>Particularities: It is located approximately 5 km from the Vallemí-Concepción asphalt road.</p> <p>The area has a health post that offers health coverage to 134 local families.</p> <p>Main Festivity: On November 15, the day of San Roque González de Santa Cruz is commemorated.</p>
	<p>Approximate distance from Concepción: it is located approximately 19 km from the city of Concepción.</p> <p>Bordering micro-territories: San Antonio Alley, San Luis Alley, San Ramón Alley.</p> <p>Year of conformation: The first inhabitants populated the place more than 50 years ago.</p> <p>Bordering micro-territories: San Antonio Alley and San Luis Alley, Curuzu Ñu.</p> <p>Most used means of communication: From Costa Ferreira, passing through Curuzu Ñü, on the way to San Luis Alley.</p>
<p>Mbocayaty Approximated distance in relation to the mill: 6.10km.</p>	<p>On San Ramón Alley road that connects with the Saladillo access, from Concepción.</p> <p>Particularities: It is located in the center of the neighboring communities of San Antonio Alley and San Luis Alley. Formerly there was a room belonging to Florinda Peña that bore the name of Mbocayaty and served as a reference to get to the place. With the passage of time, it became part of the identity of the area, acquiring this name officially.</p> <p>At present, a total of 20 houses and 21 families are registered. In addition, there is a communal field with 68 ha of extension that are used for raising cattle; and a total of 44 associates.</p>
	<p>Approximate distance from Concepción: it is located 15 km from the city of Concepción.</p> <p>Bordering micro-territories: Mbocayaty, Curuzu Ñu, San Ramón Alley, Costa Pucu.</p> <p>Year of conformation: approximately 51 years ago.</p> <p>Most used means of communication: To enter the community from Loreto, through the Costa Ferreira access, passing the Costa Pucú and Curuzu Ñu junction.</p> <p>From Concepción, by access to Saladillo, passing through Co'ê Porâ, crossing San Ramón - Paso Itá, Costa Pucú and Curuzu Ñu.</p>
<p>San Antonio Alley Approximated distance in relation to the mill: 4.76km.</p>	<p>From Concepción, by access to Saladillo, passing through Co'ê Porâ, San Ramón Alley, crossing Mongelós, Colony Roberto L. Petit, crossing Jhugua Zarzo and San Luis Alley.</p> <p>Particularities: In the community there are a total of 52 families and 242 people. The micro-territory is made up of an estimated total of 245 people. It receives the name of San Antonio Alley in honor of San Antonio de Padua. It has a USF that provides care</p>

	<p>to a total of 9 communities. They have a Health sub-council made up of 3 representatives from each micro-territory.</p> <p>Main Festivity: On June 13 is celebrated on the day of San Antonio of Padua. The activities for that day consist of: procession, mass, sports activities, artistic festival and a dance party.</p>
 <p>Paso Ita Approximated distance in relation to the mill: 6km.</p>	<p>Approximate distance from Concepción: about 10 km from the city of Concepción.</p> <p>Bordering micro-territories: Costa Pucu, Co'ê Porâ, Costa Ferreira, Curuzu Ñu</p> <p>Most used means of communication: From Concepción, entering through the community of Saladillo, passing through Ko'ê Porâ and the detour that interconnects with the community of San Ramón Alley.</p> <p>-From Loreto, via the Costa Ferreira access, passing the Curuzu Ñu junction and the Costa Pucu community.</p> <p>Particularities: It is located in the center of the towns of Co'ê Porâ and Costa Pucu; and 5km from USF of San Antonio Alley. There are approximately 60 families in the area.</p> <p>Main Festivity: Virgen de los Dolores, September 15</p>
 <p>Costa Pucu Approximated distance in relation to the mill: 6.67 km.</p>	<p>Approximate distance from Concepción: It is located about 13 km from the city of Concepción.</p> <p>Bordering micro-territories: the closest communities are Paso Itá, San Antonio Alley, Curuzu Ñu and Costa Ferreira.</p> <p>Particularities: There are around 56 homes and an average of 200 people in the area. Most used means of communication: they are the same as those mentioned in the description of Paso Ita.</p> <p>Main Festivity: Its inhabitants meet every May 6 to commemorate the day of the Patron Santo Domingo Sabio.</p>
 <p>Costa Ferreira Approximated distance in relation to the mill: 9.86km.</p>	<p>Approximate distance from Concepción: It depends institutionally on the municipality of Concepción and is located about 12 km from the capital of the department.</p> <p>Bordering micro-territories: Curuzu Ñu, Costa Pucu.</p> <p>Most used means of communication: The community of Costa Ferreira is located on a paved road that connects Concepción with Vallemí. Access 0.2 is located in the community of Costa Ferreira.</p> <p>Particularities: Formerly known as Ferreira Cue. The first settlers settled in the area more than 100 years ago.</p> <p>It is an area that has spas including one of the most recognized, the Paso Itá Spa, with a presence in the area for more than 20 years.</p> <p>Main Festivity: Santa Teresita, is celebrated on October 1, there is a novena and a festival to celebrate</p>
 <p>Curuzu Ñu Approximated distance in relation to the mill: 7.78km.</p>	<p>Approximate distance from Concepción: It is located about 15 km from the city of Concepción.</p> <p>Bordering micro-territories: Bordering the micro-territories of Costa Pucu, San Antonio Alley, Mbocayaty and San Luis Alley.</p> <p>Most used means of communication: From Loreto, via the Costa Ferreira access, passing the Costa Pucu junction.</p> <p>From Concepción, entering through the community of Saladillo, passing through Co'ê Porâ, Paso Itá and Costa Pucu.</p> <p>Particularities: It is divided into a South and North zone; the second better known as the Curuzu Ñu border. Both make up a single water commission and there is a system that supplies both areas</p> <p>In the South Zone there is a communal field that has 660 hectares destined to livestock</p>

	and agriculture. Main Festivity: San Pedro and San Pablo, June 29
	Approximate distance from Concepción: The micro-territory is about 13 km from the capital of the department. Bordering micro-territories: It borders the communities of Co'ê Porâ, Paso Ita and San Antonio Alley. Most used means of communication: From Concepción through the community of Saladillo passing through Co'ê Porâ; from Loreto through the Community of Costa Ferreira, passing through Curuzu Ñu, San Luis Alley, Junction Jhugua Zarzo and the intersection known as Junction Mongelós; or through Costa Ferreira, passing through Costa Pucu, Paso Ita and crossing San Ramón. Particularities: There are approximately 40 homes in the area. The school in the area has a level of schooling up to the second cycle of elementary school. Main Festivity: On August 31, the Patronal Festival is celebrated in honor of San Ramón.
San Ramón Alley Approximated distance in relation to the mill: 2.99km.	
	Approximate distance from Concepción: The community is located about 6 km from the city of Concepción. Bordering micro-territories: It borders the micro-territories of Saladillo, San Ramón Alley and Paso Ita. Most used means of communication: This micro-territory is connected through local roads (of all time), being the most frequent From Concepción, through Saladillo. From Loreto, through Costa Ferreira, through Costa Pucu and Paso Ita. Particularities: There are approximately 150 families in the area. Main Festivity: Sagrado Corazón de Jesus; it is celebrated on the third Sunday of June
Co'ê Porâ Approximated distance in relation to the mill: 7.16km.	
	Approximate distance from Concepción: it is located about 2 km from the departmental capital. Bordering micro-territories: Co'ê Porâ Most used means of communication: You can enter the community through two main routes: From Concepción by the Concepción-Vallemí paved road. From Loreto, using the access to Costa Ferreira, passing through Costa Pucu, Paso Ita and Co'ê Porâ. Particularities: It is called Saladillo for the type of terrain; that has characteristics similar to the Paraguayan Chaco. It is one of the main roads used by residents of the area because it is less than 1km from the road that connects Vallemí with Concepción. In the area there are approximately 90 homes with an average of 400 people in total. The community has a school, a college belonging to the Congregation of the Sisters. Azules, a Recreation Center with swimming pools and a field used for women's and men's soccer tournaments. People of all ages and from various communities participate in this activity to encourage their teams or share with friends and neighbors. Main Festivity: San José, March 19
Saladillo Approximated distance in relation to the mill: 10.93km	

Source: Elaboration based on data obtained from interviews to key actors of the micro-territories.

Registry of institutions and reference sites identified

This section allows you to graphically view the institutions and sites of interest identified by each micro-territory. In the study area, educational institutions, spas, water systems, cemeteries, police stations, churches and some open spaces such as squares and sports sites were observed.

The spas are places frequented by residents of the area and other cities as a space for recreation and leisure; some charge a minimum entrance fee so that visitors can use the facilities of the place.

In the Saladillo area, the 20 de Octubre field is used for women's and men's soccer tournaments. It is frequented by neighbors and residents of the surrounding areas.

There are hardly any squares in the area; A record was only obtained from Plaza San Pedro, located in the Curuzu Ñu area. It is used by residents of the place mainly.

Below is a photographic record of the identified sites.

Chart 68. Registry of recreational places

Photographic Record	Recreational Place	Micro-territory
	Sin Colales Watering Place	San Ramón Alley
	Vy'a Renda Watering Place	San Ramón Alley
	La Familia Watering Place	Costa Pucu
	Ita Watering Place	Costa Ferreira
	San José Recreational Center	Saladillo
	20 de Octubre Field	Saladillo
	San Pedro Square	Curuzu Ñu

In the area, some cemeteries were observed that, although they are located in a defined micro-territory, are generally spaces shared between the communities. Cemeteries were registered in the micro-territories of Co'ê Porâ, San Ramón Alley, San Antonio Alley and Jhugua González. Reference photographs are incorporated below.

Illustration 8. Reference pictures



Cemetery Curuzu Ñu



Cemetery Co'ê Porâ



Police Station -Colony Roberto L. Petit

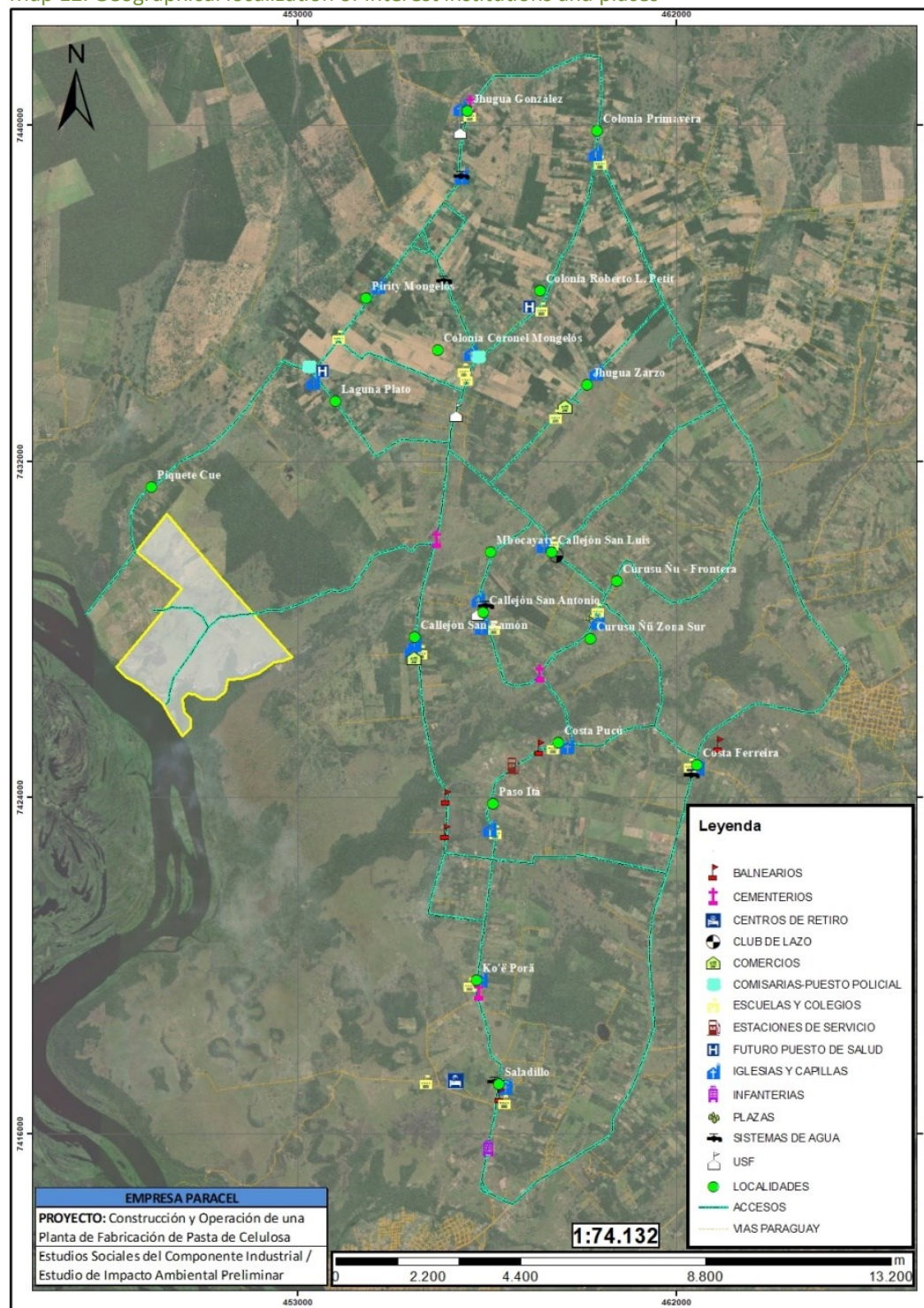


Police Post Laguna Plato

In terms of security, there is a police post in Laguna Plato and a police station located in Colony Roberto L. Petit with an intervention area for the communities of: Colonia Cnel. Mongelós, Pirity Mongelós, Jhugua González, Laguna Plato, Picket cue, Mbocayaty, San Ramón Alley, San Luis Alley, San Antonio Alley, Jhugua Zarzo, Col. Primavera.

Below, you can see the geographical location of places of interest such as recreational spaces, water systems, educational and health units, churches and cemetery.

Map 12. Geographical localization of interest institutions and places



4.2.5.3. Presentation of results generated from the field survey process

Population Density

According to projection data corresponding to the 2020 period, the population of the Concepción district amounts to 87,215 inhabitants.

Starting from the information obtained during the field work, it is evident that in the micro-territories there are a total of 4866 inhabitants; corresponding to 5.58% of the estimated population in the projected evolution line.

Chart 69. Total population in micro-territories of the identified district of Concepción

Microregion	Micro-territories	Number of Women	Number of Men	General Total
1	Colony Roberto L. Petit, Colony Cnel. Mongelós, Purity Mongelós, Jhugua Zarzo, Laguna Plato, Piquete Cue,	734	900	1634 ¹¹⁹
	Jhugua González,	244	288	532 ¹²⁰
	Colony Primavera	-	-	250 ¹²¹
2	San Luis Alley, Mbocayaty, San Ramón Alley, San Antonio Alley, Curuzu Ñu, Costa Pucu, Paso Ita, Co'ê Porâ and Saladillo			2450 ¹²²
	Costa Ferreira	-	-	120
Obs. Data disaggregated by gender were obtained for 8 communities. Two of the 3 health units provided official data in greater detail. The chart that presents general data is based on the perception of key interviewees.				4866

Source: Elaboration based on data obtained from key actors of the micro-territories.

Homes and Dwellings

According to data provided by the key referents of the health micro-regions and inhabitants of the micro-territories, there are a total of 661 dwellings in micro-region 1 that includes the micro-territories of Colonia Roberto L. Petit, Colonia Cnel. Mongelós, Purity Mongelós, Jhugua Zarzo, Laguna Plato, Piquete Cue, Jhugua González and Colonia Primavera.

In the micro-territories that are part of micro-region 1, no official data were obtained during the interview with a health reference in the area in greater detail by micro-territories. Therefore, approximate data are presented based on the data provided by some residents. The total being 356 dwellings without data from the micro-territories of Callejón San Antonio, Curuzu Ñu, Co'ê Porâ.

119 Interview referring to the Colony Roberto L. Petit Health Unit. Date 17.01.2020

120 Interview referring to the Jhugua Gonzalez Health Post. Date 20.01.2020

121 Interview referring to the Colony Primavera Neighborhood Commission. Date: 20.01.2020

122 Interview referring to the Callejón San Antonio Health Unit. Date 21.01.2020

Chart 70. Number of houses in the microregion 2

MICRO-TERRITORIES	NUMBER OF HOUSES
SAN LUIS ALLEY	60
MBOCAYATY	20
SAN RAMÓN ALLEY	40
SAN ANTONIO ALLEY	-
CURUZU ÑU	-
COSTA PUCU	56
PASO ITA	60
CO'Ê PORÃ	-
SALADILLO	90
COSTA FERREIRA.	30
TOTAL	356

Source: Elaboration based on data obtained from key actors of the micro-territories

Services

Water Systems

The majority of those interviewed in the AID mentioned that all the micro-territories have a water system coming from the local sanitation board, as already mentioned in the characterization of the project's IIA. Communities are often left without supplies due to permanent power outages in the area; since without it the engine cannot be started. To alleviate or prevent these shortcomings, cases were observed such as those of the USF of San Antonio Alley, which has its own water reservoir (tank) that is used when there is a shortage; but it is supplied from the same source of water from the community. There are only 2 villagers who have a well¹²³. Others, such as the communities of San Luis, must move to neighboring communities; or have water tanks; but it is not applicable to all cases.

Waste Treatment

Regarding the final disposal of waste, it is mentioned in the description of the department of Concepción that the majority of the population resorts to burning because they do not have a waste collection service¹²⁴.

It was observed that this statement is applicable to the micro-territories of the project's AID. In the following chart it can be seen that 59% refer that the final treatment consists of burning, 38% buries and on a smaller scale corresponding to 3% mention that they deposit their waste in the farm (this system applies to organic waste).

Chart 71. Solid waste treatment

Micro-territories	Burning	Bury	Throw it in the farm
San Ramón Alley	3	1	-
San Luis Alley	2	1	-
San Antonio Alley	1	1	-
Colony Primavera	-	1	1
Costa Pucu	3	1	-
Jhugua González	1	1	-
Jhugua Zarzo	2	2	-

123 Interview to health referent. Date 01.21.2020

124 See page 17.

Co'ê Porâ	4	1	-
Curuzu Ñu	3	1	1
Laguna Plato	4	4	-
Mbocayaty	2	1	-
Pitity Mongelós	1	-	-
Colonia Cnel. Mongelós	-	1	-
Paso Ita	1	-	-
Colonia Roberto L. Petit	6	4	-
Saladillo	4	3	-
Costa Ferreira	1	1	-
Total	38	24	2

Source: Elaboration based on data obtained from key actors of the micro-territories.

Thus, vacant lots near the urban radius of the city were also identified that are used as landfills in the absence of collection service in the area.

Illustration 9. Picture took in the micro-territory: Saladillo regarding waste disposal



Sanitary and/or storm sewer

There is no sanitary and / or storm sewer system for the elimination of sewage or residual waste; and a high percentage of households have latrines. This can be compared with the characterization of the AII for the Department of Concepción and the results of the processing of interviews by micro-territory in the AID. In this sense, it can be observed that 43% refer to the use of latrines, 43% manhole and 14% have a manhole and/or septic chamber for the disposal of sewage waste in homes.

Chart 72. Sanitary and/or storm sewer

Micro-territories	Septic Tank	Septic Chamber	Latrine
San Ramón Alley	3	1	2
San Luis Alley	2	-	2
San Antonio Alley	1	-	1
Colony Primavera	1	-	
Costa Pucu	2	1	2
Jhugua González	1	-	1
Jhugua Zarzo	2	1	1

Co'ê Porâ	5	2	3
Curuzu Ñu	3	1	3
Laguna Plato	2	1	5
Mbocayaty	1	-	2
Pirity Mongelós		-	1
Colony Cnel. Mongelós	1	-	1
Paso Itá	1	-	1
Colony Roberto L. Petit	4	3	5
Saladillo	4	-	4
Total	34	11	34

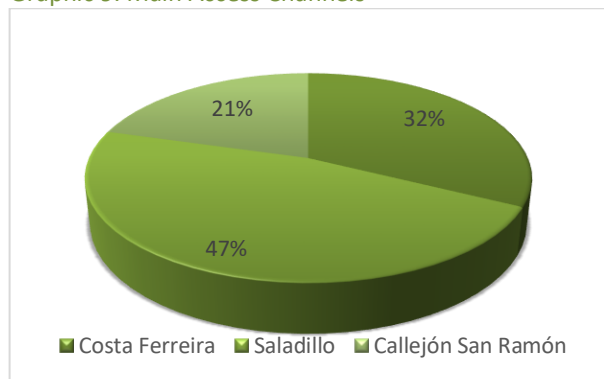
Source: Elaboration based on data obtained from key actors of the micro-territories.

Communication Channels

Considering the survey carried out, the most used roads indicated by the inhabitants are: Saladillo, Costa Ferreira and San Ramón.

In the territory, you can travel on local roads with gravel paving in the areas of Saladillo, San Ramón Alley, Paso Ita, Costa Pucu, Curuzu Ñu. Others, such as the case of the communities of Colony Roberto L. Petit, Colony Cnel. Mongelós, Mongelós Pirity, Laguna Plato, Mbocayaty, San Antonio Alley and Jhugua González have dirt roads. As the interviewees refer; many of these roads are in poor condition. This leads to communities being isolated on many occasions; specifically, in times of rain; since the access roads become impassable.

Graphic 9. Main Access Channels



Source: Elaboration based on data obtained from key actors of the micro-territories

Illustration 10. Pictures of micro-territories in rainy seasons



Micro-territory: San Ramón Alley



Micro-territory: Roberto L. Petit



Crossing Costa Pucu-Curuzu Ñu-Costa Ferreira



Micro-territory: San Luis Alley, detour Mbocayaty

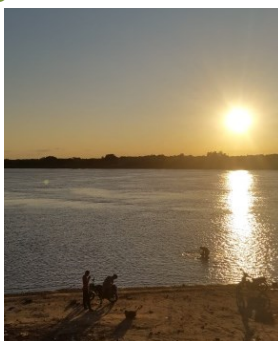
Transport

All of the interviewees state that the area has not had public transport for approximately 15 years. This is due to the massive increase in the use of motorcycles to travel, which shows that it is the main means of transport used. Below is a reference photographic record at the district and micro-territory level of the AID.

Illustration 11. Pictures of the area of the AID



Micro-territory: Crossing San Ramón-Paso Ita



District: Concepción



District: Horqueta



Distrito: Belén



Micro-territory: Saladillo

Use of Technologies

Regarding the use of technologies, 53% stated that they have a cellular device, of which 47% have access to an internet connection; being the most used social networks WhatsApp and Facebook.

One of the problems identified by the residents is the lack of signal in the area, which makes communication difficult. At the same time, they pointed out that the installation of a network system is necessary to improve the service. Next, chart 73 is recorded by micro-territory.

Chart 73. Use of technologies

Micro-territories	Telephone	Internet	WhatsApp	Facebook
San Ramón Alley	3	3	2	-
San Luis Alley	2	1	2	1
San Antonio Alley	1	1	1	1
Colony Primavera	1	-	-	-
Costa Pucu	3	3	2	1
Jhugua González	1	1	1	1
Jhugua Zarzo	1	1	1	1
Co'ê Porã	5	5	4	4
Curuzu Ñu	3	2	2	2
Laguna Plato	4	3	5	4
Mbocayaty	2	1	2	2
Pirity Mongelós	1	1	1	1
Colony Cnel. Mongelós	1	1	1	1
Paso Ita	1	1	1	1
Colony Roberto L. Petit	5	5	3	2
Saladillo	4	4	4	4
Costa Ferreira	1	1	1	1
Total	39	34	33	26

Source: Elaboration based on data obtained from key actors of the micro-territories.

Health Services

In the study area there are 3 health units that provide primary health care. Covering a total of 4516 inhabitants distributed in 16 micro-territories.

The following chart shows some of the main characteristics observed.

Chart 74. Health Units

Category	Localization	Micro territories	Population	Characteristics
USF	Colony Roberto L. Petit	Colony Roberto L. Petit, Colony Cnel. Mongelós, Jhugua Zarzo, Laguna Plato, Purity, Piquete Cue, and neighboring ranches.	Total in the area: 1634 Women: 734 Males: 900 Children from 0 to 27 days: men 2 Children from 28 days to 11 months: women 9, men 12 Children from 1 to 4 years old: women 65, men 61 Children from 5 to 14 years old: women 147, men 186 Women 15-49 years: 340 Women 50 to 64 years: 100 Men aged 15 to 64: 539 Men and women aged 65 and over: women 73, men 100	The USF has 5 community agents; 1 nursing assistant, 1 Degree in Nursing and 1 Doctor in Family Medicine. They are providing care at the ACPN headquarters while the construction of the new premises is completed
USF	San Antonio Alley	San Luis Alley Mbocayaty San Ramón Alley San Antonio Alley Curuzu Ñü Costa Pucú Paso Itá Co'ê Porâ Saladillo	2450 people total	20 years ago it functioned as a health post. For 10 years it has been classified as a Family Health Unit. This year the health council made up of sub-councils in each community is renewed. Each Health Sub-council has 2 to 3 members per community for representation. The USF has had 3 health agents for 4 months. In addition, there is 1 doctor for general medical care, 1 Nursing graduate, 1 nursing assistant, 1 doctor for dental care
Health Post	Jhugua González	Jhugua González	Total in the area: 532 Women: 244 Males: 288 Children from 0 to 27 days: men 1 Children from 28 days to 11 months: women 2, men 2 Children from 1 to 4 years old: women 23, men 14 Children from 5 to 14 years old: women 54, men 51 Women 15 to 49 years: 129	The health post has a Licentiate in Nursing, a Community Health Agent and a Doctor (general services). The hours of operation are from 8:00 a.m. to 7:00 p.m. and the days for home visits are Tuesdays and Thursdays.

Category	Localization	Micro territories	Population	Characteristics
			Women 50 to 64 years: 26 Women 65 years and over: 22 Men ages 15-49: 161 Men ages 50 to 64: 26 Men 65 years and over: 21	They are currently fighting to install a Family Health Unit

Source: Elaboration based on data obtained from key actors of the micro-territories.

Educational Institutions

A total of 15 educational establishments were registered, all corresponding to the basic school.

There is a total of 4 intermediate level educational institutions located in the micro-territories of Colony Primavera, Colony Cnel. Mongelós, Saladillo and Curuzu Ñu.

The towns of Mbocayaty and Laguna Plato do not have educational establishments; Those who, due to a question of proximity, go to the educational center closest to the community.

According to the Municipal Development Plan of Concepción (2016), referenced in previous paragraphs¹²⁵ there are 50 institutions located in the rural area. In this sense, the institutions registered in the micro-territories represent 30% of the existing rural educational offer in the district.

The following chart shows a list that contains the educational institutions corresponding to levels of Basic School Education and Secondary Education.

Chart 75. Educational Institutions

Photographic record	Micro-territories	Educational Institutions
	San Ramón Alley	Basic School Nº 4918 "San Ramón"
	San Luis Alley	Basic School Nº 4917 "Florinda Arce de Páez"

¹²⁵ Summary of the District of Concepción, see page 89.

Photographic record	Micro-territories	Educational Institutions
	San Antonio Alley	Basic School N° 2583 "San Antonio de Padua"
	Costa Pucu	Basic School N° 1729 "Santo Domingo Sabio"
	Jhugua González	Basic School N° 4922, San Roque González de Santacruz
	Jhugua Zarzo	Basic School "Don Juan Antonio Zaracho"
	Co'ê Porâ	Basic School N° 841 "Sagrado Corazón de Jesús"

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Photographic record	Micro-territories	Educational Institutions
	Saladillo	School Inmaculada Concepción “Irene Carduz” (Training Center)
	Saladillo	Basic School Nº 4909 “Don Trifón Echague”
	Costa Ferreira	Basic School Nº 1729 “Santo Domingo Sabio”
	Colony Primavera	Basic School No. 1721- Jesús Misericordioso National School Jesús Misericordioso

Source: Elaboration based on data obtained from key actors of the micro-territories.




Poverty

From the data referred to the department of Concepción in terms of poverty, it can be observed that approximately 107,097 people are in poverty and 15,911 in extreme poverty. Although the trend is towards the concentration of poverty in urban areas, the outlook for the rural sector is still a relevant indicator in quantitative and qualitative terms¹²⁶.

In this sense, the actors consulted in the micro-territories pointed out aspects related to social and economic problems. The following chart shows data provided by key referents of the micro-territories studied. It presents the five main social problems indicated on a rating scale from 5 to 1; in order from highest to lowest prioritization.

¹²⁶ See item about Poverty, Distribution, Unsatisfied Basic Needs Page 21

Chart 76. Prioritization of social problems in the micro-territories of the Concepción's district

	Referenced in at least 3 levels of prioritization
	Referenced in at least 4 levels of prioritization
	Referenced in at least 5 levels of prioritization

Problems regarding social and cultural aspects	Priority 5	Priority 4	Priority 3	Priority 2	Priority 1	Total Mentioned Amount
Cattle	9	4	1	1	0	15
Access to education	2	-	1	3	1	7
Road insecurity	3	4	3	2	0	12
Uprooting	3	3	2	3	1	12
Emigration	2	3	-	1	1	7
Migration	5	5	4	3	4	21
Poverty	4	1	3	1	1	10
Insecurity/Theft	6	6	-	-	1	13

Source: Elaboration based on data obtained from key actors of the micro-territories

Considering the established system, it is visualized that the main factors in order of priority are: cattle ranching (priority 5), insecurity/theft (priority 4), migration (priority 3), access to education, migration and uprooting (priority 2) and migration (priority 1).

According to the assessment scale, it is observed that migration was mentioned as the main problem in priority 3, 2, and 1; and it was also referenced in priority 4 and 5.

Given this particularity, it is interesting to visualize the degree of significance and importance that a factor acquires considering, in addition to the frequency of appearance, the fact of being identified in the different levels of prioritization. For a better visualization, the data is arranged in the following chart.

Social Problems	Number of Levels	Total Amount
Uprooting	5 levels	12
Migration	5 levels	21
Poverty	5 levels	10
Cattle	4 levels	15
Access to Education	4 levels	7
Road Insecurity	4 levels	12
Emigration	4 levels	7
Insecurity/theft	3 levels	13

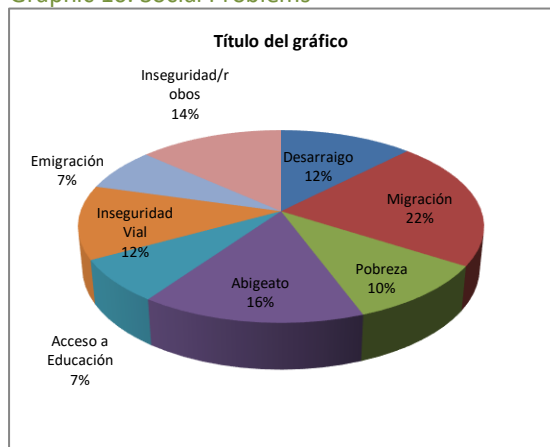
Source: Elaboration based on data obtained from key actors of the micro-territories

Considering the established prioritization system, it is observed that the factors referenced in all instances are: migration, uprooting and poverty.

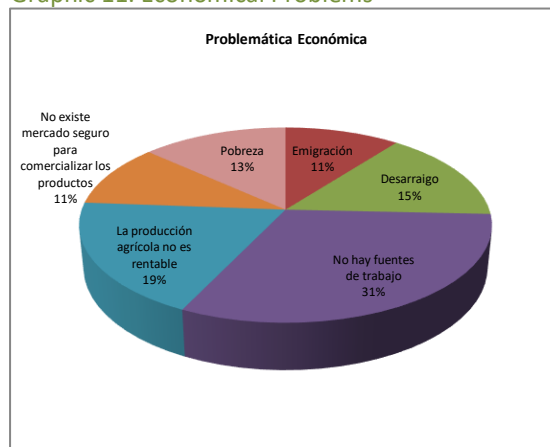
Rustling, road insecurity, access to education and emigration are mentioned in 4 of the three levels; and insecurity/theft is highlighted in 3 levels of prioritization.

In relation to social problems; In terms of quantification, they represent the following in order of importance: migration 22%, rustling 16%, insecurity/theft 14%, uprooting and road insecurity 12%, poverty 10%, access to education and emigration 7 %.

Graphic 10. Social Problems



Graphic 11. Economical Problems



Source: Elaboration based on data obtained from key actors of the micro-territories

However, as economic problems, the lack of sources of work (31%) is mentioned in the first place, followed by the lack of profitability of agricultural production (19%), uprooting (15%), poverty (13%) and in fifth place the lack of a secure market to market the products and emigration (11%).

In both cases the form of assessment varies, but factors such as poverty, emigration and uprooting are referenced both in the case of social and economic problems. These factors refer to socio-historical aspects; therefore, they cannot be considered in isolation but as phenomena with a greater or lesser degree of interdependence depending on the level of observation that is established.

Economic Activities and Income

The average income in the department of Concepción is almost 40% lower than in Amambay and 7.45% higher than in San Pedro, as referenced in the characterization item of the IIA ¹²⁷.

Chart 77. Main economic activities

Economic Activities	Agriculture	Cattle Raising	Commerce	Day Laborer/Changa
San Ramón Alley	3	1	2	1
San Luis Alley	2	2	1	2
San Antonio Alley	1	1		1
Colony Primavera	1		1	1
Costa Pucu	3	3	3	2
Jhugua González	1	1	1	1
Jhugua Zarzo	2	1	1	2
Co'ê Porâ	4	3	1	3
Kurusu Ñu	3	2	1	

127 See item about Poverty, Distribution, Unsatisfied Basic Needs Page 19

Laguna Plato	3	5	2	4
Mbocayaty	2	2		
Pirity Mongelós	1	1		
Mongelós	1		0	1
Paso Ita	1	1		
Colonia Roberto L. Petit	7	7	4	3
Saladillo	3	3	3	2
Costa Pucu				
Costa Ferreira	1	1		1
Total	38	34	20	24

Source: Elaboration based on data obtained from key actors of the micro-territories.

The economic activities identified in the area in order of importance are: agriculture, livestock, work as a laborer/changa, and commerce.

A small number of the population has access to a permanent job. Most of the settlers, men and women, are dedicated to agriculture and livestock.

In the territory there is a predominance of small-scale production destined to a greater extent for family consumption and to a lesser extent for sale. Establishments operating at a large-scale production level were also identified.

People who are dedicated to the commercialization of products from the farm and garden report that, at present, the agricultural item is not profitable compared to previous years, where crops such as sesame and spurge were sold at a better price. Price and loss of production due to inclement weather and pests did not represent difficult risks to control.

Likewise, it was mentioned that the low profitability is associated with the absence of a safe market for commercialization, the high costs of transferring production and the lack of sustained technical assistance from local government actors. Therefore, they point out the need for greater accompaniment by local authorities in terms of training and delivery of materials and supplies to work the land; in order to make the peasant family economy sustainable.

Considering the particularities observed in the field of agriculture and livestock. It should be noted that the community of Curuzu Ñu has a communal field; which are community lands that operate under a solidarity contribution system that is intended to improve the infrastructure of the place. There are currently 60 associates. The land was parceled out in 1988, it has 60 hectares in total; where each partner has his lot wired. A fraction of the land is destined to livestock and another to agriculture (farm and garden).

This same system of community organization was observed in Mbocayaty. The land is used for livestock; therefore, the members use the lands for cattle breeding and pasture.

At present there are a total of 14 active members and 30 adherents. Active members must make a monthly contribution for maintenance and at the same time contribute to the cleaning of the land; the others are not obliged to contribute the stipulated amount.

On the other hand, 21% refer that a large fraction of the population engages in trades or wage work or piecework consisting of remuneration for activity or service rendered that is generally linked to an occupation system based on the economy informal. The average daily income is between 65,000 and 75,000 guaraníes. In many cases they face precarious working conditions that are accepted so as not to stop generating income. Among these, it is mentioned that they work more than eight hours, they must carry out other work in addition to what was agreed, they do not charge the entire amount established; among others for what they are part of a doubly vulnerable sector.

Under this logic the works in the neighboring and/or Chaco ranches are grouped. Which consist of the development of tasks for a defined period of time of one day or even months; which does not necessarily translate into a permanent change of residence. Among the activities they carry out are: wiring, painting, cleaning the grounds, caring for animals, carp, planting, among others. This item is characterized by being an activity predominantly of adult and young men.

Although the men are employed in the ranches, the women are the ones who are left to take care of the home and are in charge of raising the children. In addition, they are those that are dedicated to raising small livestock, selling the production of their orchards and farms and others that are usually offered in the fairs organized in squares or the market of the urban area of Concepción or they are sold home for house to neighbors in the area.

Other items that are grouped under this category are: collectors, those who are dedicated to the sale of coal, trocillo (wood for firewood) and macatería.

Illustration 12. Main economic activities



Illustration 13. Picture: cattle raising



17% mentioned commerce as the main activity in the area; this being the fourth most notable aspect. In the micro-territories it is possible to observe the existence of small commercial and service enterprises such as: pantries, butchers, fuel supply center, motorcycle workshop, rubber shops, hairdressers. In the framework of the characterization of the AID, some reference photographs are exposed.

Illustration 14. Pictures of the Curuzu Ñu micro-territory



Illustration 15. Pictures of the Colony Coronel Mongelós micro-territory



Illustration 16. Picture of the Co'ê Porã micro-territory



Illustration 17. Pictures of the Pirity Mongelós micro-territory



Most of these businesses are family-owned; in which household members (boys, girls, adolescents and adults), both women and men have some degree of participation in the development of specific tasks such as: customer service, purchase of supplies and merchandise to restock the premises, collection and cleaning of the place, among others.

As it is a family type, what is collected is part of the daily sustenance so that although income is generated, the people who collaborate in the tasks do not receive remuneration.

Another activity identified in the area, but little referred to is fishing, both for consumption and for sale. The busiest area for fish extraction is Piquete Cue, where there is a path that connects to the river and is frequently used by residents of the area and further afield.

In the community of Laguna Plato there are four families whose economic activity has been fishing for several generations. They have been engaged in fishing, distribution and sale of fish for more than 40 years. These families go to the riverside sites located on the estates of Estancia Santa Clara and San Diego; in the community of Piquete Cue, for the extraction of fish and other times they cross the river in the direction of Santa Bella Island to fish. For sale they have a variety of fish such as Surubi, Mandí'i, Boga, Pacu, Carimbata, Mangú; among others. The costs are stipulated in relation to weight and species. For example, the cost of Surubí per kilo is G. 20,000.

Migration

According to Pereira, in his text "Department of Concepción. Wealth and social inequality", approximately 40% of the people who migrated between 1997 and 2002 went to the Central department, 16% to Asunción and 12% to Amambay. He also refers that "the emigration of the department of Concepción has the face of a woman. 57 out of every 100 migrants... were women"¹²⁸.

The migratory flows identified in the micro-territories have characteristics similar to those mentioned in the previous paragraph, considering some particularities such as those mentioned in the following paragraphs.

Most of the women who migrate from Asunción and Concepción are domestic workers and are seeking access to higher education levels and provide financial support to their families. Women emigrate mainly to Spain and Argentina, they also mostly work as domestic workers, caregivers of children and the elderly.

Previously they sent remittances to the country more frequently. The crisis and the increase in the cost of living are factors that influence the amount and frequency of sending money. Many people no longer return to the territory of origin because the countries where they reside offer conditions and access to basic services of better quality.

Many young people migrate before completing their secondary studies, they work in the ranches of the Chaco because their parents cannot afford their studies and/or the families require a higher income to survive.

4.3. Characterization of the Directly Affected Area (ADA)

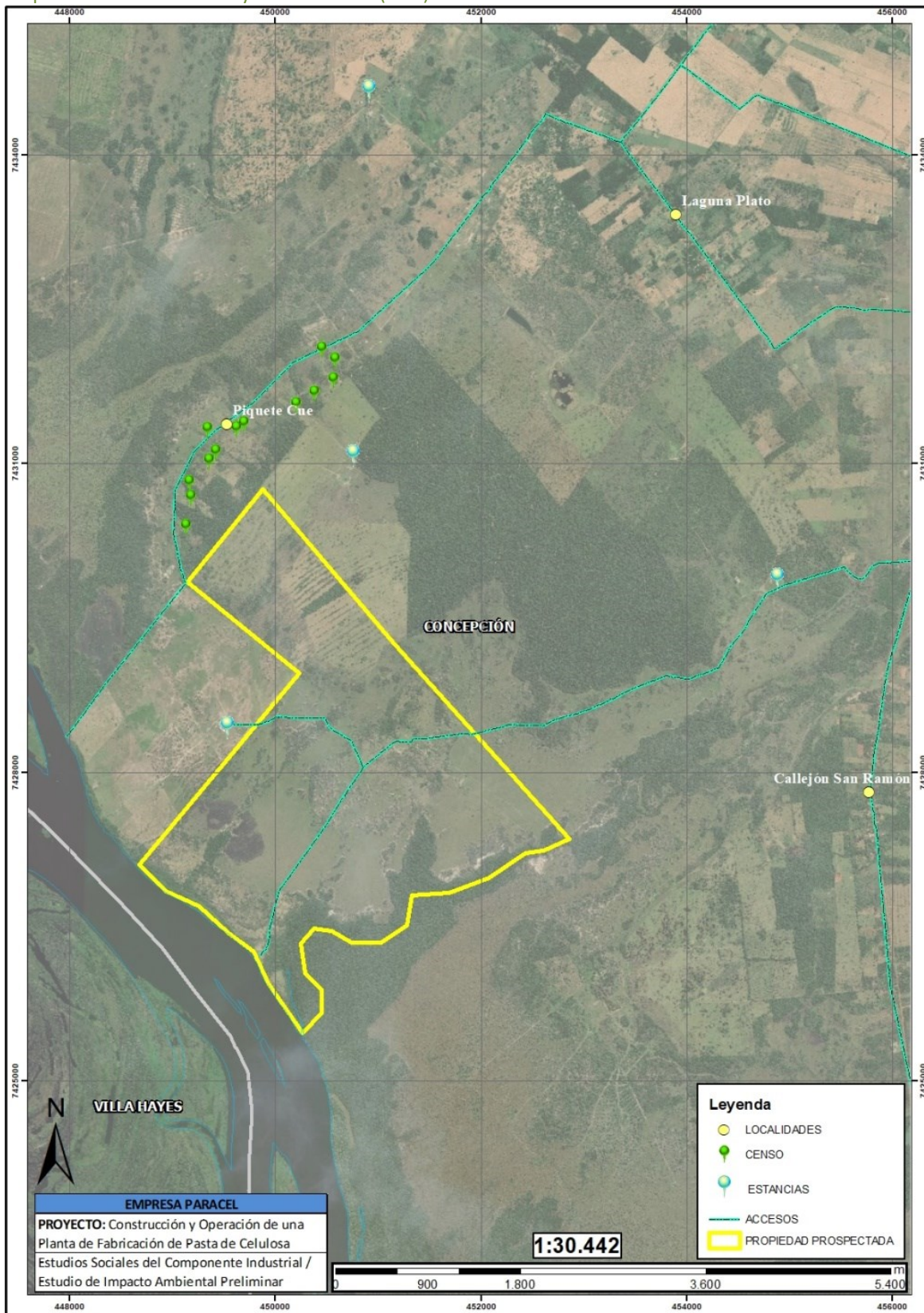
As mentioned in section 2.3. **Description of the areas of influence of the project**, for the study, it is considered as part of the ADA, the social units and communities located in the immediate surroundings of the area surveyed for

128 Pereira, Hugo. "Department of Concepción. Wealth and Social Inequality". Available at: <https://revistascientificas.una.py/index.php/RE/article/view/714>

the installation of the mill, within a radius of 1 km and considering the importance of such closeness, social work was planned prioritizing the initial information gathering in this area.

In this section, on the one hand, a description of the characteristics of the area as a result of direct observation and records made in this framework is made, and on the other, socioeconomic information related to the identified social units will be presented. Both in the AID and in this area, the perception of the inhabitants regarding the undertaking was surveyed. The results obtained have been included in Chapter 5: Survey of Social Perception.

Map 13. Limit of the Directly Affected Area (ADA)



Characteristics of the zone (ADA)

Taking into account the distance delimited for the definition of the ADA, the information survey was carried out in a micro-territory called Piquete Cue, where 13 social units could be visited, these located along approximately 3 km, mostly on the left side of the road (because it is the highest area) and at a distance of approximately 0.36km to 1.49km from the property area.

Likewise, as mentioned, it could be observed that there are ranches in the territory that are outside the analysis radius established for the study. However, given the peculiarity of using the same access routes and being social units adjacent to the enterprise, it was decided to include them as part of the sample to be consulted during the process.

Illustration 18. Picture of the Piquete Cue Access



Source: Picture Registry of the field work. Consulting Team. Concepción. January 2020.

Considering the difficulty of obtaining information from secondary sources and taking into account the variants indicated in previous paragraphs, two alternatives were determined to access precise information that enables the characterization of the area and the survey of social perception consisting of:

Working Methods Used

- Application of a socioeconomic census to the units that are within a 1km radius.
- Application of semi-structured interviews to owners or managers of the rooms adjacent to the surveyed area.

In the case of dwellings, 12 of the 13 units identified were registered because one of the owners was absent during the survey stage (due to travel reasons). The people consulted stated that the heads of household are made up of 11 women and 10 men.

Seven establishments were identified, predominantly cattle ranchers, and four interviews could be carried out; three of which were carried out with the managers or administrators and one with the owner of the establishment.

Two access roads to the community were also observed. One of the paths is located next to the Pirity Mongelós school; and it has exit to the curve before reaching the access gate to the San Diego ranch. This access is frequently traveled on foot or by motorcycle due to its narrow quality.

Illustration 19. Access roads to the community



Source: Picture Registry of the field work. Consulting Team. Concepción. January 2020.

Another way to access Piquete Cue is through the road that connects with the Laguna Plato community. The road is located next to Police Station No. 6 of the aforementioned town and is used by smaller vehicles such as motorcycles, cars, vans and small trucks; It is also traveled on foot by residents and used for the transfer and grazing of animals, since one of the livelihoods of the area is small-scale livestock.

Illustration 20. Access roads to community



Following this path, in a straight line, you reach the access gate of another of the rooms in the area. At this point, on the right bank, you can see a narrow path that can be traveled on foot or by motorcycle. The route leads to the waters of the Paraguay River and is frequently used both by local residents and neighboring communities for fishing and recreation.

Source: Picture Registry of the field work. Consulting Team. Concepción. January 2020.

According to the residents, the community has been established for more than 100 years. The surveyed families affirmed that they had roots in that area for between a minimum of 6 years and 94 years. They also mentioned that they reside in their homes as indicated in the following chart:

Chart 78. Rooting time in the structure

Rooting time in the structure	Number	Percentage
0 to 10 years	8	66.67%
11 to 20 years	1	8.33%
21 to 50 years	2	16.67%
51 to 80 years	1	8.33%
TOTAL	12	100%

Source: Socioeconomic Census, January 2020

Of the total of 12 families registered, 8 declared having roots between 0 and 10 years, 2 families with roots between 21 and 50 years, 1 of them with the highest number of years of roots (between 51 and 80 years); and 1 rooted family between 11 and 20 years old.

Regarding the characteristics of the structures visited, it can be stated that in their totality they are family dwellings; In 50% of them, productive activities of self-consumption are carried out and in 50% they are houses that also have a business and/or some productive activity for sale.

The predominant economic activity in the area is livestock. The families registered in Piquete Cue work mainly by season/day in nearby farms (several in the Cerrito farm), they are also dedicated to the production of milk, cheese and animal husbandry for self-consumption and/or sale.

It could be observed that there are 2 cases (16.67%) in which the condition of the structure is good; and the majority, that is; 10 out of 12 (83.33%) has a regular structure, taking into account the construction materials that predominate in the unit and the condition in which they are found. With regard to tenure, the vast majority claimed to be an owner, specifically 11 and 1 case in which the home was transferred. When asked if they have another property in the area, 10 of them affirmed that they only have the property visited and 2 people have said that they have another property (Concepción, Barrio San Roque and Coronel Mongelós).

Illustration 21. Standard houses of the ADA zone



House in regular conditions



House in good conditions

Although it was observed that more than one house is located on the same property, the people surveyed affirmed that a single family lives in each house, this in its entirety.

Number of people living in a house

A particularity revealed during the census is that, of the 13 families identified, only one belongs to a different family group. Regarding the number of people who live in the house, as can be seen in the following chart, there are cases in which the house is inhabited by a single person, unlike others in which they have 7 people.

Chart 79. Number of people in each house

Number of people living in a house	Number of families	Percentage
1 person	2 families	16.67%
2 people	1 family	8.33%
3 people	3 families	25.00%
4 people	3 families	25.00%
5 people	1 family	8.33%
6 people	1 family	8.33%
7 people	1 family	8.33%
TOTAL: 43 personas	12	100%

Source: Socioeconomic Census, January 2020

Chart 80. Number of people by age group

Under 18 years old	Adults from 18 to 64 years old	Adult older than 65 years old	Women	Men	Total
14	21	8	22	21	43

Source:

Socioeconomic Census, January 2020

There were no cases of pregnant women and people with disabilities. When asked about people with a chronic illness in the family and living in the home, they commented on 2 cases.

Number of people currently working/ Looking for work

When consulted on this point, they mentioned in their entirety 16 people in the family who currently have some type of employment, either outside the home or developing economic activities within (7 women and 9 men), they also commented that there are women who work exclusively as housewives (4) and 11 people, family members who live in the visited homes who are currently looking for work.

Access to Basic Services

In the case of access to services, it was possible to ascertain that regarding;

Electric Energy: 100% of the families registered (12) have electricity.

Drinking Water Network: Although the majority of the department's population according to the permanent household survey, between 2017 and 2018 they have accessed the drinking water supply service via SENASA

and/or the local sanitation board¹²⁹, in the case of the homes in Piquete Cue, none have a drinking water network and the main source of water that household members drink is the well, practically no family performs any treatment, except for one of them (product - bleach is applied after rains). The distance from which it is extracted is less than 10 blocks in all cases.

25% (3 out of 12) of **the water that the household members drink** comes through pipes inside the house, 50% (6 out of 12) has pipes outside the house, but inside the land. 8.33% (1 of 12) well within the field and 16.67% (2 of 12) through the neighbor.

Chart 81. Arrival of water to the population

Drinking Water Arrives by	Houses	%
Pipe inside the house	3	25
Pipes outside the house but inside the land	6	50
Neighbour's	2	16.67
Well within the field	1	8.33
TOTAL	12	100

Source: Socioeconomic Census, January 2020

The water that results from this Source is used, in 100% of the cases for drinking, preparing food, washing clothes, for personal hygiene and cleaning of your home.

Solid Waste Disposal

Regarding solid waste disposal, burning is a method used by the majority (11), not exclusively, but it is evident that this continues to be a deeply rooted practice, in accordance with the departmental level, as indicated in item **4.1.2.4. Households, the dwelling** of this study, which mentions burning as the main form of waste disposal, in addition to highlighting that only a third of the population of Concepción has access to garbage collection services. In the ADA there are also cases (8) in which waste is buried, and to a lesser extent, thrown into a vacant yard, street and/or is recycled. No family has a municipal collection service.

In the same way, what happens with the lack of availability of sewage, considering that no registered family has such a network, a reflection of what happens at the departmental level since only 6.55% of the homes have access to the sanitary sewer network (cloaca) in Concepción¹³⁰.

Through the census, other aspects related to access to services, such as:

- 100% access to telephone service;
- Internet access in 58.33%, that is, 7 families of the 12 that were part of the survey, and
- the absence of public transport service in the area. The communities in the area (such as Piquete Cue) mainly use motorcycles as a means of transportation. There is only one road that is used by its inhabitants to move to other communities in the area, and from there to other accesses to other points in the district and department, also for the transfer of animals.

Access to Health Services

¹²⁹ Item 4.1.2.3: Houses, Dwelling.

¹³⁰ Item 4.1.2.4. Houses, Dwelling.

As mentioned by the people surveyed, the community does not have health services in place, before which they must go to the nearest health posts or centers to receive medical attention. Based on the information referred to, the following data is obtained:

- 8.33% (1 of 12) mentioned that they attend the Loreto City Health Center; located 25 km from the community.
- 8.33% (1 of 12) indicated that they attend the Concepción Health Center; distant about 40 km from the community.
- On the other hand, 91.67% (11 out of 12) of the studied population attends the Roberto L. Petit Colonia Health Post, which is located at a distance between 9 and 17 km; (about an hour by motorcycle).

Access to Education

At the time of the census, family members who are currently in school were consulted, their academic level, educational institution they attend and distances traveled for such assistance, among others, to which they have affirmed that 13 people 11 attend educational centers, 11 at the primary level, one person at the secondary level and one person at the tertiary level. Most attend public educational institutions (11), eight people attend the Defensores del Chaco school in the Pirity Mongelós town, one go to the Coronel Mongelós College and two to the Concepción Macedo de Denis School, in the Colonia Cnel town. Mongelós, finally one person to the Rosa Mystica Institute and one to the Don Bosco School, both from the city of Concepción. The distances traveled daily vary between 1 km and 10 km (primary and secondary students) and 25 km (tertiary level).

Neighborhood Organizations/commissions existing in the community






All the people surveyed responded that there is no organization in the Piquete Cue community. However, 3 people commented that they belong to an organization, as indicated in the following chart, these are not found in Piquete Cue.

Member of any Organization	Number	Percentage
Si (Association Karape de Laceros and Laguna Plato Health Center Commission)	3	25%
Does not belong to any organization	9	75%
Total	12	100%

Source: Socioeconomic Census, January 2020

Finally, as a summary of the characteristics surveyed of each dwelling located in the ADA, the following chart is presented containing the location, rooting data, number of people living in the unit, employment situation and the photographic record of each of them:

Chart 82. Summary of dwellings of Piquete Cue and their characteristics

Family	Geographical Coordinates	Registered Characteristics	Picture Registry
1	-57.497371, -23.234877	<ul style="list-style-type: none"> - Rooting: 6 years of roots in the structure - People residing in the house: 2 adults and 1 child under 18 - Employment Situation: 1 person with a job and 2 looking for work 	
2	-57.496780, -23.232404	<ul style="list-style-type: none"> - Rooting: 32 years of roots in the structure - People residing in the house: 2 adults, 1 person over 65 and 1 child under 18. - Employment Situation: 3 people with a job and 0 looking for work 	
3	-57.496887, -23.230906	<ul style="list-style-type: none"> - Rooting: 11 years of roots in the structure - People residing in the house: 2 adults and 2 children under 18 - Employment Situation: 1 person with a job and 2 looking for work 	
4	-57.495075, -23.229251	<ul style="list-style-type: none"> - Rooting: 5 years of roots in the structure - People residing in the house: 2 adults, 1 person over 65 and 2 children under 18 - People residing in the house: Employment Situation: 1 person with a job and 0 looking for work 	
5	-57.494401, -23.228139	<ul style="list-style-type: none"> - Rooting: 74 years of roots in the structure - People residing in the house: 1 adult and 1 person over 65 - Employment Situation: 1 person with a job and 1 looking for work 	

6	-57.495193, -23.226429	<ul style="list-style-type: none"> - Rooting: 7 years of roots in the structure - People residing in the house: 1 person over 65 with a job 	
7	-57.492462, -23.226415	<ul style="list-style-type: none"> - Rooting: 10 years of roots in the structure - People residing in the house: 2 adults and 1 child under 18 - Employment Situation: 1 person with a job and 1 looking for work 	
8	-57.491872, -23.225842	<ul style="list-style-type: none"> - Rooting: 10 years of roots in the structure - People residing in the house: 2 adults and 1 child under 18 - Employment Situation: 2 people with a job and 0 looking for work 	
9	-57.48687, -23.22382	<ul style="list-style-type: none"> - Rooting: 8 years of roots in the structure - People residing in the house: 1 person over 65 without a job (is not looking for one) 	
10	-57.485053, -23.222897	<ul style="list-style-type: none"> - Not registered 	

11	-57.48345, 23.22187	<ul style="list-style-type: none"> - Rooting: 3 years of roots in the structure - Cantidad de People residing in the house: 2 adults, 2 people over 65 and 3 children under 18 - Employment Situation: 4 people with a job and 2 looking for work 	
12	-57.483039, -23.220062	<ul style="list-style-type: none"> - Rooting: 50 years of roots in the structure. - People residing in the house: 3 adults, 1 person over 65 and 2 children under 18 - Employment Situation: 1 person with a job and 2 looking for work 	
13	-57.48425, -23.21912	<ul style="list-style-type: none"> - Rooting: 10 years of roots in the structure - People residing in the house: 3 adults and 1 child under 18 - Employment Situation: 3 people with a job and 1 looking for work 	

Source: Own elaboration based on the information obtained in the field. Consulting Team. Concepción- January 2020.

Ranches located in the ADA

As mentioned at the beginning of this chapter, 7 ranches adjoining the area surveyed for the construction of the mill –Estancia Zapatero Cue- were identified. For the registration and characterization of these, 4 interviews were carried out; only for one of the cases was an interview with the owner; the other inquiries were made to authorized personnel, these being responsible or administrators. Information was obtained from 5 establishments because one of those consulted is the administrator of two of the existing ranches.

Considering the above, data of the stays visited are mentioned in terms of location, extension of the territory, staff and main activities carried out. From the records obtained, the following general characteristics can be considered:

- Most of the access gates to the rooms are in the Piquete Cue area.
- One of the establishments leases a fraction of the area surveyed for the installation of the mill. The predominant item is large-scale cattle ranching, although some are also engaged in agricultural production.
- The stays have permanent staff and others hired for specific tasks for specific periods of time. The average number of permanent workers is between 4 to 20 people and the maximum amount of personnel hired per product mentioned is 35 people.

- The property with the largest extension of land has 5850 ha and the one with the smallest proportion has a total of 600ha.

Below are specific data for each establishment as indicated by the interviewees:

The **Pyrenda** farm has four permanent workers and other people are hired for specific jobs. Its production area is Livestock and it leases a total of 1,200 ha. The closest health post for those who live in this area is in Colony Roberto L. Petit and the school in the Mongelós Pirity community.

The Irene Carduz ranch is currently owned by the Blue Sisters, the property originally belonged to the person whose ranch name bears who donated said lands to the organization in 1945. Since then, they have dedicated themselves to carrying out social work in the community. The ranch has a total of 5,850 hectares that start from the first curve located in Saladillo. The Calaverita creek divides the property at the southern boundary of the land.

A fraction of the land is used for agriculture for the production of corn, cassava and another for livestock: there is a total of approximately 880 head of cattle, they also have pigs and are dedicated to raising poultry. Also, on the premises there is a religious technical school, and a boarding school for children between 15 and 18 years old. They have a total of 16 workers permanently and 6 people are hired for specific jobs per day. There are 4 land tenants; 3 of them are dedicated to small livestock (between 10 and 15 heads) and 1 of them on a large scale with 1600 head of cattle.

The Cerrito ranch has a total of 600 ha, adjoining the Zapatero Cue ranch and, as mentioned by its owner, leases 900 ha from it to raise cattle. They have seven permanent workers, these come from Paso Barreto and Concepción.

The San Diego Agroganadera and San Miguel ranches belong to the same Owner. The Estancia San Diego Agroganadera has an area of 5000 ha of land and the Estancia San Miguel 2,400 ha of land. Both ranches adjoin the Cerrito and Zapatero Cue ones. San Diego has a total of 20 permanent workers; and San Miguel 5 and both indirectly employ approximately 35 people in different seasons.

Illustration 22. Pictures of the ranches in the zone



Pyrenda Ranch



Access to Irene Carduz Ranch

Illustration 23. Pictures of the ranches in the zone



Access to San Miguel Ranch



Cerrito Ranch

Illustration 24. Picture of a ranch in the zone



San Diego Ranch

4.4. Cultural Heritage

This section presents the content and main findings of the "Cultural Heritage Report", prepared by the external consultant Lic. Enrique Bragayrac, specialist in cultural heritage and team. The full report is presented in Annex 5.

4.4.1. Synthesis of the main findings

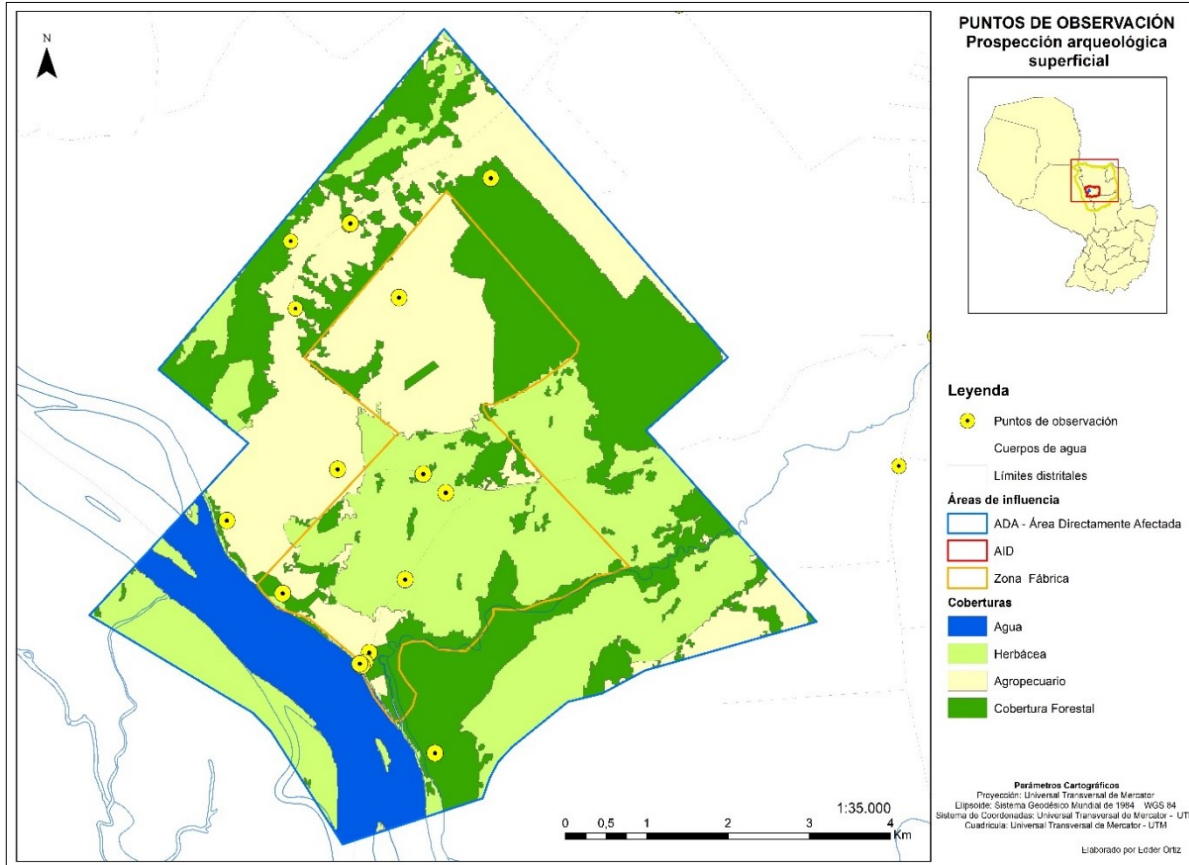
The evaluation of the state of the cultural heritage, had as objectives the recognition of the cultural assets (archaeological, architectural, historical, ethnographic, etc.) present in the project area (including the districts of Concepción, Loreto, Belén, and Horqueta); the individualized evaluation of the impact that its execution could cause on said assets and the design of corrective measures aimed at the suppression or attenuation of such impact, seeking to reconcile the conservation of cultural heritage and the execution of the project involved in it.

The methodology and field work were based on the location of the project area (ADA), adjacent to the Paraguay River, with two accesses by land, with extensions of livestock enterprises, and with small agricultural communities. Due to the characteristics of the study site, with areas differentiated by their current and natural uses, it was impossible to work through quadrants, due to the roughness of some places, fences, and the gallery forest with flooded soils that are difficult to access. For this reason, for the planaltimetric control by areas and observation points, the natural and anthropic systems present (Map 12) in the ADA limits were taken as a basis, well delineated, with areas defined at the territorial level and satellite mapping.

The archaeological surface characterization was carried out extensively throughout the ADA, in order to monitor the potential direct and indirect impacts on the cultural landscape and identify the heritage values at risk, through sampling and observation points in the areas identified on the ground. These are: agricultural area (1,322 ha),

forest cover (1,531 ha), herbaceous (1,586 ha), and water (438 ha). The documentation of the terrain was carried out by arbitrarily selected field observation points (georeferenced), registering those sectors of the terrain that offered natural windows (erosion zones), cultural or other particularities.

Map 14. Map of the Directly Affected Area (ADA)



In the first campaign, the north and northwest sectors were evaluated, showing the most relevant anthropic transformation, with extensive livestock areas. In the second campaign, the southern and southeastern sectors were evaluated, taking the Paraguay River as the limit, with greater relevance near the gallery forests formed by water channels, forest cover in their environment and the river. Because it is an undisturbed area, with natural runoff in its channels, its dynamics leaves surfaces with cultural evidence in drags and outcrops of contexts, not being the case in this entire natural system, since no superficial evidence was found that indicates a historical occupation and/or other relevant cultural elements. The ADA, is released for not presenting superficial contexts of archaeological remains present.

Map 15. Reference zones categorized and presented in layer format with points



REFERENCES

(1) Tajamar, livestock use / ZH. - (2) Natural field - livestock use - (3) Intensive agricultural area - (4) Old jetty house - (5) Forest area in gallery / southwest sector / transects - (6) Forest area in gallery / southeast sector / transects - (7, 8, and 9) Soil and remains found

NOTE: After carrying out the study on cultural heritage, the current limits of the prospective property were updated on the same area, without representing changes for the evaluation and results of this analysis.

For the AID and All of the project, a quantitative inventory of the present cultural heritage was carried out, characterized by an exceptional and particular architecture of a historical period. For the territorial registry of movable/tangible heritage, geographic coordinates were used, obtained through the Avenza Map application, to identify and create categorized reference points and presented in layer formats with points referring to the real estate registered and adjusted to the cadastre.

For the dating of archaeological sites settled in similar contexts along the Paraguay River, current research validates and complements these links; and they indicate the presence of pre-Hispanic societies along the entire Paraguay River, with radiocarbon dates from ca. 100 BC until ca. 300 AD for the Pantanal Tradition (Lamenza, 2015). Reports of rock art findings in the project area are mentioned for the site called Barrero Guaá, near

Gamarra-cué, a place located at the headwaters of the Tagatiyá stream (All), department of Concepción (Díaz-Pérez, 1904). It is also important to point out reports of paleontological remains (Báez Presser, et al. 2004), for flora (fossil plants: fern and coniferous woods - Itapucumí Group), as well as fauna.

Starting from a primary assessment, based on the secondary information available, the importance of a deeply rooted cultural territory can be affirmed, with local testimonies alive and present in their experiential imaginary. Regarding the potential impacts generated, specifically with regard to cultural heritage, we can mention that it will be significantly affected (intangible or intangible heritage), due to changes in habit and significance as social capital.

Chart 83. Assessment and impacts on the evaluated cultural heritage

AREAS/ IMPACTS	TANGIBLE HERITAGE			INTANGIBLE HERITAGE			NOTES
	A	M	B	A	M	B	
Directly affected area			X	←	X		PT/Low impact on the subsoil/potential presence of associated cultural contexts PT/Moderate to high impact due to increased vehicular traffic. PI/Moderate/high impact - on livelihoods/productive areas and immediate environment/social capital
Direct area of influence	←	X		←	X		PT/Moderate impact PT/Moderate to high impact due to increased vehicular traffic and possible new settlements for goods and services. PI/Moderate/high impact on livelihoods and natural environment/ecosystem services. PI/Moderate impact/by loss of collective memory/migration/Roots territorial/identity
Indirect area of influence		←	X	←	X		PT/Low to moderate impact/on the architectural heritage, which is protected and there is a public awareness of respect - tax exemptions are municipal benefits for the safeguarding of heritage. PI/Moderate/high impact on livelihoods and their cultural identity. PI/Moderate impact/loss of collective memory/population growth

Reference: (A) High – (M) Medium – (B) Low - (PT) Tangible Heritage – (PI) Intangible Heritage

In chart 83, it can be observed that the most relevant impacts are in the Area of Direct Influence (AID), since it directly affects their livelihoods and the provision of ecosystem functions and services, initiating a process that would weaken their capital. natural and social, with the loss of collective memory. New settlements and the increase in vehicular traffic are part of the impacts that will affect ways of life.

For the indirect area of influence, a low to moderate impact on tangible heritage (architectural and historical) is observed, since they are protected by Municipal Ordinance and their intervention/conservation is given with authorization through a municipal resolution, thus as its tax exemption (district of Concepción), however, for the districts of Loreto, Belén and Horqueta, the patrimonial houses are around their main squares, all of them preserved and others restored. The collective respect of the population and institutions in the affected districts in the AID, for their tangible heritage is part of their cultural identity.

In the potential impacts identified by areas of intervention (ADA/AID/AII), the loss and need to reinforce livelihoods and cultural identity, present in all stages of the mill implementation process, stands out, in order to generate Rooting, human development and appropriation.

4.4.2. Valuation and Methodology

The Cultural Heritage of a people includes the works of its artists, architects, musicians, writers and scholars, as well as the anonymous creations, arising from the popular soul, and the set of values that give meaning to life, that is, the material works and not materials that express the creativity of that people; language, rites, beliefs, historical places and monuments, literature, works of art, and archives and libraries (Definition prepared by the UNESCO World Conference on Cultural Heritage, held in Mexico in 1982).

Geographic, human and cultural diversity is expressed in its tangible or material heritage (movable, immovable property) and intangible or intangible (intangible heritage); and it makes sense thanks to the appropriation assumed by the communities.

The present study, due to its cultural, historical and archaeological character, defines a geographical space or territory as an action scenario, where a historical construction and a cultural practice were developed, and where the cultural identity of the community or communities that support it is clearly reflected.

The Baseline of this section begins with the Villa Real de Concepción Foundation (1773), its current characterization, its historical milestones, and the legal support that allows the protection and revaluation of heritage, specifying which area of intervention of the project is applicable. The identification of the existing types of heritage is disaggregated by its specificity and valuation.

The study area ¹³¹ is based on a territory founded in 1773 by Agustín Fernando de Pinedo, with the name of Villa Real de la Concepción. This name, like other frontier towns founded under the reign of Carlos III, recalls the Immaculate Conception, patron saint of Spain. It was a military town for 40 years, until the town hall was founded in 1812, with which the town became a civil settlement. The arrival of Italian, Syrian-Lebanese and Catalan immigrants around 1880 promoted the district as a commercial port and initiated a sustained process of development of Italian-style architecture. At the beginning of the 20th century, the Port of Concepción was an active center for trade and exchange of products, especially with Matogrosso, Brazil (Yubi, 2011).

The cultural and archaeological heritage survey was focused on identifying tangible (material) and intangible (intangible) heritage, through secondary and primary information, as well as local testimonies of its social dimension. In the case of architectural heritage, the one that was most relevant due to its magnificence, the selection and evaluation criteria are described, and in this way its originality, attributes, and relative temporality are measured.

Based on the location of the project area, on the banks of the Paraguay River and two accesses by land, the superficial archaeological characterization was carried out extensively throughout the Directly Affected Area (497 ha) and the Central Area (1,211 ha), the Area of Direct Influence (278,070 ha), and the Area of Indirect Influence (3,329,828 ha) in order to monitor the potential direct and indirect impacts on the cultural landscape and identify the heritage values at risk. The design of the archaeological characterization was carried out taking into account

¹³¹ Defined by the direct and indirect intervention zones.

the variables that the researcher controls (intensity) and does not control (visibility, accessibility), in a way that maximizes¹³² the probability of finding archaeological records in the broad sense (artifact, structure and feature)

The entire surface was surveyed looking for areas of open terrain or erosion to prospect archaeological indicators, taking as reference the natural and anthropic systems observed in Map 14 duly identified as study areas through observation points: agricultural zone (1,322 ha), forest cover (1,531 ha), herbaceous (1,586 ha), and water (438 ha).

The first field campaign was aimed at prospecting in agricultural areas and observation points in areas with forest cover and native herbaceous. As well as interviews with residents settled in the Area of Direct Influence. In this same campaign, data were collected from the historic center of the main towns in the Area of Direct Influence, as well as interviews with local authorities and leaders of cultural and social work.

In the second campaign, a tour was made in the central area of the project with observation points of the areas of livestock use, both implanted pastures and grasslands and savannas, up to the river bank and dry channels. These observation points sought to find materials that allow us to understand possible present cultural contexts.

The documentation of the terrain was carried out by arbitrarily selected field observation points (georeferenced), registering those sectors of the terrain that offered natural windows (erosion zones), cultural or other particularities where to prospect superficial archaeological evidence, with a greater probability of finding. During the surface survey, observation points were recorded on the ground, which were documented on Map 14 (Fig. 1).

For the AID and All of the project, a quantitative inventory of the present cultural heritage was carried out: furniture, real estate, gastronomy, historical events, popular festivals and other elements that the local imagination recognizes as heritage. As it is a quantitative inventory and record of the state of conservation of tangible and intangible, spiritual and archaeological heritage, methodologies were combined, according to the specificity of each element and heritage asset identified. The use of tokens through online systems was the basis of the work, due to the combination of digital support information in real time.

For the territorial registry, the geographic coordinates, obtained through the Avenza Map application, were used to identify and create categorized reference points and presented in layer formats with reference points to the registered tangible heritage, adjusted to the cadastre.

132 To do so, Schiffer, Sullivan and Klinger criteria were followed (1972).

Chart 84. Selection and evaluation criteria for the study of architectural cultural heritage

Selection Criteria	Evaluation Criteria
1. Testimony of cultural and symbolic tradition Being associated with events or living traditions of a local, regional and national character	1. Antiquity Time of construction - Dating of the building.
2. Building quality It represents the quality of the design of the real estate at a typological and morphological level, the relevant constructive and decorative elements, the technology used in the construction system and use of materials, the visual impact caused by the building within the immediate environment at an urban and natural level	2. Architectural-aesthetic Style or stylistic influence. Volumetry and design; Architectural plastic (scale, unity, rhythm, harmony, color, texture, symmetry, asymmetry, composition, proportion, balance, highlight). Integrating elements: decorative, ornamental, structural.
3. Integrated with the urban environment (formation of urban ensembles) Preserve homogeneity in typology, morphology, construction system and use of materials. The rhythm, the arrangement of the openings and the fillings, the height of the buildings are some factors that express a clear language of architectural unity within an urban complex.	3. Typological-functional Location, distribution and relation of the spaces. (Accesses, portals, hallways, patios, gardens, orchards, green areas, galleries, stairs, arcades, circulation elements, social, intimate and service areas) Identification of the typology (traditional building, vernacular, farms, villas, etc.). Type of use: original, current.
4. Associated with the cultural landscape Establish a relationship between the human being - architecture - physical environment (cultural landscapes).	4. Technical-constructive Technology and/or traditional construction systems. Contemporary technology and/or construction systems. Mixed materials/mixed construction.
5. Associated with historical events Being associated with significant historical events that happened at the real estate locally or nationally.	5. Historical- testimonial-symbolic <ul style="list-style-type: none"> - Sociocultural-economic value. - Associated with a historical event (s) or the collective memory related to important person (s) and/or representatives of the place. - Urban, architectural, productive landmark.
	6. Architectural- urban environment <ul style="list-style-type: none"> - Property integrated into the urban environment. Urban ensembles. - They generate visual impact. - It favors the urban perspective. - Urban plot. - Related to archaeological sites or archaeological sites.
	7. Authenticity and integrity <ul style="list-style-type: none"> - Volumetry/shape, - Design, - Integrative, decorative, ornamental, structural elements, - Internal distribution of spaces, - Construction technology and systems, - Urban layout (orientation, shape, design, dimensions, construction materials and finishes).

4.4.3. Description and Evaluation of the Cultural Heritage of the Project Area

For the present study, cultural heritage will be understood as the set of tangible and intangible assets that constitute the inheritance of a human group, that emotionally reinforce their sense of community with their own identity and that are perceived by others as characteristic.

To better understand the concept of Cultural Heritage, its appreciation will be divided into tangible and intangible heritage, for the purpose of its study and treatment:

4.4.3.1. *Tangible or Material Cultural Heritage*

It is made up of objects that have physical substance and can be preserved and restored by some type of intervention; are those manifestations supported by material elements products of architecture, urbanism, archeology, crafts, among others. It is made up of movable and immovable property made by the societies of our past.

- a) **Movable Cultural Heritage (PCMU)** is the set of assets that communities, social groups and public and private institutions recognize as part of their memories and identities, or as part of the memories and identities of the nation, whenever that attribute to them, among others, collective, historical, aesthetic and symbolic values. These assets are generally protected and passed on to future generations¹³³. The assets that make up movable cultural heritage can be representative: 1) for a group, community, community or people; 2) for a municipality; 3) for a district; 4) for a department; 5) for the nation, or 6) for the world.
- b) **The Immovable Cultural Heritage (PCIMU)** are removable assets that are an expression or testimony of human creation or the evolution of nature and therefore have an archaeological, historical, artistic, scientific and / or technical value. Examples of this are: an aqueduct, a mill, a cathedral, an archaeological site, an industrial building, the historic center of a city, among others.

In the case of the survey of the immovable cultural heritage, they were categorized as follows, taking into account the historic center of the city of Concepción, identified through municipal ordinance No. 09/04 on zoning - land use; N° 12/04 By which the protection, conservation, recovery and transmission of the cultural and natural heritage of the Municipality of Concepción is established, and N° 13/04 by which the general catalog of assets comprising the cultural and natural heritage of the Municipality of Concepción; and testimonies of the local imaginary, with the following categories: Mansion - Casonas - Houses and Port area.

This category was also applied to Belén, Loreto and Horqueta, where only historical dwellings stand out.

Mansion: Buildings that have more than two levels or finishes worked with details in walls and cornices. They are buildings that have a larger constructed area and a large internal patio. The ornate lid-type facades predominate with pilasters on the walls and ciboriums as a finish. The pilasters had moldings on the shaft and on the capital with acanthus leaves, characteristic of European homes with mixtures of styles such as classic, neoclassical, Renaissance among others. Relative temporality: XIX century.

Big Houses: Buildings that have a certain bearing similar to mansions, but do not have as many details on the façade. It predominantly has a cover-type façade. They were used as homes as well as local and regional

133 <https://www.mincultura.gov.co/areas/patrimonio/patrimonio-cultural-mueble/Paginas/default.aspx>

businesses since products were brought from the surrounding settlements. They have the smallest patio compared to the mansions.

Relative temporality: XIX century.

Houses: Buildings destined to residences of smaller size in comparison with the other categories, the facades type cover and the colonial galleries predominate where the inhabitants sat to take terere under its shade. It presents characteristics similar to the large houses, but with less ornamentation. Relative temporality: XIX century.

Port Area: Buildings dedicated to port activities, it is an interconnection zone between riverside towns and commercial exchange of the time. The houses closest to the port have a greater architectural presence since the inhabitants were dedicated to this trade, both fishing and commercial exchange, as it moves away from the site, more precarious houses are observed. Relative temporality: 19th century.

Illustration 25. Heritage bars present in the city of Concepción with hierarchical symbol



The relevant tangible heritage of the city of Concepción is listed below, where there are 209 registered and declared for the Historic Center of the City of Concepción, by the Municipality of Concepción.

Chart 85. List of the relevant tangible heritage of the City of Concepción

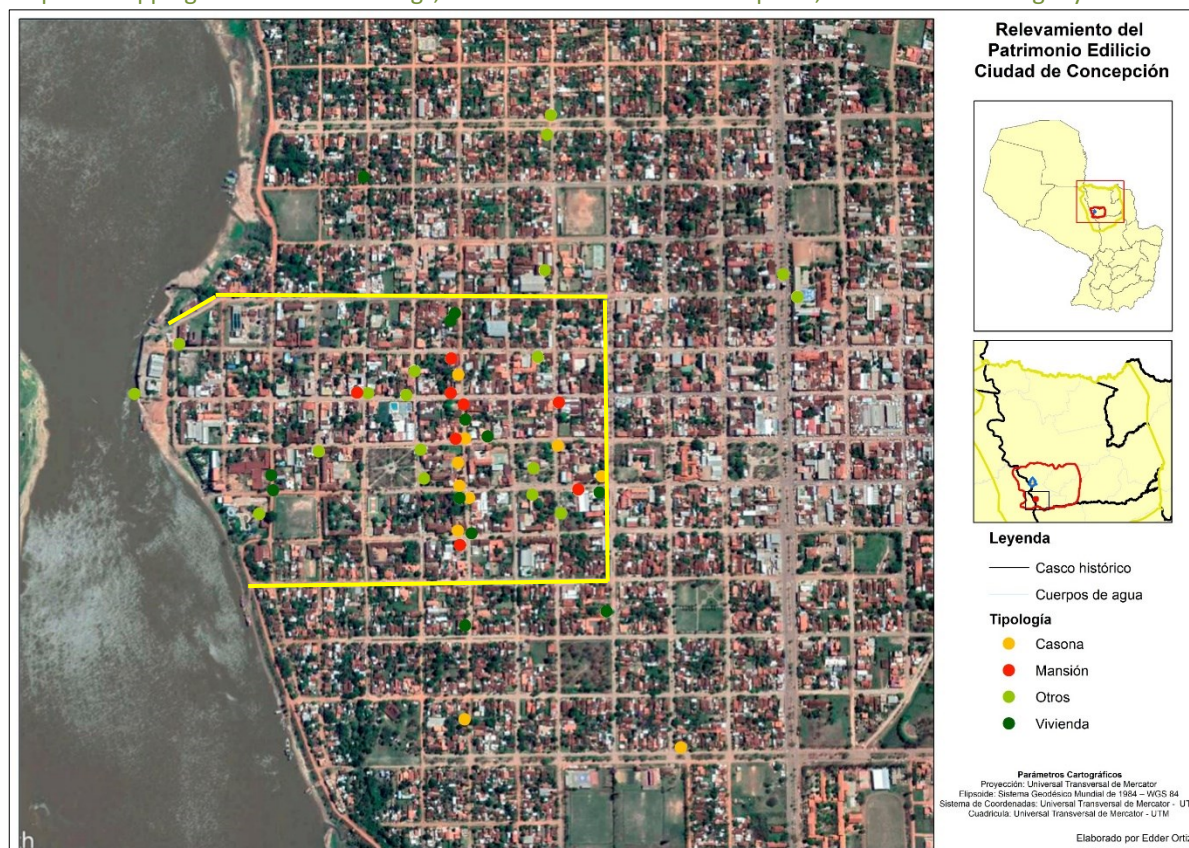
	Tangible Cultural Heritage	Place	Notes
1	Municipal Theater	Concepción (AID)	SNC Resolution No. 217/2019 was declared of Cultural Interest to the project of "Refurbishment and remodeling of the Municipal Theater Don Pedro Gregorio Antonio Alvarenga Caballero"
2	National North Railway	Concepción (AID)	Declared Heritage by Ministerial Resolution No. 1 (4-I-2008) (components that were elements of the Northern National Railroad, which are located in the Department of Concepción, linking the Departmental capital-Concepción, to the Capitán Gumersindo Sosa - Arroyo Karé Station). Source: SICPY http://sicpy.gov.py/busquedas/index.php?categorias-3=&page=96
3	Contemporary Museum of Art	Concepción	It no longer exists, it was in the Otaño Mansion. It revolved around the work of Carlos Colombino.

	Tangible Cultural Heritage	Place	Notes
4	Nuestra Señora de la Concepción Church	Concepción	Its construction began in 1960, after the collapse of a large part of the old church factory and the demolition of what was left. The work concluded in 1968 and in December of that year the inauguration took place. Its interior houses a font of holy water carved in pink marble, a sculptural group of the Crucifixion in wood, the images of the Virgen del Carmen, San José and Sagrado Corazón de Jesús, a pictorial painting by Carlos Colombino and the altar that is the work of this, and the painting of the Virgin of Chestokowa, a gift from Pope Juan Pablo II. https://www.bienvenidoaparaguay.com/showdata.php?xmlcity=22&xmldestino=64
5	San José Church	Concepción	Built at the time of the European mandate. Façade -cover building with neoclassical reminiscences. It stands out for the beauty of its façade among the other religious buildings, despite the transformations that it has undergone with a mortar altarpiece, the work of Don Pedro de Alcántara. It has a bell brought from Italy in 1911, which is owned by the people of Concepcion. A huge Carrara marble tombstone inside recalls the great benefactor Don Julián Quevedo y Gómez de la Pedrueza, who contributed a large sum for the construction. (Catalog No. 200 - Municipality of Concepción and Cultural Association of the Villa Real de Concepción)
6	Museum of the Barrack of the Villa Real	Concepción	The Barracks was built, as soon as the city of Concepción was founded, in 1773. It was not until 1862 that it began to “modernize” when the Mcal. assumed the presidency. Francisco Solano López. In this place the War of the Triple Alliance began and ended. Madame Lynch's wagon is the most attractive relic in the Museum. (Catalog No. 85 - Municipality of Concepción and Cultural Association of Villa Real)
7	Mansion Paciello	Concepción	Today UTIC University. Declared Heritage of Concepción
8	Mansion Villa Ida Albertini Quevedo.	Concepción	It has an incredible coffered ceiling made by hand by Quevedo himself. There passed the US President Theodore Roosevelt, in 1913. Declared Patrimony of Concepción
9	Mansion Aquino Quevedo	Concepción	Declared Heritage of Concepción
10	Mansion Chatelain – Jantou	Concepción	Declared Heritage of Concepción
11	Mansion Peluffo Quevedo	Concepción	Declared Patrimony of Concepción - Ordinance Nº 13/04
12	House Miltos Herrero	Concepción	Declared Patrimony of Concepción - Ordinance Nº 13/04
13	House Ugarte Zabala	Concepción	Declared Patrimony of Concepción - Ordinance Nº 13/04
14	Government House of 1947	Concepción	Declared Patrimony of Concepción - Ordinance Nº 13/04
15	Villa Heyn	Concepción	Declared Patrimony of Concepción - Ordinance Nº 13/04
16	Hotel Francés	Concepción	Declared Patrimony of Concepción - Ordinance Nº 13/04

	Tangible Cultural Heritage	Place	Notes
17	Zavala, Benítez, Cabrera y Cía.	Concepción	Declared Patrimony of Concepción - Ordinance Nº 13/04
18	Cinema Theater Paradedá y Pampliega	Concepción	Declared Patrimony of Concepción - Ordinance Nº 13/04
19	Solar of the Gral. Francisco Isidoro Resquín	Concepción	Declared Patrimony of Concepción - Ordinance Nº 13/04

Within the architectural heritage, the old town of the first Concepción Foundation stands out, with homes, large houses and mansions of higher hierarchy, on a plot of the old port of Concepción and the Barracks of the Villa Real de Concepción (1773 - 1864). On map 15 you can see the limits of the historic center, where it also shows in georeferenced points the existence of a greater number of large houses, as well as mansions, all of them having their main access in corners, with two facades in two streets and a hallway, which marked a greater social hierarchy. Outside the limits of the historic center, only some relevant mansions are observed.

Map 16. Mapping of historical buildings, inside the old town of Concepción, connection to Paraguay River



The Museum of the Barracks of the Villa Real of Concepción

Historical time: 1773 – 1864

Illustration 26. Picture: Barracks of the Villa Real de Concepción-1886



The originality of this infrastructure, which was a main barracks, represents the oldest building, dating from the founding of the city of Concepción, in 1773. It was not until 1862 that it began to “modernize” when Mcal. Francisco Solano López. In this place the War against the Triple Alliance began and ended. Despite what was written, it was never López's Barracks but his Barracks from the time he reopened in 1864, with the presence of the President. The facilities were renovated in 1862-64, at the time of López (Catalog No. 85 - Municipality of Concepción and Cultural Association of Villa Real).

The materials that it has protected through its presentation represent historical moments of high heritage value, many of them “unique”. Among them we can mention Madame Lynch's wagon, considered a relic and what it represents for the local and regional imagination. The cart dates from 1864 and was used to transport the belongings of the Mcal's wife. Lopez¹³⁴.

Currently, this Museum is restored and open to the public, with two municipal officials responsible. Its restoration took place through the Workshop School created in the Municipality, with the support of the Spanish Cooperation. At its best, this school trained more than 30 young people in different trades¹³⁵, with an emphasis on the restoration of the Museum (1999). It is still in operation.

According to the museum's reference card to the building, placed at its entrance, it mentions that on May 25, 1773, the city of Concepción was founded by Brigadier Don Agustín Fernando de Pinedo y Valdivieso, a military member of the Spanish army appointed to govern for 6 years. Its Hispano-Paraguayan style are reported by Du Graty, and published in Europe in 1862. This building also called as “The House of the King.” Its urban territorial location places it on the current site, which overlooks the Plaza Mayor (current Plaza de la Libertad).

134 <https://www.abc.com.py/edicion-impresa/suplementos/centinela/el-museo-de-concepcion-una-opcion-turistica-1615023.html>

135 Testimony M. Ibañez/Museum Barracks of the Villa Real

Illustration 27. Picture: Current facade of the museum. 2020



Illustration 28. Picture: Intern gallery of the museum



In the internal Gallery where its current conservation is observed, after its restoration. You can see the space that faces the internal patio, a ceramic brick floor, a carved column with a molding on its capital that supports the weight of the main ceiling beams, the braces are made of caranday and the seat of Spanish tiles are tacuaras in section.

The openings are made of thick solid wood with a curved crossbar in such a way that it functions as a lintel.

The plastered walls with painted rustic finish.

Illustration 29. Picture: Municipal Museum of the Barracks of the Villa Real



Activities around cemeteries deserve special attention¹³⁶, where the local population accompanies, with great devotion and respect, forming a group of friends from the cemetery. This activity is carried out every year, in the two cemeteries of the city. These tours, called Necrotourism, are carried out by the Villa Real Cultural and Historical Studies Association, specifically in old areas of the Municipal Museum, where characters who contributed to the history of the city and the country lie¹³⁷. The cemeteries located in the communities of the Area of Direct Influence stand out.

Illustration 30. Pictures: Cemetery, Antique sector – Villa Real of the Concepción



In the middle image, the pantheon belongs to Mrs. Caballero de Saviex and in the image on the far right, the pantheon belonging to the Isnardi Family appears, known as the neo-Gothic “El Castillito”. Pictures Cultural Association of the Villa Real. Posted January 12, 2019.

The pantheons present very elaborate architectural designs, among them neo-Gothic, classical, neo-classical among others (Fig. 22). Major Rufino Pampliega Franco, Major Lorenzo Medina, Captain Gumercindo Sosa, Lt. 1st. Manuel Irala Fernández, “Yacaré Valija”; the Tte. 1st. Aniano Cabrera, Vicente Cabañas, Pedro Céspedes, Ladislao Cabrera are some of the hundreds of heroes that rest in the “Pantheon of the Heroes of Concepción”.

136 Testimony Porfirio Báez, president of the CVR Association

137 <https://www.abc.com.py/nacionales/realizan-necroturismo-en-concepcion-1583796.html>

Illustration 31. House – typology



Architectural Heritage of the Cities of Belén, Horqueta and Loreto (AID)

In the case of the cities of Horqueta, Belén and Loreto, located within the AID, they present different periods of construction and settlement, many of them involving immigrants or part of a rural development project implemented by the National Government. All the relevant architectural manifestations are around the central square and Church, with monoliths representative of their saints, or a feature that makes it visible in the collective memory, as is the case of Belén and the imaginary line of the Tropic of Capricorn. The relevant historical element that defines the collective memory of these cities is given by the events of the War of the Triple Alliance.

BELEN. The city of Belén, capital of the district of the same name, is also called "the city of the Tropic" because the imaginary line of the Tropic of Capricorn passes through there. It is considered the oldest city in the department of Concepción. The district of Belén was founded on August 23, 1760, in a place known as Paso Mbayá.

Map 17. Satellite imagen of the City of Belén

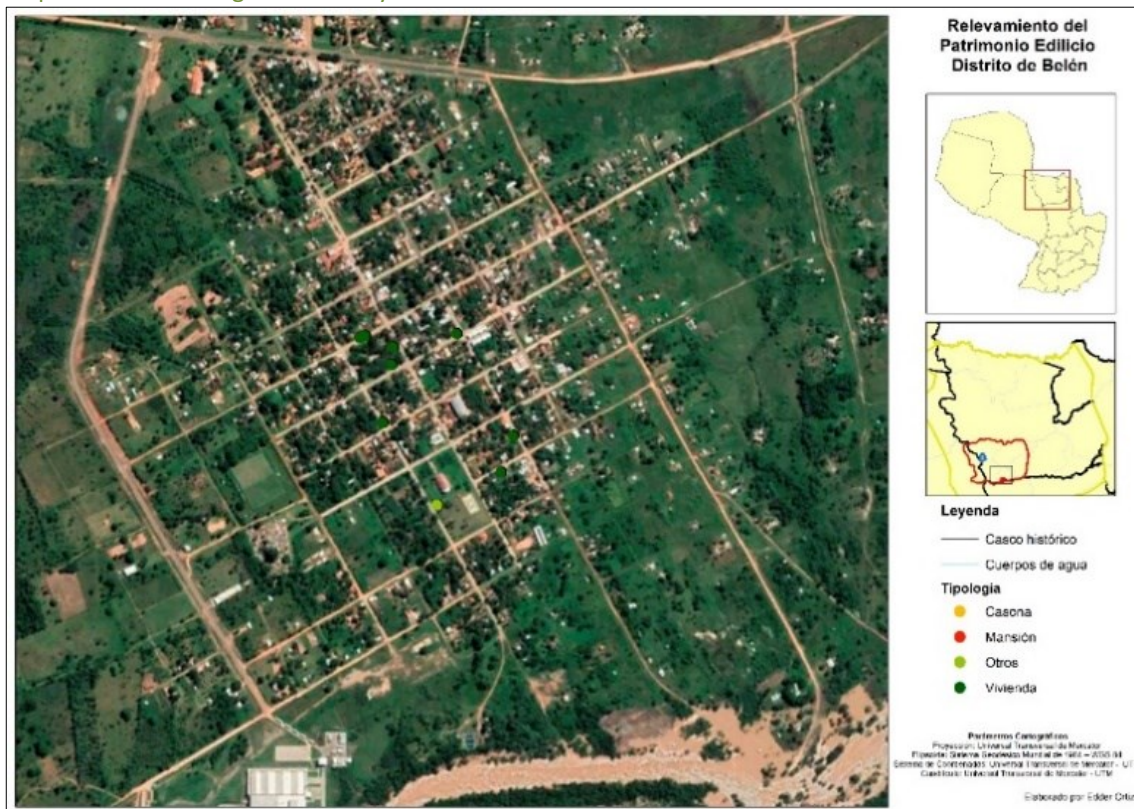


Illustration 32. Lateral facade of the Church of Belén



(Lat. 23°28'21.19"S Long 57°15'43.84"O)

Illustration 33. Back facade of the Church of Belén



(Lat. 23°28'21.19"S Long 57°15'43.84"O).

Illustration 34. Colonial house with front gallery.
Av. Padre Sánchez in the corner with Uruguay



Illustration 35. House in a corner with facade cover type



(Lat 23°28'12.57"S Long 57°15'45.89"O)

Illustration 36. Colonial house with front gallery with details of columns of Jesuit style



(Lat. 23°28'10.18"S Long 57°15'49.90"O)

Illustration 37. Colonial house with frontal gallery with details of columns of Jesuit style



(Lat. 23°28'9.72"S Long 57°15'47.76"O)

Illustration 38. Monument to the Capricorn Tropic. Belén, Concepción



Latitude 23°26'21'. Touristic passage with relevance to the city.

HORQUETA. It is a city that had its origin as a chapel in the 18th century, officially founded in 1793. It was the first city with a pedestrian street in the country. The city bears the name of Horqueta, because it is located at the fork of roads, hence its name (Tape Horqueta). The first construction was a large house where a family settled, and since then the place known as Paraje Horqueta or Tapé Horqueta, became a place where the traveler had a roof and a corral, where they could rest and give respite to the animals. Several others approached this first family, occupying the four corners of the TAPE HORQUETA, with time new immigrants have already arrived, forming a conglomeration of ranches of farmers and hunters. It is located 50 km from the city of Concepción.

Map 18. Satellite image of the city of Horqueta

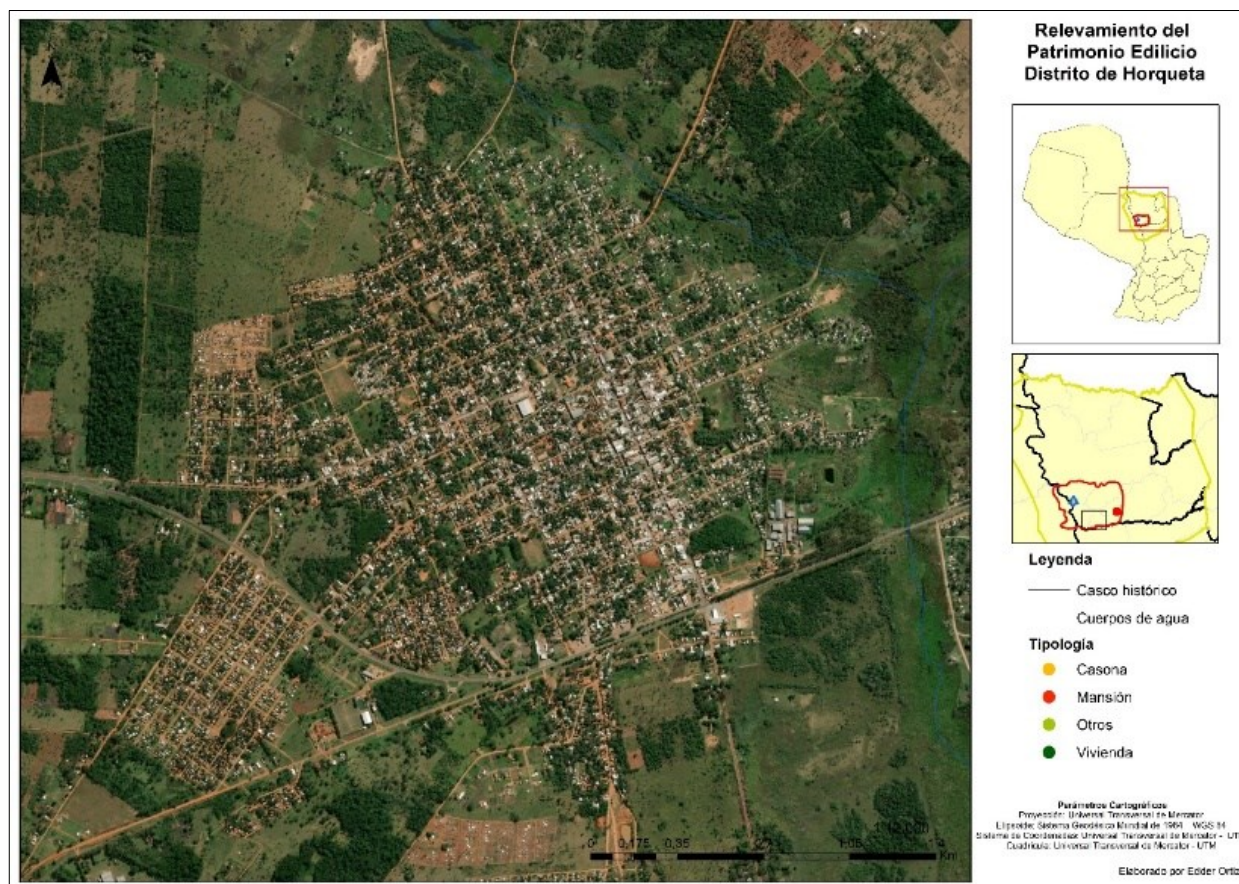


Illustration 39. House transformed into a corner with a cover type façade and ciborium on the cornice



Location: Mariscal José Félix Estigarribia esq. Curupayty. Horqueta.

Illustration 40. House in a corner with a cover type façade and ciborium and baluster



Location: Mariscal José Félix Estigarribia esq. Curupayty. Horqueta.

LORETO. The city of Loreto, capital of the district of the same name, is known first as “Paraje Jui’y, later “Capilla Zarza”, to later be called Loreto, in honor of “Nuestra Señora de Loreto”, it was founded by Jesuits, who arrived in 1686. The city of Loreto was founded on December 10, 1792. In the urban layout it is observed that the oldest houses are located in the center of the city and the newest ones are outside.

Map 19. Map of the city of Loreto – heritage survey

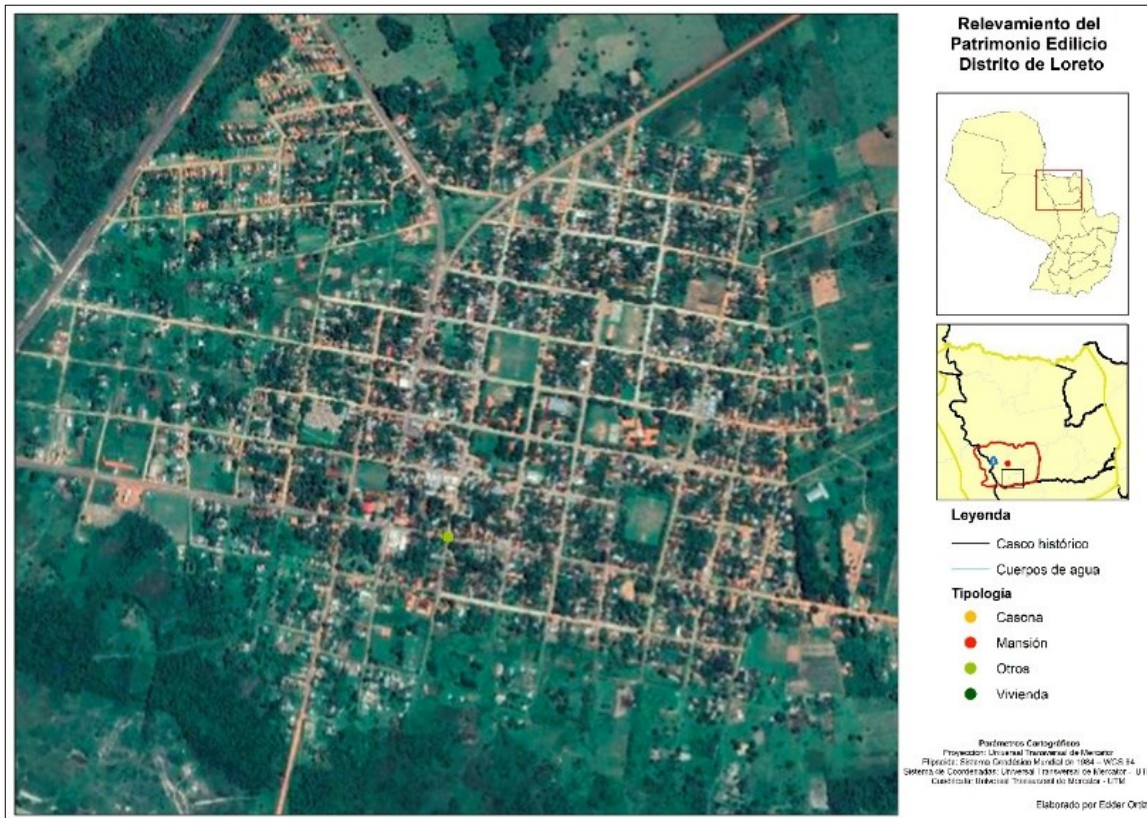


Illustration 41. House in a corner with cover type facade



Illustration 42. House of colonial style with frontal gallery



-23 16 37 -57 19 38

4.4.3.2. Intangible or immaterial heritage

Intangible cultural heritage has been defined as: *“the uses, representations, expressions, knowledge and techniques - together with the instruments, objects, artifacts and cultural spaces that are inherent to them - that communities, groups and in some cases, individuals, recognize as an integral part of its cultural heritage. This intangible cultural heritage, which is transmitted from generation to generation, is constantly recreated by communities and groups based on their environment, their interaction with nature and their history, infusing them*

*with a feeling of identity and continuity and thus helping to promote respect. of cultural diversity and human creativity*¹³⁸.

Chart 86. List of intangible heritage relevant in the AID

Intangible Heritage	Place/locality/District
Pieces of the Municipal Museum of the Barracks of the Villa Real of Concepción.	Concepción
Pieces of the Diocesan Museum of Sacred Art	Concepción
Monument to the Virgen María Auxiliadora	Main Street - Av. Agustín Fernando de Pineda. Concepción
Obelisk to the Virgen de Fátima	Concepción
Obelisk to the Indian	Concepción
Monolith of the Tropic of Capricorn	Belén
Monument to the Republic.	De la libertad Square or Fundacional Square, Concepción.
Bas-relief of Concepción Foundation	Pinedo Square, Concepción
Outdoor museum	In the East Boulevard, Concepción

Festivities. The management festivities or major festival shall be understood as the set of solemnities with which a population –may be neighborhoods, in the case of large cities– annually celebrates the date of its patron saint. It is a tradition implanted, essentially, in the countries of Hispanic culture¹³⁹. These festivities usually include religious acts such as a solemn office– and pagan celebrations that take place in the streets of the town, such as parades, concerts, dances, festivals, fairs, children's games, bullfights and rides.

Chart 87. List of relevant Patronal Feasts

	Patronal Feasts/others	Date	Place/locality/District
1	Nuestra Señora de La Paz	January	Belén (AID)
2	Paje Festival - Anniversary of the City of Belén	January	Belén (AID)
3	Civil, Student, Police and Military Parade in Tribute to the City of Horqueta	January	Horqueta (AID)
4	Patronal Feast for María Auxiliadora	January	Concepción (AID)
5	Student Festival – Foundation of Concepción.	May	Concepción (AID)
6	Student, Civil, Police and Military Parade / Tribute to the Villa Real of Concepción Foundation	May	Concepción (AID)
7	Patronal Feast: San Juan Bautista	June	Yby Yajú
8	Integration Part	July	San Lázaro (in Vallemí)
9	North Expo	September	Concepción (AID)
10	Festival in Tribute to the Youth of Concepcion	September	Concepción (AID)
11	Paraguay River Festival	October	Concepción (AID)
12	Patronal Feast: Virgen del Rosario	October	Horqueta (AID)
13	Festivity Nuestra Señora Aparecida	October	Yby Yajú
14	Patronal Feast: Virgen de Fátima	October	San Lázaro (in Vallemí)
15	San Carlos de Borromeo	November	San Carlos del Apa

138 Convention for the Safeguarding of the Intangible Cultural Heritage convened by UNESCO, held in Paris, 2003.

139 Convention for the Safeguarding of the Intangible Cultural Heritage convened by UNESCO, held in Paris, 2003.

16	Apa River Festival.	November	Vallemí
17	Nuestra Señora de la Inmaculada Concepción	December	Concepción (AID)
18	Nuestra Señora de Loreto	December	Loreto
19	San Lázaro	December	San Lázaro

Illustration 43. Monolith María Auxiliadora – main street



4.4.3.3. Natural Heritage

It is the set of natural or environmental assets and wealth that society has inherited from its predecessors. It is made up of: natural monuments made up of physical and biological formations or groups of such formations that have exceptional universal value from an aesthetic or scientific point of view, geological and physiographic formations and strictly delimited areas that constitute the habitat of animal and plant species, threatened or endangered, natural places or strictly delimited natural areas (such as national parks, nature reserves, conservation areas, among others) that have an exceptional value from the point of view of science, of conservation or natural beauty¹⁴⁰.

Chart 88. List of relevant natural heritage: Protected areas and reserve in the area of the project/ AID

	Natural Heritage	Area (Ha)	Norm for its creation	Bonding
1	Paso Bravo National Park	93,612	Decree N° 20712/98	All
2	Serranía San Luis National Park (1991/2010)	10,282	Decree N° 11964/91	All
3	Bellavista National Park	7,397	Decree N° 20713	All
4	Private Natural Reserve Cerrados del Tagatiya	5,281	Decree N° 7791/06	All
5	Private Natural Reserve Tagatiya mi	28,755	N° 10396/07	All

140 https://moodle2.unid.edu.mx/dts_cursos_md/lic/ET/FT/AM/09/Patrimonio_clasificacion_y_definiciones.pdf

	Natural Heritage	Area (Ha)	Norm for its creation	Bonding
6	Natural Monument Santa Elena	36	Law Nº 4577/11	All
7	Natural Monument Cavern Kamba hopo	17	Law Nº 4577/11	All
8	Natural Monument Tres Cerros	140	Law Nº 4577/11	All
8	Natural Monument Cerro Morado Cavern Ycua pa'i	77	Law Nº 4577/11	All
10	Private Natural Reserve Guayacan I, II y III	1,447	Decree 1230/	All
11	Private Natural Reserve Kai Rague	1,769	Without data	All
12	Place RAMSAR Estero Milagro	26,503	Law Nº 350/94	All
13	Private Natural Reserve Arrecife	7,812	Without data	All
14	Area of Indirect influence Cerrados of the Apa River Biosphere Reserve		267 836 ha.	All
		183,128		

Source: MADES, 2018; Guyra Paraguay, 2007 IBas. Among the areas of importance as bird conservation sites (Ibas) there are 4 recognized for the study area (Guyra, 2017): Ypane medio - Tagatiya Stream - Estrella and Cerrados de Concepción.

4.4.3.4. The Cultural-natural Heritage

The Cultural-Natural Heritage is made up of elements of nature, which are kept in their original context, intervened in some way by human beings. Examples of this are: archaeological or historical remains in their original natural context; paleontological fossil remains associated with human activity in situ; underwater vestiges of human activity, and the cultural landscape, produced in a certain time and space, which has remained unchanged.

For the project area, we can mention the presence of reported paleontological remains (Báez Presser, et al. 2004), both in flora and invertebrates. In the case of Flora, they mention that the first fossil vegetables of Paraguay, such as fern and coniferous woods, were found in the surroundings of the city of Villarrica, Department of Guairá, by Carnier in 1911, which was cited in Eckel (1959). Predominantly carbonate exposures from the Corumbá Group in Brazil, known as the *Itapucumí* Group in Paraguay (Concepción area), presents a paleontological content that includes the macroscopic alga *Tyrasotaenia* sp. (Zaine, 1991), in addition that it is associated with the primitive invertebrates *Claudina luciano* and *Corumbella werner* and the microfossil *Sphaerocongregus variabilis* (Zaine, 1991) (= *Bavlinella faveolata* cf. *Boggiani et al.*, 1993)¹⁴¹.

Regarding archaeological sites, we can mention the presence of potential sites of Mbayas and other indigenous peoples, associated with the use of temporary fishing areas. Archaeological research reports mention the presence of shells, bone remains and ceramics with sgraffito and painted designs, at the level of the upper parts of the banks of the Paraguay River, up to the area of Corumba, Brazil, and linked by Susnik (1978) to Paraguay, with the archaeological finds in Belén (Concepción department).

Current investigations in Brazil and Argentina validate and complement these links, and indicate the presence of pre-Hispanic societies along the entire Paraguay River, with radiocarbon dates from ca. 100 BC until ca. 300 AD for the Pantanal Tradition (Lamenza, 2015).

Regarding Rock Art in the project area, there are reports of findings and photographs of Dr. Carlos Teichmann (1904) in a place called Barrero Guaá, near Gamarra-cué, a place located at the headwaters of the Tagatiyá stream (All), Department of Concepción (Díaz-Pérez, 1904).

141 https://www.researchgate.net/publication/263727484_ALGUNOS_ANTECEDENTES_PALEONTOLOGICOS_DEL_PARAGUAY

4.4.3.5. Gastronomic/Culinary Heritage

Culinary heritage will be understood as the element of cultural communication, and in this both the cultural traditions and the natural idiosyncrasies of a place are manifested. Cuisine and gastronomy imply an indissoluble relationship between rural life and the service sector. Thus, gastronomy is local development and also tourism development ¹⁴².

In 2017, the National Secretary of Culture decided: “To declare as Intangible Cultural Heritage of Paraguay the production, artisanal and traditional elaboration of four typical Paraguayan foods still in force such as vori-vori, locro, sopa paraguaya and yopará (mixture bean and locro); and thus also its recipes, knowledge, practices and knowledge that are transmitted from generation to generation and the material and immaterial elements associated with it (corn, in its different varieties) are documented as a cultural manifestation”¹⁴³. Next, chart 89 lists the relevant gastronomic heritage.

Chart 89. List of relevant typical food with local testimony

Food		Ingredients	Testimonies
Based on flour and vegetables			
1	Pirón	Onion, oil or fat, water, manioc flour, and salt	JB , It's like ... reviro. In a cast iron pot, the fat is melted ... it is fried and mixed with the fariña ... it must be mixed to avoid burning and generating lumps
2	Locro	Locro and fried vegetables with various seasonings	PAEZ . The Páez family mentions, who are dedicated to the manufacture of desserts and sweets ... that nowadays the locro is no longer as before ... it is smaller and is no longer consumed as before. Its preparation process begins early in the morning, since it takes a long time to cook
3	Poroto Ipokue (Poroto with cow leg)	Beans, leg of the cow, vegetables, and various condiments.	PAEZ . Its preparation process would begin with the frying of the vegetables (onion, bell pepper, tomato and garlic), and spices... add the water, the beans and the cow leg... let it boil until it is soft and flavored
4	Polenta - Mbaipy	Corn flour, natural fat, Paraguay cheese, and minced meat as a final sauce	PAEZ . You must fry the onion, garlic, tomato and bell pepper and spices are fried ... add the water and boil it with avati morotí corn flour, until it thickens ... then the meat is minced and a separate tomato sauce is made, which is put on top of the polenta.
Based on fish			
1	Sardina	Small fish, seasonings and vinegar	JB . Small fish... they are boiled in a pressure cooker... and vinegar is added to let them rest.
2	Piracaldo	Fish: Surubí, Mandi'i, Tres Puntos and/or Pico de Pato; Paraguay cheese, milk, onions, bell peppers and garlic	Brown the vegetables in a pot, put hot water in the pot, place the fish fillet, wait for it to cook and pour water, mix and wait for it to boil
3	Chupín		CD . It has the same process as the broth pyre, but milk or cream is added to it..

142 Francisc Fusté-Forné - Universitat de Girona. 2016. The landscapes of culture: gastronomy and culinary heritage. In: DIXIT vol.24 No.1 Montevideo. Available in: http://www.scielo.edu.uy/scielo.php?script=sci_arttext&pid=S0797-36912016000100001

143 <http://www.cultura.gov.py/2017/08/cultura-declara-patrimonio-cultural-inmaterial-del-paraguay-la-sopa-paraguaya-el-vori-vori-el-locro-y-el-jopara/>

Food		Ingredients	Testimonies
Based on meat			
1	So'o hu'û (soft meat)	Meat and offal	CD. The meat is boiled with other giblets.
2	Morcilla - Mbusia	Thick casing	EO. In family gatherings an animal is butchered ... the blood and intestines are collected, which are cleaned and later stuffed as sausage ... this work begins early in the morning ... and the Mbusia stuffing begins ... and must be finished to 10 am, where its broth with blood sausage and other giblets (churra) ... and is served as the first course of roasts and preferably for older adults.
3	Caldo Ava	Offal onion, green onion, locote, spicy bell pepper and parsley	It is a broth or soup that is obtained by boiling all the giblets of the cow in water, cooking them, mainly the tripe (intestines and belly of the cattle), the booklet (the third of the four cavities into which the stomach of ruminants is divided), the fat intestine and the chinchulín, the latter the edible small intestine
4	Akangue yvyguy (buried head)	Cow's head	JC. First, a hole of approximately 75 x 75 centimeters is dug in the ground in which pieces of firewood are placed for an hour, which acquires the necessary heat for cooking. Next, a bed of banana leaves is made, where the head of the cow is placed wrapped in banana leaves, tied with wire, later it is wrapped in a burlap cloth and tied with wire. Formerly, banana leaves were placed on top of which they were covered with earth and with a wooden lid. Currently, a metal sheet is placed and the earth on top, for half a day of cooking.
5	Asado a la estaca (Stake Roast)	Meat	EO; JC. This meal is generally for large events since the pieces of meat are selected whole pieces, crossed with sticks of guayaibi of approx. 1.50 meters. A well is made where the curupay wood is burned in such a way that the fire does not expand, and the stakes are supported on other wood that serves as a support.
6	Caldo Ava	Offal	It is a soup made from the giblets of the cow, it has a dense and dark consistency, but it has a good flavor and a lot of caloric value.
7	Carretero Rice	Dried meat	There are several ways of cooking, one is to fry the vegetables, add water and then the rice, cut the jerky into small pieces and place it on the rice, the order usually varies.
Sweets			
1	Dulce de leche	Cow's milk and sugar	CC. The sugar is melted to the point of caramel ... the milk is poured in and stirred until it has a solid, thick and creamy consistency.
2	Pumpkin Sweet – andai	Pumpkin and sugar	JC. The sugar is boiled with the water ... until it is completely diluted ... then the sucker is placed one day in advance ... it is cleaned ... and left to boil until the water evaporates.
3	Papaya Sweet	Papaya and sugar	JC. The sugar is boiled with the water ... until it is completely diluted ... then the papaya is placed one day in advance ... it is cleaned ... and left to boil until the water evaporates

Food		Ingredients	Testimonies
4	Cow's leg sweet (cow's leg jelly)	Osobuco of cow's leg, milk, cloves and sugar.	JC. The cow leg is boiled until the ossobuco softens, with the obtained broth it is mixed with milk and sugar, it is left boiling, stirring until all the ingredients are mixed, at the end the cloves are placed and left to cool at room temperature until it is hardened like a flan.

Source: CC: Crispín Concha (Piquete Kue) – JC: Juana Cubilla (Horqueta) – EO: Edder Ortiz - CD: Celeste Díaz. - PAEZ: Family (Concepción). -ID Irene Díaz (Concepción). Own elaboration

4.4.4. Final Thoughts

Based on a primary archaeological and historical assessment, based on the secondary information available (historical antecedents and local testimonies), added to the field survey carried out in the area of direct and indirect impact of the project, the importance of a cultural territory can be affirmed. rooted, with local testimonies alive and present in his experiential imagination. For each of the documented testimonies, an assessment is made and measures are proposed that generate a cultural Rooting and protection of the present collective memory.

Regarding the valuation and potential social impacts, both in the Direct and Indirect Area of Influence of the project, specifically with regard to intangible cultural heritage, we can mention that it could suffer a moderate to significant alteration, due to changes in habit and significance as social capital. The presence of external personnel, to complete the spatial modification of the project in the first part, is also considered a cultural impact on the uses and forms of appropriation (livelihoods).

5. Survey of the Social Perception

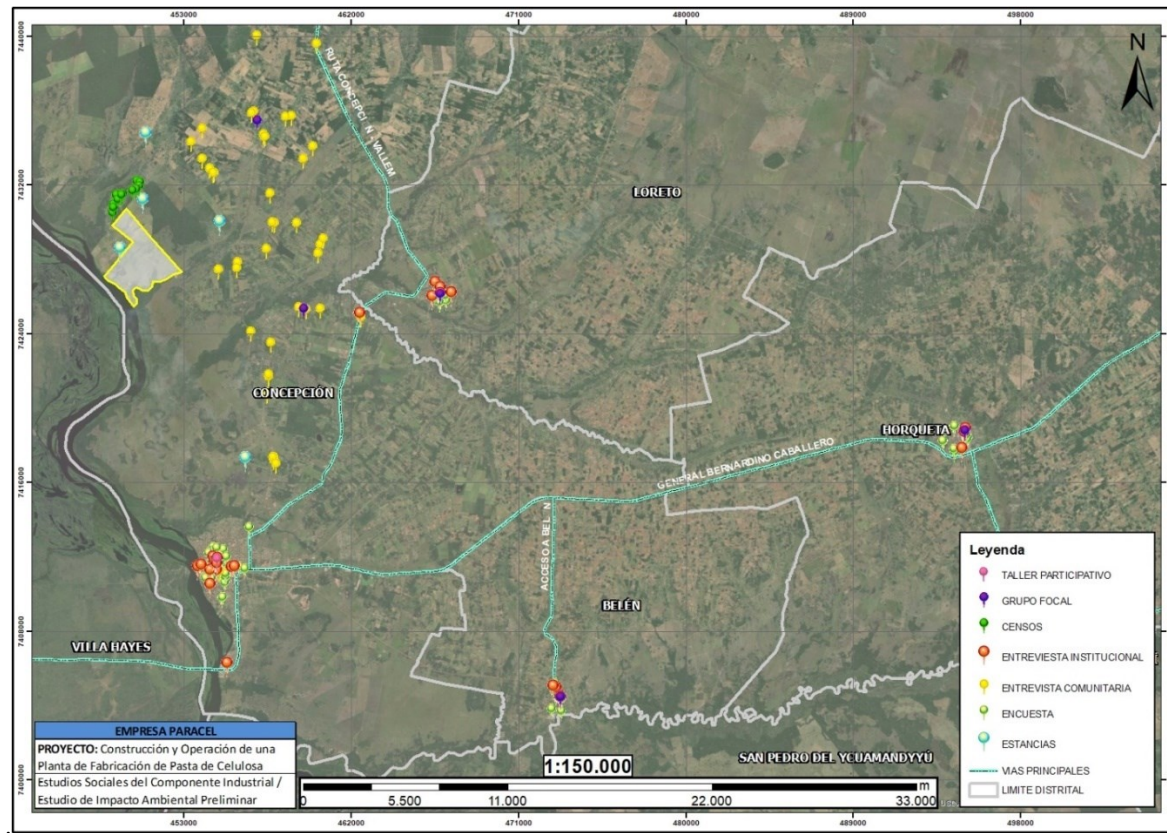
5.1. Presentation of the results of the perception survey

As indicated on the map, and as mentioned in chapter 3 of Methodology for the Preparation of Social Studies, the work carried out in the territory had as a transversal axis the survey of social perception regarding the socioeconomic characteristics of the area and of the mill installation.

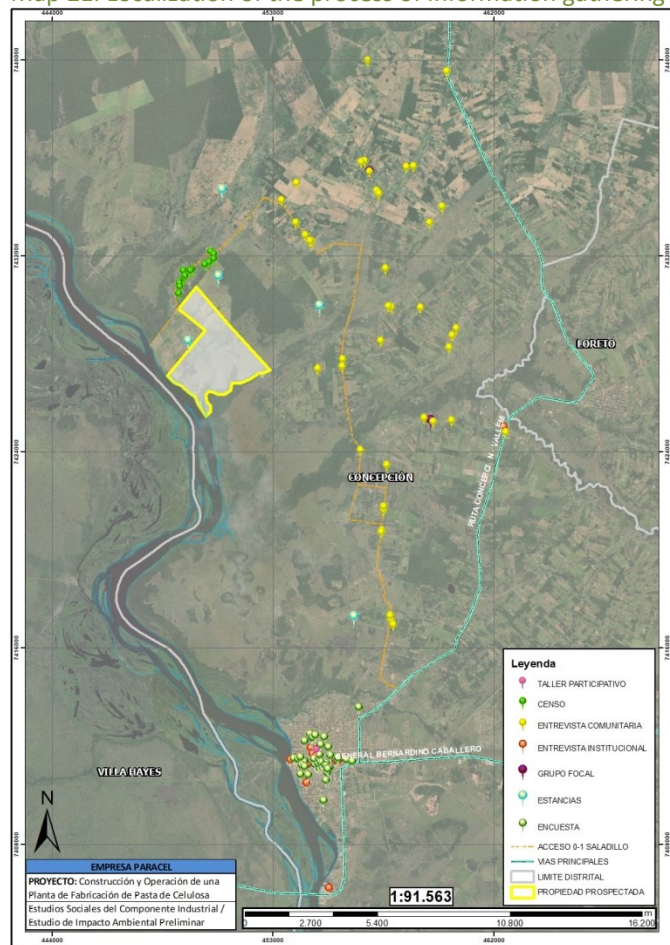
This work of collecting both quantitative and qualitative data in the territory was carried out in the ADA and the AID through the use of several techniques that allowed access to individual information, such as a census of families located in the immediate environment of the prospecting area of the draft; interviews with key institutional and community stakeholders, as well as surveys at strategic points in the districts involved. Likewise, community focus groups and a participatory workshop of institutional actors were held in the city of Concepción, capital of the department, spaces from which qualitative information was obtained that was used (in the case of this section) as a complement to the analysis to be presented.

The information gathering process involved all 316 people from the Concepción district, including the Piquete Cue community and ranches located in the ADA; and to the existing micro-territories in the area the accesses to the mil, also in the districts of Loreto, Belén and Horqueta. People who mostly showed openness and predisposition to the queries and the delivery of information made by the team in each of the spaces created for this purpose.

Map 20. Geo reference of hte field survey areas

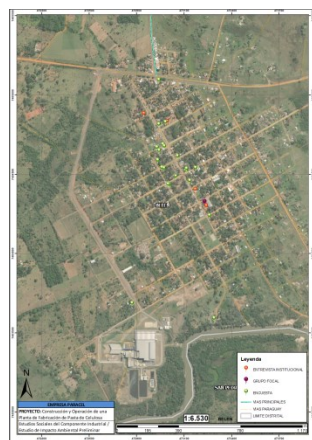


Map 21. Localization of the process of information gathering



Areas where the information gathering process was carried out on people from the Concepción district, includes the Piquete Cue community and stays in the ADA; and to micro-territories in the mill access area

District of Concepción



District of Belén







District of Horqueta







District of Loreto

Chart 90 describes each of the techniques used by area, number of people consulted and the resulting sources of verification.

Chart 90. Techniques used in the intervention

ACTIVITY	Zone/district/ micro- territory	Number of people involved	Sources of verification resulting	Picture Registry
Socioeconomic Census Census records were applied to the families living in the immediate surroundings of the mill.	ADA- Piquete Cue Community	12 heads of household	Census file Worksheets case by case Photographic record	
Interviews in Ranches Semi-structured questionnaires were applied to owners or managers of mostly livestock establishments	ADA- Piquete Cue Community and nearby areas	1 owner and 3 people in charge of the ranches	Photographic record Written record of each interview	
Key stakeholder interviews Semi-structured questionnaires were applied to key actors from public institutions, the private sector, and civil society organizations, among others	AID- districts of Concepción, Loreto, Belén and Horqueta	28 actors/referents of the Government of the department, municipalities, regional offices of ministries and national secretariats, universities, Associations, social and religious organizations, among others.	Photographic record Written record of each interview	
Interviews with community actors Semi-structured questionnaires were applied to referents of the micro-territories identified in the area near the Mill	AID- district of Concepción and 18 Micro- territories located at the margin of the Access roads to the Mill area.	44 actors/referents of educational institutions, small businesses, tourism and recreation enterprises, sanitation boards, neighborhood commissions, among others	Photographic record Written record of each interview	

ACTIVITY	Zone/district/ micro- territory	Number of people involved	Sources of verification resulting	Picture Registry
Participatory workshop with institutional actors from the city of Concepción A program was generated including the delivery of official information by the company and semi-structured questionnaires were applied in working groups during the day	AID- City of Concepción	11 referents from sectors such as the public, private, academia, civil society, among others	Signature sheet Photographic record Written record of the activity	
Focus groups with community actors Semi-structured questionnaires were applied during the development of all 5 focus groups	AID- Districts of Concepción (Micro-territories), Loreto, Belén and Horqueta	67 referents of neighborhood commissions, peasant organizations, water and sanitation boards, educational institutions, small businesses, tourism and recreation enterprises, among others	Signature sheet Photographic record Written record of the activity	 
Perception surveys They were applied by means of the elaboration of an instrument with mostly closed and open questions, interest groups were taken into account according to profile	AID- Districts of Concepción, Loreto, Belén and Horqueta	150 people, students, university students, teachers/directors of educational institutions, merchants, hotel and tourism references, white-collar personnel, people in religious, recreational and organizational spaces	Signature sheet Photographic record	

Source: Own elaboration based on the field work done during December, January and February 2020.

A continuación, se presentan los resultados obtenidos, estos serán expuestos de manera general. Es decir, considerando la totalidad de personas consultadas y cada técnica involucrada por distrito. Sin embargo, es importante resaltar los siguientes aspectos:

- Certain results will be specified by area of influence or group differentiated by technique used whenever it is considered important to highlight aspects; that might otherwise get lost in the generality.
- Although the general results are exposed, the results according to the technique used and area of influence can be consulted in attached documents.
- Certain results will be specified by area of influence or group differentiated by technique used whenever it is considered important to highlight aspects; that might otherwise get lost in the generality.

- Although the general results are exposed, the results according to the technique used and area of influence can be consulted in attached documents.
- The information recorded from the focus groups and participatory workshop has served as a complement when analyzing both quantitative and qualitative results, in most cases, reaffirming positions and/or opinions of responses obtained through the other techniques used.
- The number of factors mentioned by the people consulted were taken into account for the processing of the information and the presentation of results, considering the number of times each one was mentioned, for this reason in many cases the number of responses or factors is greater than the number of people involved.

5.1.1. Social Perception of the Socioeconomic Characteristics of the Area

As part of the survey in the territory, a range of questions was included regarding the way in which people perceive the place they inhabit, social, economic, cultural characteristics, etc.; frequent problems, the strengths of the area, aspects considered by them as fundamental for development, among others. The results will be presented considering the areas of influence in which the field social work was carried out, initially in the ADA and later in the AID.

5.1.1.1. Socioeconomic Characteristics of the ADA – Social Perception

In the ADA, the 12 families and 4 referents of the ranches that adjoin the surveyed area were consulted (Picket Cue).

Main Economic Activities of the District/Locality

Both the registered families located in the immediate surroundings of the Mill and the interviewed referents of the ranches, when consulted regarding the main economic activities in the area, have mainly mentioned Livestock and Agriculture, with a predominance of small-scale livestock (between 10 and 15 heads) mainly for consumption and for sale. In the case of the ranches, the interviewees commented on the roles in the families, “the men work in the neighboring ranches doing specific tasks and others go to ranches in the Chaco while the women stay to take care of the house and the animals.” (Referring to those who work as day laborers). It was also mentioned that there are small businesses in the area; pantries, motorcycle workshop and mini-cargo (for cell phones), among others.

Chart 91 shows the results of the socioeconomic census regarding this item.

Chart 91. Main economic activities of the population

Main economic activities mentioned	Amount
Agriculture	7
Cattle Raising	12
Coal/Charcoal	3
Cheese Sell	1

Source: Socioeconomic Census in the ADA - Piquete Cue. January 2020

As can be seen, livestock was mentioned by 100% of the people surveyed, that is; 12 times as the main economic activity in the area and in particular Piquete Cue.

Positive Aspects of Living in the Community

Regarding the positive aspects of living in the community, in the ADA, the people consulted agreed that the “tranquility” factor is a very valuable aspect of the area, being mentioned not only by 100% of the people surveyed but also by all the interviewees from the ranches involved in this area, likewise, “the environment/landscape” was the next aspect considered positive by both groups, followed by “safety” in the case of the people surveyed and “the absence of contamination” by the people interviewed from the ranches.

Chart 92. Aspects which population mentioned as positive

Positive aspects of living in the community	Amount
Environment/landscape	8
Security	6
Tranquility	12
People	4
Little pollution	1
Others: Rooting	1
Total	32

Source: Socioeconomic Census in the ADA - Piquete Cue. January 2020.

Problems identified in the community

The people involved in the survey in the ADA mentioned among the main problems identified in the community, emigration and migration (in the first place), the interviewees of the ranches gave the example of workers who are forced to move to the Chaco in the absence of job offers in the area in which they reside, also those who for the same reasons emigrate to Spain or Argentina, losing the link with their places of origin. Next, both groups mentioned in turn, the low labor supply itself, the problems of access due to poor condition or lack of roads, cattle rustling as a latent difficulty, especially in the case of stays, and also the scarce police presence in the area.

Chart 93. Problems identified by censused families

Main problems identified in the community	Amount
Rustling	2
Emigration and migration (city countryside)	6
Little job offer	4
Alcoholism	2
Little cultural and recreational offer	1
Insufficient communication service	1
Access problems: Lack of more roads and poor condition than there are	3
Insecurity	1
Total	

Source: Socioeconomic Census in the ADA - Piquete Cue. January 2020.

Priority Aspects for Community Development

In the ADA, a prioritization was requested regarding the aspects that people consider important to increase the development of their community, given this, the factor mentioned the most times within the highest range (5) by people Census corresponds to “work” -7-, later the factor “Access to basic services (mainly water)” -3- and finally “Education and Culture” -1-. And most of those interviewed in the ranches referred that the main factor to promote the development of the area is related to the generation of sources of work. The second factor with access to education due to the training need to access jobs and the need to have Family Health Units (USF) according to the needs of the area. Finally, the importance of Rooting and road improvement was mentioned.

Chart 94. Priority aspects selected by censed people in Piquete Cue (ADA)

Priority aspects for their community's development	Priority Range					Amount
	5	4	3	2	1	
Access to basic services (mainly water)	3(25%)	2 (16.67%)	1 (8.33%)			6
Education and culture	1(8.33%)		1 (8.33%)	1 (8.33%)	1 (8.33%)	3
Job	7 (58.33%)		1 (8.33%)	-	1 (8.33%)	9
Communication and Transportation	-	2 (16.67%)	1 (8.33%)	2 (16.67%)	-	5
Territorial development	-	1(8.33%)	3 (25%)	1 (8.33%)	-	5
Health	-	3 (25%)	4 (33.33%)	2 (16.67%)	1 (8.33%)	10
Agriculture and environment	-	2 (16.67%)	-	1 (8.33%)	3 (25%)	6
Livestock and Productivity	-	1(8.33%)	-	-	2 (16.67%)	3
Waste and collection and treatment system	-	1(8.33%)	-	-	-	1
Social care	-	-	1 (8.33%)	4 (33.33%)	2 (16.67%)	7
Security	-	-	-	1 (8.33%)	2 (16.67%)	3

Source: Socioeconomic Census in the ADA - Piquete Cue. January 2020.

Most Important Recreational and Cultural Activities at the Community Level

In the ADA both groups mentioned various recreational and cultural activities such as: Attending patron saint festivities, lacerated, organizing and attending both male and female soccer tournaments and to a lesser extent, going fishing, going to mass, birthdays in the community and going to the watering places.

Chart 95. Recreational and cultural activities mostly mentioned

More important recreational and cultural activities	Amount	Percentage
Patronal Party	11	91.67%
Lacerated	5	41.67%
Soccer tournament (men and women)	4	33.33%
Fishing	2	16.67%
Mass	2	16.67%
Birthdays in the community	2	16.67%

Watering Places	1	8.33%
Total		100%

Source: Socioeconomic Census in the ADA - Piquete Cue. January 2020.

Most Used Media in the Area

All the interviewees of the stays mentioned that the most used means of communication is the cell phone through social networks (WhatsApp, Facebook), the most watched television channel is Telefuturo and one of them mentioned that he uses cable television. Among the most listened to radio stations are: Regional Radio, Aquidabán and Radio Norte. In the case of those surveyed, the responses are shown in Chart 96:

Chart 96. Means of Communication

Means of Communication	Amount
Official radio media and alternative radio media (community radios). (Teko Pyahu Loreto, Regional 660 AM Concepción, Primavera community radio, La Mega)	10
TV: Telefuturo, Cable, Channel 40 of Concepción.	10
Social networks: Facebook and WhatsApp	5
Total	25

Source: Socioeconomic Census in the ADA - Piquete Cue. January 2020.

As can be seen, and unlike the group of interviewees from the stays, 83.33% (10 out of 12) mention that the most used media in the area are: official and alternative (community) radio stations, as well as TV that was also mentioned by 10 people (83.33%); the minority 41.67% (5 of 12) responded that the most used media are social networks.

Socioeconomic Characteristics of AID – Social Perception

In the AID, all 300 people were involved in the different consultation spaces already mentioned at the beginning of this section. From this process, the following results have been obtained:

Chart 97. Economic activities

Economic Activity	Concepción	Horqueta	Loreto	Belén	Total
Agriculture	66	16	14	7	103
Cattle Raising	76	11	10	10	107
Small Cattle	6	1	0	0	7
Trade	73	11	18	19	121
Laborer/Changa	26	3	2	1	32
Tambo	2	2	1	0	5
Fishing	4	0	0	0	4
Goods and services	12	0	1	3	16
Public function	2	2	4	1	9
Financial	1	1	0	0	2
Industry	7	1	0	18	26
Tourism	2	0	0	4	6
Retired	0	0	1	0	1
Productive cooperatives	0	2	2	0	4

Economic Activity	Concepción	Horqueta	Loreto	Belén	Total
Construction	1	2	4	1	8

Source: Social work in the field. January and February 2020.

Regarding the main economic activities in the area, the three most indicated categories in the districts of Concepción, Horqueta and Loreto were agriculture, livestock and commerce. In Belén there is a variation considering that the industry is registered as the 2nd most mentioned category.

In general terms, it can be observed that the 4th factor most referred to is the one corresponding to wage work or changa, where those who are inserted in this labor segment are largely employed in the informal sector; receiving a daily or piece rate remuneration. Examples include the work carried out in the ranches (wiring, carp, sowing); the sale of fruit and vegetable products in fairs organized on a weekly basis or the sale of yuyos, chicken, egg, milk, cheese or other remedies on an itinerant basis.

Agriculture and livestock are mostly carried out on a small scale and for the consumption of families. As part of agricultural production, the cultivation of sesame, corn, manioc, pineapple, tomato, watermelon, cotton and spurge are mentioned.

Livestock has the particularity of being an item that operates as a savings system for families since the animals are sold or slaughtered according to need or in case of emergencies. To a certain extent, they supply the refrigerator companies in the area and mostly work for sale and consumption by the families in the places where they reside.

Trade is an activity that has been increasing in recent years. As an example, the following are cited: gastronomic ventures (pizzerias, lomiterías, food park, dining rooms), hardware stores, distributors, transporters, supermarkets, pantries, warehouses and others.

The secondary sector is represented by the cement, lime and refrigeration industries as reported by the people who participated in the consultation process. These industries are initiatives that generate sources of income for the inhabitants of the area and are highly valued because there is a low labor supply and through them demand for labor is generated.

In this area, the participation of both women and men in the neighborhood courts or sports centers of the largest cities stands out. In addition, it should be noted that there are people of all ages who come to support their teams, so it becomes a collective activity attended by several people as spectators; even more so in the official Paraguayan indoor soccer tournaments.

Another of the mentioned edges belongs to the cultural environment, highlighting the reference to Patron Saint Festivities by the consulted actors. These are characterized by integrating a strong religious content in which festive acts are fused with beliefs, customs, and traditions.

The third most noted factor is the traditional livestock, industrial and commercial event called Expo Norte. It has been developed since 1989; under the organization of the Rural Association of Paraguay (ARP) and the Association of Merchants and Industrialists of Concepción (ACIC). It takes place in the first half of September at the Nanawa exhibition ground, located at km 2.5 of Route V.

The North Expo opens its doors to the general population with a great variety of attractions at an artistic, cultural, sporting and social level, in addition to the exhibitions presented by the exhibitors from different areas. Another

of the activities referenced mainly at the community level is: assistance to watering places, streams, swimming pools or rivers that exist at the local level; and in the field of equestrian sport the competition of lasso or "laceada" that takes place in a terrain called lasso track where the objective is to link the cattle with a rope or lasso in the shortest possible time.

Chart 98. Recreational Activities

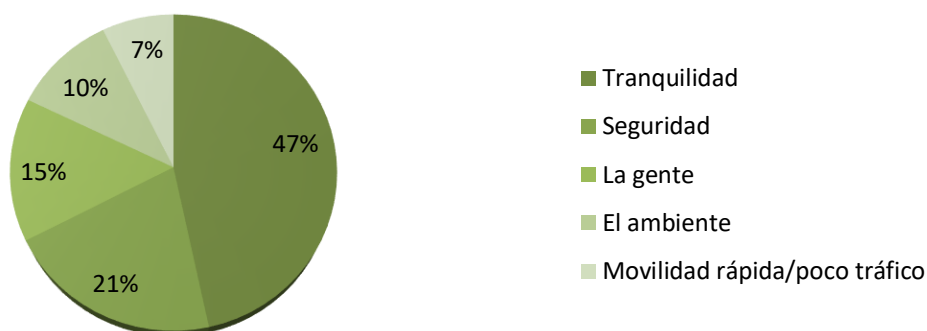
Zone	Concepción	Horqueta	Loreto	Belén	Total
Festivities	34	8	9	7	58
Founding party	0	2	0	1	3
Night parties (discos)	6	3	2	1	12
Arts festivals	9	4	9	1	23
Motorcycle/race rides	2	1	0	0	3
Soccer tournaments (hall, field)	63	22	13	8	106
Volley	10	1	0	0	11
Fishing	1	0	0	0	1
Boat tour	1	0	0	0	1
Skating	1	0	0	0	1
Basket	1	0	0	0	1
Dance	1	1	0	0	2
Swimming	0	1	0	0	1
Painting	1	0	0	0	1
Open spaces (plaza, parks)	3	0	2	0	5
Spas, streams, river, swimming pool	20	3	4	4	31
Jockey/horse race	6	2	1	0	9
Lacerated	15	1	1	1	18
Go to gastronomic sites	2	0	0	0	2
North Expo	28	3	1	2	34
tourism	1	1	0	1	3
Theater	4	0	0	0	4
Student Parade	11	2	5	14	32
Go shopping	0	1	2	1	4
Religious activities	4	2	0	0	6
Youth Group Meeting	1	0	0	0	1
Fund raising activities for social help	3	0	0	0	3

Source: Social work in the field. January and February 2020.

Positive Aspects of Living in the Area

The tranquility, the security, the people, the environment and the little existing traffic are the five most outstanding positive aspects of living in the area according to the data collected in the four districts of the study area. These elements refer to aspects related to the quality of life of the inhabitants.

Graphic 12. Valoration of positive aspects



Source: Social work in the field. January and February 2020.

In addition to the aforementioned aspects, unity and solidarity are also pointed out as part of the organizational component, followed by the importance of having land suitable for agricultural livestock production.

Chart 99. Main positive aspects mentioned of living in the zone

Positive Aspects	Concepción	Horqueta	Loreto	Belén	Total
Tranquillity	68	29	32	30	159
Security	21	15	11	24	71
Unity / Organization / Solidarity	10	3	2	6	21
Fast mobility / low traffic	9	4	1	11	25
The environment	25	7	2	2	36
The cost of living is lower	4	1	0	1	6
Rooting	4	0	0	1	5
Productive zone, fertile land	12	3	0	1	16
Area close to institutions and communities and access to benefits	9	0	0	0	9
Low rate of drug use	0	1	1	0	2
Investment area	1	0	0	0	1
People	33	6	4	7	50
Progress on the way and accesses	1	0	0	0	1
Industrial development	1	0	0	2	3
Offer of educational institutions	0	1	0	0	1
Freedom of expression	0	1	0	0	1
Little pollution	0	0	2	0	2
Cultural and recreational spaces	2	1	0	0	3
Job offer	4	4	3	2	13
Development of the commercial sector	1	2	1	1	5
Hospitality and Tourism	2	0	0	1	3
Water quality	2	0	0	0	2

Source: Social work in the field. January and February 2020.

Necessary Aspects for Further Development

The results obtained regarding this item will be initially presented as mentioned by the people consulted through the interviews, including key institutional and community actors, later the response of people who were part of the surveys carried out in the AID will be presented.

Necessary Aspects for Further Development

According to institutional and community actors interviewed: Infrastructure and road safety (17%) considering the importance of improving the state of roads and neighborhood roads; since many communities are isolated in times of rain. The second factor refers to the need to generate Work Sources (16%) in the study area due to the little or almost no existing labor supply, together with the importance of promoting or developing Technical Assistance programs (16%) for local ventures and initiatives with special emphasis on small and medium producers; Linked to this factor, the importance of strengthening peasant agriculture is mentioned (5%) accompanied by a market for the commercialization of existing production at fair prices (5%).

The third factor corresponds to the importance of installation and operation of industries (10%) considering that these can contribute to counteract the lack of job opportunities in the area.

Chart 100. Results of the consult about necessary aspects for development

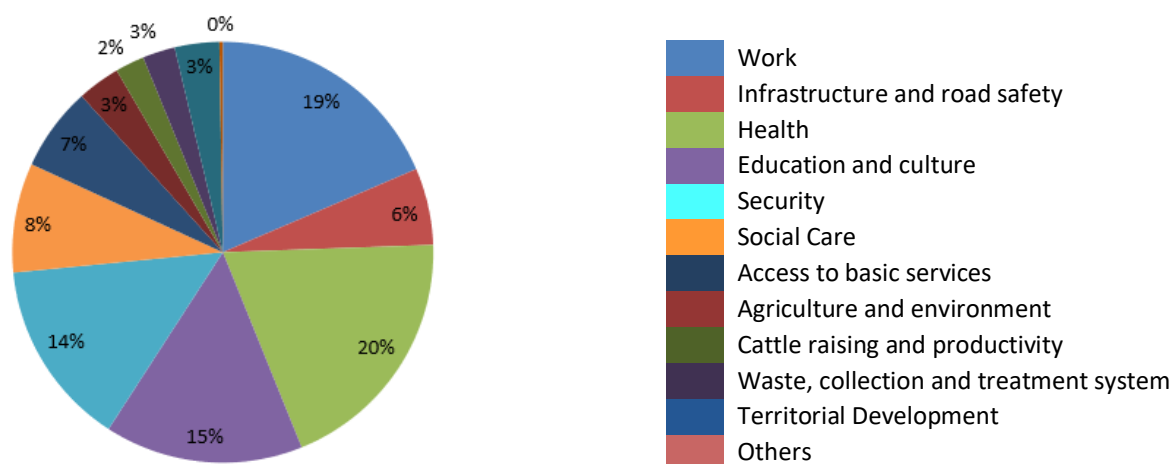
Development	Concepción	Belén	Loreto	Horqueta	Total	%
Education/training	6	1	0	1	9	5%
Technical assistance for local businesses and initiatives	24	1	2	0	29	16%
Strengthen peasant agricultural production		2	2	3	9	5%
Agrarian reform and organization		0	0	1	2	1%
Generation of work sources	19	2	3	3	28	16%
Health	8	0	0	1	10	6%
Market for the commercialization of production at fair prices	3	2	1	3	10	6%
Industries	10	0	1	5	18	10%
Local investment and new technologies		1	2	2	7	4%
Infrastructure and Road Safety	26	1	1	1	31	17%
Recreational spaces	1	0	1	0	3	2%
Depoliticization	1	0	0	0	2	1%
Local government improvement	1	0	0	0	2	1%
Dynamization of the local and departmental economy.	1	0	0	0	2	1%
Drainage and sanitation.	1	0	0	0	2	1%
Lack of political will.	1	0	0	0	2	1%
Supply market	0	1	0	0	1	1%
Strengthen SMEs	0	1	0	0	1	1%
Rooting	2	0	1	0	3	2%
Strengthen livestock production.	0	0	0	1	1	1%
Transparent competitions to access public office eradicating prebendaries and patronage	0	0	0	1	1	1%
Access to basic services	2	0	0	0	2	1%

Access to education	4	0	0	0	4	2%
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Source: Social work in the field. January and February 2020.

Aspects needed for further development according to censed people in the AID

Graphic 13. Priorities for further development



Source: Social work in the field. January and February 2020.

It can be seen that the priority factors are: Health (20%) related to the need to improve access to quality care, the importance of having health units close to the communities and that they have equipment, infrastructure and basic supplies for proper care.

The second factor corresponds again to the need for labor supply in the area (19%). Emphasizing that the districts have a qualified workforce that cannot practice their profession due to the low existing labor supply or the high rate of young workforce that is forced to migrate to other cities for greater employment opportunities.

The third factor with the highest mention is the prioritization of education and culture (15%), linked among other aspects to the possibility of accessing university and improving the educational level of many young people who, due to low family income, are unable to attend. continue with studies.

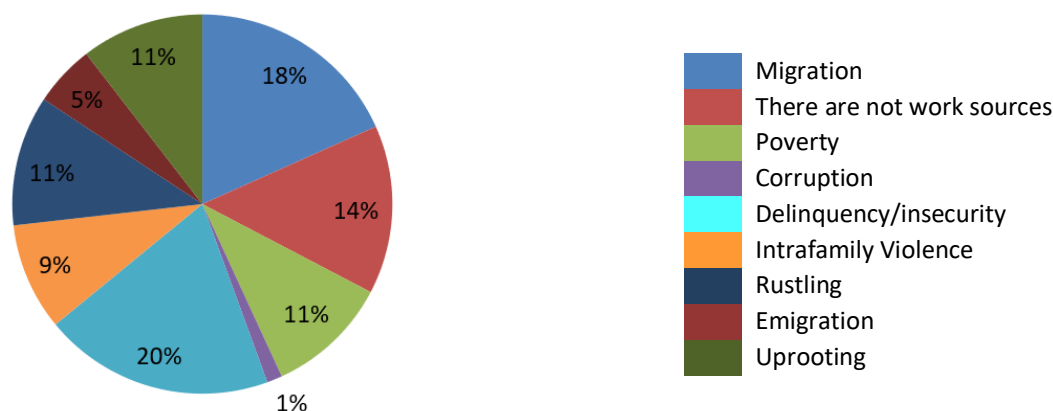
Social Issues

The results that will be presented in this item correspond to the responses of the total number of people who responded to the interviews with institutional and community actors and to the surveys carried out. The analysis is in turn complemented with the conclusions resulting from both the participatory workshop and the focus groups developed in the field.

At the level of social problems, the factor: "Insecurity", the factor "migration" (city countryside) reflected in 18% was mostly mentioned, that is, by 20% of the total interviewees; followed by the "lack of work sources" by 14%.

Poverty, cattle ranching and uprooting occupy the 4th place in importance and the fifth element indicated corresponds to the emigration of women, mostly to countries such as Argentina and Spain.

Graphic 14. Results of the consult about social issues



Source: Social work in the field. January and February 2020.

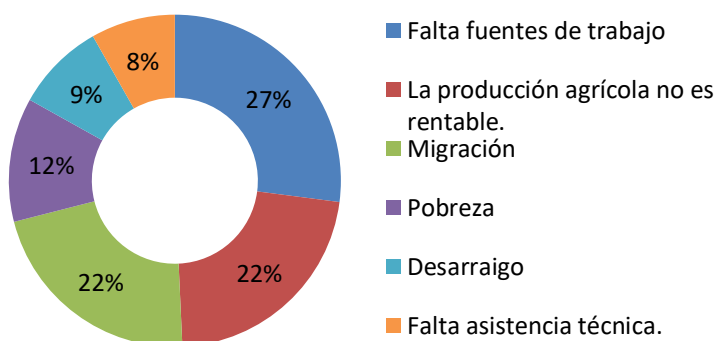
Economic Problems

Among the factors most often mentioned as part of the results of institutional and community interviews, the first is the lack of work at the local level (27%); followed by the low profitability of agricultural production (22%) mainly associated with the difficulty in transferring products for sale, the lack of a secure market for marketing and / or the loss of production; and the country-city migration phenomenon (22%).

As a third factor, poverty (12%) is mentioned, followed by uprooting (9%), which in most cases is identified by the people consulted as a consequence of the permanent migration and/or emigration that occurs in the areas of study.

The fifth element referred to consists of the lack of technical assistance specifically for small and medium producers, both livestock and agricultural as well as for entrepreneurs in general.

Graphic 15. Results of the consult about economic problems



Source: Social work in the field. January and February 2020.

Issues Identified in the District – Survey Results

Of a total of 150 respondents in the AID districts, 9 key factors are mentioned that are repeated in the 4 districts; from which 5 central aspects can be visualized, which are: the low labor supply (38%), drug use (29%), insecurity (17%), emigration (10%) and migration (6%).

In relation to both social and economic problems, it can be observed that the lack of source of work is currently a cause for concern in the area, since it was an aspect mentioned by a large number of people, both in the interviews and in the surveys. Likewise, insecurity and issues related to it (drug use, crime, etc.) and migration were other aspects mentioned. However, it should be noted that, in many cases, these were linked to the lack of employment as the trigger for the other aspects mentioned.

In group spaces such as the participatory workshop with key actors from the city of Concepción, these aspects were reiterated. Likewise, the lack of road access must be underlined, the little decentralization that leaves the area quite isolated at the political and social level, the fracture between the rural and urban areas and the lack of training adapted to the local reality as well as other issues of concern highlighted in that space. It was also possible to access aspects that were highlighted in the community focus groups and that generate concern in rural areas, such as school dropouts, cattle ranching, lack of technical assistance for production, low income and indebtedness, among others.

At the end of this subsection, it is necessary to highlight that, both in the ADA and in the AID, through the techniques used it was possible to access the socioeconomic characteristics of these areas, from the point of view of the inhabitants of the project's areas of influence, also fulfilling the objective of generating an initial information channel with them. It could be evidenced that beyond belonging to an urban or rural area, there are similar visions regarding issues related to their immediate environment and in general, the main economic/productive activities in the area, as well as the positive aspects or the personal appreciation of the community in which they reside, highlighting the "tranquility", "security" and other factors related to the way of life in the department, as well as some similarities in aspects related to common interest such as those that according to them, should be worked so that there is greater development in the community/department. However, in this and other items, in addition to the common themes that were mentioned, such as "Sources of work" and "road improvement", others were also highlighted that refer to more particular issues depending on the area in which it was carried out the survey "access to health service", "access to basic services, especially water".

5.1.2. Social Perception of Entrepreneurship (the mill)

Regarding the social perception regarding the installation of the Mill, the general results are presented, including the various techniques used to reach the population, this by district. The population was consulted about their knowledge regarding entrepreneurship, the means by which they found out, their opinion of an initiative of this magnitude in the area, the positive and negative aspects of it, their expectations, aspects that they it seems important to take into account in the construction and operational stages, among others.

As can be seen in the following chart, the first item consulted is related to knowledge about the installation of the mill, before which, almost 30% of the interviewees and respondents answered affirmatively, that is; they mentioned having heard of the pulp mill. Of the districts involved, Concepción had 45% affirmative responses, unlike the other districts with less than 20% affirmative responses in all cases. It can be seen that in the case of the district of Belén no one had heard about the undertaking.

An important aspect to highlight is that, in the ADA, the people surveyed and interviewed already had 100% knowledge about entrepreneurship and that through the development of focus groups it could also be noted that

the people who live in the micro-territories located in the access road to the mill had better knowledge than those in more remote districts.

In the following charts the general results related to the “knowledge about the construction of a pulp mill” can be observed.

People who have claimed to hear about the construction (67) have been consulted about the area in which the construction is planned and, if so, the means through which they found out. To this, more than 80% responded having knowledge of the area in which the construction is planned, stating, for the most part, having found out through friends, neighbors and / or relatives, followed by people who found out through local radio programs.

Chart 101. Result of the surveys, communitarian interviews, institutional interviews and census

Have you heard about the building of a pulp mill?	Concepción	Horqueta	Loreto	Belén	Total	Percentage
Yes	57	6	4	0	67	28.63
No	74	29	31	33	167	71.37
Total	131	35	35	33	234	100%

Source: Social work in the field. January and February 2020

Chart 102. Result of the survey, communitarian interviews, institutional interviews and census

Do you know the area in which the mill will be built?	Concepción	Horqueta	Loreto	Belén	Total	Percentage
Yes	49	3	3	0	55	82.09
No	8	3	1	0	12	17.91
Total	57	6	4	0	67	100%

Source: Social work in the field. January and February 2020.

As can be seen in chart 102, most of the people who have knowledge of where the construction of the mill is planned are from the district of Concepción.

Knowledge about what is manufactured and its implications

When consulted regarding what is manufactured and its implications, the results show that in Concepción the majority of affirmative responses were obtained, however, with very little difference from those who responded not knowing them. In the other districts there was a clear lack of knowledge.

Chart 103. Result of the surveys, communitarian interviews, institutional interviews and census

Do you know what is going to be manufactured and the implications of its production?	Concepción	Horqueta	Loreto	Belén	Total	Percentage
Yes	42	2	1	0	45	46.39
No	36	6	5	5	52	53.61
Total	78	8	6	5	97	100%

Source: Social work in the field. January and February 2020.

Opinion regarding the initiative

Regarding the opinion of the people involved in the survey about the initiative, the majority presented positive opinions. These opinions were linked to the generation of sources of work, to promote the industrial development

of the area and to generate progress and development. In terms of negative connotation, although there is a noticeable difference in terms of quantity, the most named factor is related to people's fear of possible damage to the environment that could be caused by the undertaking if the corresponding precautions are not taken.

Chart 104. Results of the consult

What is your opinion regarding the initiative?	Concepción	Horqueta	Loreto	Belén	Total
It is expected that it will be actually implemented (Corruption can create obstacles for the implementation of the initiative)	5				5
It will mean the generation of sources of work	36	3	3	3	45
It is positive if it does not generate environmental damage (Compliance with environmental laws on care and protection of the environment, reforestation, among others)	12		2	2	164
It will promote the industrial development of the area. "Dynamization of the local and departmental economy"	17	6	3	1	27
Roads will be improved	2				2
Compliance with working conditions "It is important that it is carried out within the framework of decent working conditions"	4				4
Social responsibility	4				4
"That they take into account the care of the Social Environment"	4	1	1		6
It can be a good opportunity for local suppliers	1			1	2
It is important that they generate a truthful, transparent and articulated communication system with the public	1	1	1	1	4
Dynamization of the local and departmental economy	1				1
It is important that they contemplate and comply with the security measures and mitigation of impacts	1			1	2
Training	2				2
Total	90	9	8	9	116

Source: Social work in the field. January and February 2020.

Positive Aspects/benefits which might offer to the community/department/country

Chart 105. Result of the counting of answers to communitarian and institutional interviews, census and survey

Positive aspects/benefits that you can offer to the community/department/country	Concepción	Horqueta	Loreto	Belén	Total
Generation of work sources	91	28	31	25	175
Dynamization of the economy at the local and departmental level	27	4	6	4	41
Access to basic services		1			1
Progress and development	22	7	1	7	37
Promote industrial development	5		2	1	8
Community infrastructure improvement	10	1			11
Social responsibility	1				1

There will be more useful	1				1
Reforestation	3				3
Generation of opportunities	1				1
Technical assistance to producers in the area	1				1
Contemplate and comply with security measures and mitigation of impacts	1		1		2
Compliance with labor laws	2	1			3
Income generation	5				5
It will help reduce the dangerousness index		1	1		2
Rooting	1	1			2
Compliance with care and protection of the environment	1				1
Greater income generation for the municipality	1				1
Training		1		2	3
Does not respond / Does not reference	6				6

Source: Social work in the field. January and February 2020.

As indicated in chart 105, numerous positive aspects or benefits that an enterprise of this magnitude could offer to the community, cities and country were named, the aspect that prevailed during each of the survey activities, in all the districts, was the generation of sources of work, later they mentioned the revitalization of the local and departmental economy, the progress and development and improvement of community infrastructure. When the key actors were consulted in the participatory workshop held in the city of Concepción and the community leaders in the different focus groups developed, they all agreed on the importance of project implementation for the following reasons:

- It will generate sources of work directly and indirectly (merchants, bricklayers and others).
- It will improve the quality of life in the area. When there is income there is an improvement in the quality of life.
- It will improve the quality of road accesses.
- It generates genuine income to the municipality and
- It will contribute to the improvement of community infrastructure.

Negative Aspects that could be generated by entrepreneurship in the community/ department/country

Result of the processing of community and institutional interviews and surveys (In the case of surveys, this item contains only the 31 cases of people who answered affirmatively to the question "*Do you consider that this undertaking could generate negative impacts for the community?*" of the total number of 150 people surveyed).

Given this question, although several factors that could generate negative impacts according to the people consulted were mentioned, the answers reveal, above all, their concern regarding the possible damage to the environment that could be caused by not taking the corresponding precautions, this was the majority in all districts. Likewise, this aspect was mentioned in other spaces such as the focus groups and the participatory workshop with key actors, with the exception of the families registered in the ADA who in their entirety have responded that they did not see any negative aspect with the implementation of the enterprise.

Aspects mentioned during the participatory workshop and in five focus groups carried out

- Environmental impacts/generation of environmental and health damage.
- There may be low absorption of local labor due to not being trained and that can generate complications in the area.
- Threat due to non-compliance with national and international regulations.
- Many industrial projects wanted to be installed and due to political problems, they were unable to advance.
- If there is not good communication it can generate conflict.
- Lack of information that can generate conflict.

Negative aspects that could be generated in the community/department/country	Concepción	Horqueta	Loreto	Belén	Total
Generation of environmental damage	53	7	3	8	71
Little hiring of people from the department	3	0	1	1	5
That they do not take care of the social environment	1	0	0	0	1
Breach of working conditions	3	0	0	0	3
Opposition in the city in the case of not coinciding with a group or sector	1	0	0	0	1
Road insecurity	2	0	0	0	2
It does not promote the dynamization of the economy at the local and departmental level	4	0	0	0	4
Increase in the cost of quality of life	1	0	0	0	1
Control mechanisms for compliance with environmental regulations by weak State institutions.	2	0	0	0	2
Non-compliance with environmental conditions/laws	3	0	1	1	5
Non-compliance with measures for the protection, prevention and mitigation of impacts		0	1		1
Disinterest in or lack of accompaniment from political representatives of the government	1	0	0	0	1
The presence of PPE in the area can be a problem	1	0	0	0	1
Concentration of benefits in a single sector	1	1	0	0	2
Does not reference / Does not respond	5	2	1	1	9

Source: Social work in the field. January and February 2020.

Expectativas con relación al proyecto

The responses obtained in terms of expectations in relation to the project are in line with the responses presented in the previous items (opinion, positive and negative aspects) as can be seen in the following chart, most of the times **the generation of sources of work**, as the main expectation, followed by **care and protection of the environment, progress and development, promoting the development of the department and supporting the growth of the communities in the area**.

Expectations regarding the project	Concepción	Horqueta	Loreto	Belén	Total
Sources of work, hiring local labor and taking into account the young population	73	23	24	27	147
Feasibility of the proposal	6	4	5	5	20
Road safety	10				10
Compliance with working conditions	8	1			9

Care and protection of the environment	21	3	1	2	27
Progress and development	12	4	8	1	25
Higher economic income	4	4	1	1	10
Truthful, transparent communication system and articulated work with citizens	8	2			10
Could generate contamination	1	1			2
Adequate infrastructure	1				1
Technical assistance for farmers in the area	4	1	1		6
Care of the social environment	5	1			6
Contemplate and comply with security measures and mitigation of impacts	4	2		1	7
Promote the development of the department and support the growth of the communities in the area	13	2	2		17
Installation of the mill in the zones; in places where negative impacts are minor and can be easily accessed	1				1
Selection of qualified and honest personnel	2		1		3
Training development	5	1			6
Contribute with local suppliers	8	2	2		12
Promote industrial development	1				1
Relative impact on the local economy	1				1
Does not respond/Does not reference	5			1	6

Source:
Social
work in
the field.
January
and
February
2020.

Expectations and Observations Resulting from the Participatory Workshop

- Fluency of communication regarding the project.
- That society is aware of the implications of the project
- That the labor hired be local professionals.
- That the project becomes a reality in the area
- Report clearly so that misinformation is not spread.
- Dissemination and awareness of environmental safety measures.
- Compensation for the natural resources used.
- Promote synergies with educational institutions on the implementation of training programs.
- That there is a diffusion in the Department, the clearer the impacts and the benefits, the better.

Considering the consultation process related to the perception of people regarding the possible installation of the mill in Concepción and as mentioned at the beginning of this section, it is considered important to **UNDERLINE THE POSITIVE ATTITUDE OF PEOPLE TO ALL ENTREPRENEURSHIP THAT MAY MEAN DEVELOPMENT AND BETTER LIVING CONDITIONS IN HIS DEPARTMENT**. Although institutional actors of the city of Concepción, residents of the ADA and micro-territories mentioned having knowledge about the initiative, in the other districts where the possibility was raised, even showing surprise at the consultations, people were interested in knowing better the Implications of the installation since it could mean **"NEW SOURCES OF WORK"**, possibility of employment of unemployed local labor, especially in the case of young people who even finish university careers and when not being able to work they migrate to other places to look for better/greater opportunities, they also expressed the importance that the project's priority is **"CARE AND PROTECTION OF THE ENVIRONMENT"**.

People interviewed in the districts of Horqueta, **LORETO AND BELÉN REQUESTED THE LABOR OF THEIR COMMUNITIES BE TAKEN INTO ACCOUNT**, commenting that, in previous experiences, although the

undertakings meant absorption of labor at the departmental level, at the local level the impact was not feel". In the micro-territories and the ADA, through the implementation of the Census, interviews and focus groups, it was possible to register, among other issues, the expectations of the inhabitants, who expressed hope that the project will support the **DEVELOPMENT OF THEIR COMMUNITIES**, this expressed in technical assistance for farmers, training in general, contribution with local suppliers, road safety, among others. An outstanding aspect registered in various spaces, both in rural and urban areas, has to do with the fear of citizens that the project will not be implemented, since they highlighted that **"MANY TIMES THIS TYPE OF OPPORTUNITIES IS TALKED, BUT FINALLY NOT DONE"** to what in terms of expectation was mentioned as "project viability". Likewise, particular opinions were given by which the importance of fluid communication with the population was highlighted, attention is paid to the interference of partisan politics in the actions and that security measures and mitigation of impacts are contemplated and complied with.

6. Evaluation of Social Impacts

6.1. Presentation

The evaluation of the social impacts of the enterprise is focused on meeting local regulations, and as an industrial activity, it is framed in Law No. 294/93 on Environmental Impact Assessment, and its regulatory decrees No. 453/2013 and No. 954/2013, is that is, in the legislation that regulates obtaining the Environmental Impact Statement (DIA) or Environmental License, regulated by the Ministry of the Environment and Sustainable Development (MADES). In addition, PARACEL is committed to complying with the environmental and social sustainability standards, where in addition to ensuring compliance with the regulations in force in the Republic of Paraguay, its strategy is to abide by the "Principles of Ecuador" (in particular #2 , #3, #4, #5 and #6), the "Performance standards on environmental and social sustainability" (in particular #1, #2, #4, #5 and #8) of the International Finance Corporation, as well such as the World Bank's "Guidelines on Environment, Health and Safety".

Furthermore, the mentioned social standards are congruent with the commitment that the countries adhering to the United Nations have, in order to achieve the goals agreed in the "Sustainable Development Goals - SDGs" for the year 2030.

For the evaluation of social impacts, the process flow of the industrial component is taken into consideration first, as well as the related and related activities, both in the construction and operational stages, since these could generate potential positive and negative impacts, to the social environment.

The social baseline that precedes this analysis already describes the environment, detailing the populations of the area of influence¹⁴⁴ of the undertaking, their demographic, territorial, access to services, infrastructure, among others, which are considered when quantifying the impacts and social risks of the project.

With the baseline data, the social factors that could be impacted by the entrepreneurial processes are defined. These social factors are presented, both for the constructive and operational stages, in section 6.2.1.2. of this report. Social factors that must be addressed in the project or pre-construction stage are also taken into account.

The information gathering was carried out through consultations with secondary and primary sources, the results of which support the evaluation, this in turn made it possible to take the basic "social perception" as a reference,

144 The area of influence of the enterprise is grouped into three specific ones: i) Directly Affected Area (ADA), Area of Direct Influence (AID), Area of Indirect Influence (AII).

accessing social aspects such as the "Expectations" of the population involved, which has made it possible to evaluate the social factor from the early stages of the undertaking, in the project phase or pre-construction phase.

Next, the impact evaluation methodology is presented, and then the impacts identified are evaluated according to the "social environment factors" considered, crossing in matrices correlated with the "environmental aspects" linked to the "activities" or flow of main processes, and related activities, of the venture.

Finally, from the result of the identification of impacts, in those of medium or high significant social incidence that could generate risks, the risks are evaluated, linked to possible contingencies or emergencies that may arise, from the social point of view.

The main results of the evaluation of social impacts indicate that those of a positive nature impact on the factors "employment", "development of the local and regional economy", "development of capacities", this, due to all the contributions that PARACEL will give to the region, considering that the District of Concepción is one of the districts with the highest unemployment rate in the country. In relation to the social factors with the greatest negative impacts, there is "third party health and safety", "Public/non-public services, infrastructure and/or property", where the first is related to changes in "quality of life, uses and customs" to which the communities in the immediate surroundings will be subjected, and the second to the impact that public services could have, and in particular the road infrastructure of the area.

6.2. Methodology for the evaluation of social impacts

The social impact assessment follows the principles applied to an Environmental and Social Impact Assessment (ESIA), which in Paraguay is documented in each "Preliminary Environmental Impact Study (EIAP)" in accordance with local regulations and international agreements ratified by Paraguay. In addition, taking into account the nature of the undertaking and the requirements of PARACEL, the IFC performance standards, Equator principles and best practices are taken into account. These were presented in section 1.2 Linked national and international regulatory framework of this document.

Below, in a summarized way, the main activities and chronology in the evaluation of social impacts are cited, taking into consideration the regulatory framework mentioned above:

- Prior to the evaluation itself, the baseline studies are taken as a reference, which provide specific information on the project's area of influence, with emphasis on the population of the Directly Affected Area (ADA).
- An on-site tour is carried out in the communities near the property where the project is planned.
- With the results of the social characterization study, and perception study with secondary and primary Source information, respectively, the social factors that could be affected by the enterprise are defined.
- The social impact assessment matrices, normally used in ESIA's, are structured and adapted to the undertaking and its processes, in order to carry out the factor-aspect crossover, and thus define the potential social impacts and risks. First, a checklist is made that allows to pre-identify which social factors could be impacted by the aspects or activities.
- Then, based on the same matrix, the impacts are quantified following the concept of "social significance", according to defined social variables.
- A description of each of the identified impacts is made, which will then be addressed by mitigation/compensation measures in the Social Management Plan.

6.2.1. Entrepreneurship activities that generate potential impacts versus potentially impacted social factors

In the impact assessment procedure, the activities of the undertaking are considered, in its various phases, and these are grouped into what is known as “aspects” that could generate impacts, among which the related activities to be considered are taken into account defined below.

Then, these activities are related to the “social factors” of the social environment that could be susceptible to potential impacts. Their correlations are normally crossed in specific matrices, as presented later.

6.2.1.1. Entrepreneurship activities that generate potential impacts

The following chart shows the aspects derived from the activities of the undertaking, in the pre-constructive (or project), constructive and operational stages. The grouping of activities could be subdivided again, but it is considered, from the social point of view, that these encompass the aspects that could generate impacts in this environment.

In the pre-construction or project stage itself, it is considered that the "project design" itself would be the one that could generate two major "aspects" to consider: i) Expectations and perception of the population of the area of influence, in general and in relation to the Project; ii) The possible effects on the social units closest to the project (homes and ranches¹⁴⁵) located in the immediate surroundings of the industrial mill property.

The grouping of activities, in the constructive and operational stage, could be subdivided again, but it is considered from the social point of view that these encompass the aspects that could generate impacts in this environment.

Although there are aspects that must be considered from the early stages of the project, such as hiring personnel, beginning construction of access roads or housing for staff accommodation, these are evaluated in the construction stage, thus following the methodology commonly used with the matrices that will be presented in the following sections.

Chart 106. Aspects derived from the activities of the entrepreneurship

Aspects in the pre-constructive stage	Aspects in the constructive stage derived from the activities of the entrepreneurship	Aspects in the operative stage derived from the activities of the entrepreneurship
<ul style="list-style-type: none"> • Perception of the population in general • Units located in the immediate surroundings of the enterprise. 	<ul style="list-style-type: none"> • Hiring of personnel for the construction of the industrial mill and related services • Construction of the industrial mill and related services • Transportation of materials, supplies and machinery • Transportation of personnel/operators linked to the work • Construction and/or adaptation of access roads to the industrial mill • Construction and operation of accommodation • Construction of Transmission Line (LT) 	<ul style="list-style-type: none"> • Hiring of personnel for the operation of the industrial mill and related services • Operation of the industrial mill and related services • Transportation of raw materials, supplies and products • Transportation of workers from the industrial mill • Production and management of emissions (gases, noise and odors) • Production and management of effluents

145 Ranches are called haciendas or properties with land extensions ranging from 200 to 8000 hectares dedicated to livestock and/or agriculture.

Aspects in the pre-constructive stage	Aspects in the constructive stage derived from the activities of the entrepreneurship	Aspects in the operative stage derived from the activities of the entrepreneurship
	<ul style="list-style-type: none"> • Management of solid waste, effluents, emissions • Closure or completion of the works 	<ul style="list-style-type: none"> • Production and management of solid waste • Maintenance of access roads to the industrial mill • Operation of accommodation of the workers of the industrial mill

Source: Own elaboration

Each of the aspects considered is briefly defined below:

Pre-constructive Stage or Project

- **Perception of the Population:** The perception of the population in relation to the socioeconomic characteristics of the area and the entrepreneurship itself, is the result of the approach methodology of the social study, which consisted of the implementation of various data collection techniques in territory (interviews, focus groups, surveys, among others), the results of which are described in the LBS, summarized in section 3.1 of this document.
- **Units located in the immediate surroundings of the property of the enterprise:** As a result of the data collection, studies of Primary Source, particular social units were identified, in a community known as Piquete Cue, made up of 13 (thirteen) families with a certain degree of kinship, as detailed in the characterization. In addition, 7 (seven) ranches established in the ADA were identified, adjacent to the development site.

Constructive Stage

- **Hiring of personnel for the construction of the Industrial mill and related services:** process by which Paracel hires qualified and unskilled labor, suppliers, others, for the construction of the Industrial mill. This activity will entail a worker influx in the area of influence according to the different activities of the stage.
- **Construction of the Industrial mill and related services:** refers to the civil works related to the construction of the components of the industrial plant, including other related activities, such as possible hydraulic works, foundations, metal structures, concrete, as well as construction and operation of construction sites in the construction area, construction and operation of an electric station, construction of its own port terminal, security services, logistics services, among others.
- **Transportation of materials, supplies and machinery:** refers to the transportation linked to providing supplies, materials, machinery, equipment, for the assembly and construction of the Industrial Mill. It is assumed that most of the transportation will be by land, but the use of the waterway through the Paraguay River is also considered.
- **Transportation of personnel/operators linked to the work:** process by which personnel or workers, professionals, specialists and others are transferred to the work area.
- **Construction and/or adaptation of access or exit roads to the Industrial Mill:** when extending the possible construction of roads for access to the project and exit from it, beyond the limits of the property in question, it is considered as an activity that It could generate impacts beyond those related to the construction of the Mill itself.
- **Construction and operation of temporary accommodation:** this is considered a relevant related activity or installation, considering that the construction of six temporary/permanent accommodation is foreseen for the personnel linked to the works who currently live at a considerable distance, and all will be located in the city of Concepción, according to the Map presented in Chapter 1, and the Annex presents general data on their location and distribution.
- **Construction of Transmission Line (LT)** is considered a relevant related activity or installation, considering that it is planned to build an exclusive transmission line of 220 KV, from the Villa Real substation of ANDE in Concepción, to supply the station electricity in the Industrial Mill. It will be approximately 32.85 km long, and it is expected to follow the route of the existing roads (communal, municipal and in a section of the PY 05 route), passing through the towns of Saladillo, Ko'ê Porâ to San Ramón Alley, and then through private properties to the development site.
- **Management of solid waste, effluents, emissions:** aspects related to the generation, transportation and possible management of waste related to the works, also considering the effluents and emissions that may derive from the works.
- **Closure or completion of the works:** transition process between the completion of the works, including the camps built, and the start of the operation of the Mill. It includes the dismantling of the work fronts in general and - if it were the case - of the temporary accommodation that has been built.

Operational Stage

- **Hiring of personnel for the operation of the Industrial Mill and related services:** as for the construction of the mill, specialists and labor related to the operation of the Mill and other activities related to it will be hired (operation of its own port terminal, security services, logistics services, among others). This activity will entail a worker influx in the area of influence according to the different activities of the stage.
- **Operation of the Industrial Mill and related services:** processes related to the operation of the Industrial Mill, with emphasis on the "pulp" production line.
- **Transportation of raw materials, supplies and products:** all activities related to the transportation of raw materials to be processed at the Mill, supplies and/or related equipment. It also includes the transport of the final products. It can be by land and river.
- **Transportation of workers from the Industrial Mill:** the transfer of personnel linked to the Mill is assumed, which would be less at this stage, but always higher compared to the "without project" baseline.
- **Production and management of emissions (gases, vapors and odors):** refers to the activities derived from the "emissions" treatment line that occur in the industrial process.
- **Production and management of effluents:** activities related to the line of treatment of effluents from the industrial process. These effluents, according to data from similar undertakings, are almost entirely reused and follow international quality standards.
- **Solid waste production and management:** related to waste derived from the "cellulose pulp" production process and other waste from activities at the Mill.
- **Maintenance of access or exit roads to the Industrial mill:** activity linked to the periodic maintenance of the access/exit roads to the mill.
- **Accommodation of the workers of the Industrial Mill:** it is assumed that part of the operating personnel of the Industrial Mill will reside permanently in the temporary/permanent accommodation built in the construction stage.

6.2.1.2. Potentially Impacted Social Factors

The social factors (socio-economic and cultural) considered for all stages are presented in chart 107:

Chart 107. Social factors considering for pre constructive, constructive and operative stage

Pre constructive Factors	Social factors evaluated in the constructive stage	Social factors evaluated in the operative stage
<ul style="list-style-type: none"> • Quality of life, uses and customs • Economy and jobs • Demographics • Expectations 	<ul style="list-style-type: none"> • Jobs • Demographics • Public/private services, infrastructure and/or property • Cultural heritage 	<ul style="list-style-type: none"> • Jobs • Demographics • Public/private services, infrastructure and/or property • Cultural heritage

Pre constructive Factors	Social factors evaluated in the constructive stage	Social factors evaluated in the operative stage
	<ul style="list-style-type: none"> • Local, regional and extra regional economy • Real-estate market • Occupational health and safety • Health and safety of third parties • Quality of life, uses and customs, including ecosystem services • Expectations of the population 	<ul style="list-style-type: none"> • Local, regional and extra regional economy • Real-estate market • Occupational health and safety • Health and safety of third parties • Quality of life, uses and customs, including ecosystem services • Expectations of the population • Landscape

Source: Own elaboration

Next, the social factors are defined¹⁴⁶, in order to clarify the scope considered in each of them and linked to potential impacts:

- **Jobs:** favorable or beneficial effects that could be produced by the entrepreneurial activities associated with the increase in employment opportunities and its characteristics.
- **Demography:** Favorable and unfavorable/negative effects that could be produced by the activities of the undertaking on the number of population in the localities of the area of influence.
- **Public/private services, infrastructure and/or property:** favorable and unfavorable/negative effects that could be produced by the activities of the undertaking on access to basic services. These services could be: collection and final disposal of solid waste; provision of drinking water, sanitation, electricity, health care, transportation, security, education, communication and information, etc. The effects that may occur on the infrastructures, such as the land and river communication routes, the leasing capacity (housing rentals) and/or on the existing properties (public and/or private) are also considered.
- **Cultural Heritage:** favorable and unfavorable/negative effects that could be produced by the activities of the undertaking on the set of tangible and intangible assets. This evaluation refers rather to material or tangible heritage (archaeological sites and objects, architecture, documents, works of art from the past).
- **Landscape:** it is related to the perception of the landscape in the communities close to the undertaking, which, although it is usually also analyzed from the environmental point of view, the social focus is linked to the satisfaction of the people with the changes made to the existing landscape.
- **Local, regional and extra-regional economy:** favorable or unfavorable effects on the economic development of the populations in the Area of Direct and Indirect Influence and at the country level. It includes topics related to tourist economic activities and those that make use of resources such as water. Additionally, those effects on employment derived from the indirect actions of the enterprise in the area of influence are identified (increase in businesses, increase in demand for goods and services, generation of new jobs, etc.).
- **Real estate market:** favorable or negative effects on the real estate value of the properties close to the development and the rental price.

¹⁴⁶ The definition of social factors is similar in the different stages of entrepreneurship, and their scale can vary according to each stage..

- **Health and occupational security:** favorable and unfavorable/negative effects that could be produced by the activities of the undertaking on the health and physical safety of the workers, personnel or operators linked to the works or to the operation of the Project.
- **Health and safety of third parties:** favorable and unfavorable/negative effects that could be produced by the activities of the undertaking on the health and/or physical safety of people who are not employees of the Project (third parties), both in the communities of the area of influence as from neighboring communities. The topic of citizen security is also included.
- **Quality of life, uses and customs, including ecosystem services:** favorable and unfavorable/negative effects that could be produced by the activities of the undertaking with an effect on the quality of life, uses and customs of the communities in the area of influence. Regarding quality of life, aspects valued by local people, such as tranquility and comfort, have been considered. In relation to the uses and customs, those daily practices carried out by the communities are taken into account, such as leisure/recreational activities, activities related to the use of water (artisanal or subsistence fishing) or soil (self-consumption) and the use of ecosystem services, areas that involve social relationships (use of spas, for example), among others. The uses and customs also refer to intangible or intangible cultural heritage, which includes manifestations of popular culture.
- **Expectations:** favorable and unfavorable/negative effects that could occur due to the activities of the undertaking on the expectations and perceptions of the communities in the area of influence, both positive and negative. It is related to all the aspects that the communities could perceive as feasible to improve/worsen as a consequence of a project of this magnitude.

Each of the factors could be subdivided again, but this grouping is the result of the analysis of the LBS and the Particularities of the social environment. It is worth mentioning that the particularity of indigenous populations is not considered in any of the aforementioned factors, since this specialty is served by a particular study that complements the present analysis.

6.2.2. Criteria for the impact assessment

In the environmental and social impact assessment process there are several formulas for assessing impacts, where normally those linked to the one known as the Leopold et.al (1971) Matrix, adapted Leopold or similar formulas are used, which require characterizing the importance and magnitude of the impacts. For the present study, criteria similar to those of Leopold are used, but where the variables considered have a greater focus on the social environment, adopting the indicator of "Social Significance" of the impacts. The "nature" (NA) of the impacts can be positive (+) or negative (-), depending on the effect they produce, that is, depending on whether they are favorable or unfavorable.

Chart 108. Nature of the social index

Nature of the impact (NA)	Denotation	Meaning
Positive Impact	IP (+)	Results in favorable effects and benefits
Negative Impact	IN (-)	Indicates unfavorable or negative effects

The social index of each identified impact is calculated from a formula that relates the estimate of number of affected (ICA), the distance of the impact (ID), the importance (II) and the occurrence (PO), that is, four variables, according to the following equation:

$$\text{Social Index (SI)} = \frac{(\text{ICA} + \text{ID} + \text{II}) \times \text{PO}}{3}$$

The value range of each of the variables, and their explanation, is defined according to the following detail, and they were taken by virtue of the undertaking and criteria adopted at the regional level in similar projects¹⁴⁷:

Chart 109. Variables of the social index and their assessment

Variable	Initials	Value of the variable	Detail
Number of affected (according to areas or equivalent population)	ICA	1 to 3	ADA: Direct workers and/or neighbors of the property where the industrial mill is developed, including Piquete Cué, Laguna Plato, Saladillo, Mongelós, L. Petit, and the other micro-territories defined in the LBS
		4 to 6	AID: Concepción, Loreto, Horqueta and Belén
		7 to 9	All (even extra region or country)
Distance	ID	1 to 3	ADA
		4 to 6	AID
		7 to 9	All
Importance	II	1 to 3	Unimportant: will not involve a significant effect on stakeholders
		4 to 6	Medium importance: the effect will be of considerable magnitude
		7 to 9	Very Important: it will generate significant or irreversible changes in stakeholders
Frequency	PO	0.1 to 0.39	Unlikely
		0.4 to 0.69	Medium Probability
		0.7 to 0.99	High Probability

Source: Own elaboration

After crossing the aspects/activities of the Project with the social factors of the environment and, according to the formula presented above, the result of the social index of the identified social impacts is obtained, where the impacts are finally quantified in high, medium and low significance social, according to the scores presented in chart 110:

Chart 110. Social index and impact category

Typy of Impact	Social Significance	Social Index
High Impact	HIGH	From 6.01 to 9
Medium Impact	MEDIUM	From 3.01 to 6
Low Impact	LOW	From 0.1 to 3

Impacts of **low and medium** significance can be minimized with preventive measures and best practices, while those of **high** significance must be addressed in a particular way, considering that they could entail not only mitigation measures but also compensation and/or contingency measures. However, it may also be the case that, as the affected population, as well as its distance of affectation "low", the result of social significance is "low", but

147 Source: Environmental Impact Assessment of the Pulp Mill UPM (Environmental Engineer Study, UPM, 2018).

nevertheless refers to a vulnerable group, so that at the discretion of the evaluators, it must also attend to particular measures that will be specified in the Social Management Plan.

The risk analysis presented in section 6.4 identifies those potential impacts that could generate social risks and complements the impact assessment.

6.3. Evaluation of Social Impact

6.3.1. Social Impact Assessment – project or pre constructive phase

The evaluation of social impacts in the pre-construction stage is qualitative and descriptive.

This section is divided into two items, on the one hand, the result of the general perception of the opinions, perceptions and expectations raised in the Directly Affected Area (ADA) and Area of Direct Influence (AID) of the project, in relation to what people perceive the project, and another focused on the socio-economic and cultural characteristics of the immediate surroundings of the property.

6.3.1.1. Perception Results – perception results report

The results of the study of "Social Perception" allow to have in the pre-project stage the opinion/perception of the communities about the socioeconomic characteristics of the area and also about the installation of the industrial mill. This information was obtained from approximately 316 people from the ADA and AID through the use of various techniques such as a census of families located in the immediate environment of the project implementation area, interviews with key institutional and community stakeholders, and as a complement They carried out community focus groups and a participatory workshop in the city of Concepción, capital of the department, as well as surveys at strategic points in the districts involved.

In order to be able to identify the potential impacts, this section focuses on the results obtained from the expectations of the population regarding the installation of the industrial mill and their opinion regarding the socioeconomic characteristics of their community.

In order to understand the foregoing, the people consulted have expressed as their main concern in relation to the problems of the area, both the ADA and the AID, the lack of employment, which in turn leads to migration/emigration people (they migrate to the Chaco or other regions of the country and they emigrate to Argentina and Spain). This is related to the response that communities give to what they expect from entrepreneurship, where the majority have responded that they expect "Generation of sources of work", that the project would bring "Progress and development", as well as "Promote the development of the department and support for the growth of the communities in the area".

It is considered, therefore, that impacts could be generated linked to the communities consulted having higher expectations than the project can cover, which, although it expects to directly hire between 6,000 and 8,000 personnel for the construction stage, certain profiles to be hired require knowledge and specialties related specifically to this type of undertaking.

Likewise, it is important to note that Paracel has initiated alliances from an early stage with the Ministry of Labor, Employment and Social Security (MTESS), in order to promote training through the National Professional

Promotion Service (SNPP)¹⁴⁸, as well as with educational institutions present in the department, with the objective of promoting the employment of local labor and the development of capacities.

After analyzing the responses received from the people and stakeholders consulted, it is concluded that among the main expectations/observations/perceptions in relation to the project, the following can be mentioned, correlating them with potential positive/negative impacts, as summarized below:

Chart 111. Main expectations/observations/perceptions in relation to the Project and potential associated impacts

Expectations/observations/perceptions in relation to the Project	Potencial associated impact
Fluency of communication regarding the project	Poor information for the community (-) Local referents consulted without follow-up (-)
That society is aware of the implications of the project	Poor information for the community (-) Uncertainties in the communities (-)
That the hired labor be local professionals	Employment generation and local development (+) Skills building (+)
Report clearly so there is no misinformation	Poor information for the community (-)
Dissemination and awareness of environmental safety measures	Poor information for the community (-)
Compensation for natural resources used	Poor information for the community (-)
Promote synergies with educational institutions on the implementation of training programs	Consulted Institutions (-)
That there is a dissemination in the Department, the clearer the impacts and benefits, the better	Poor information for the community (-)

Source: Own elaboration

Each of the identified impacts is described below, which will be addressed by specific programs and measures of the PGS from the early stages, in compliance with Paracel's sustainability policies and principles.

Poor Information for the Community

The communities consulted mention the need to have information in relation to the project. Likewise, they have expressed concern about the need to care for the environment, and this could not only be a concern of the communities, but also of non-governmental organizations (NGOs) that usually monitor this type of undertaking. Weak communication in the early stages, or not making adequate broadcasts in plain language could lead to uncertainty and concern.

In the interviews carried out, the people living in the ADA zone state that they use local radios as the main means of communication, whether they are official or alternative (community) radios, with television representing the most relevant medium (83.33%) and the minority (41.67%) responded that the most used media are social networks. In relation to the ADA stays, the majority manifested the use of social networks (WhatsApp, Facebook) to obtain information.

Therefore, different communication channels with the populations should be provided, as well as different key messages, in order to minimize this potential negative impact. Furthermore, this is related to the Consultation and Informed Participation process, as indicated by the Equator Principle 5 and IFC's performance standards.

148 <https://www.mtess.gov.py/noticias/cerca-de-10000-empleos-generara-empresa-de-produccion-de-celulosa-que-se-instalara-en-concepcion>

Consulted Institutions (-)

During the interviews, information has been collected from local referents, and among the needs evidenced or "negative aspects" of the project, the possible "road insecurity" has been raised. Considering that the process of interviews and consultations was carried out in the period of "school holidays", the possible impact that may occur to educational centers from the early stages is identified, noting that three educational centers have been identified in the ADA, and others in the area of micro-territories, which could have risks related to road safety once the works begin.

This is also reflected in the fact that one of the main characteristics revealed about the community is the "tranquility" of the area, this in response to the low vehicular traffic in the area, which will be drastically changing with the beginning of the project.

This impact is related to addressing health and safety issues for the population, anticipating from the early stages measures that minimize this impact in later stages of the project.

In addition to the schools, there is also a significant presence of UFS in the area, to which the residents go to receive primary care for health conditions, and which could be important when maintaining a continuous consultation process.

Uncertainty in the communities (-)

The uncertainty in the communities needs to be monitored. The results of the perception study not only raised the "expectations" in relation to the project, but also the opinions that the community could have in relation to the industrial mill. There is a concern related to possible damage to the environment.

In the participatory workshop, and in the five focus groups developed, the following uncertainties related to the project were mentioned: i) There may be low absorption of local labor due to not being trained and this can generate complications in the area; ii) Threat due to non-compliance with national and international regulations; iii) Many industrial projects wanted to establish themselves and due to political problems they were unable to advance; iv) If there is not good communication, it can generate conflict; v) Lack of information that can generate conflict.

This impact is closely related to that of "deficient information to the community", and the degree of dissemination and permanent consultation that can occur from Paracel will depend on whether these are minimized.

Generation of employment and local development (+) and skills (+)

Both impacts are positive, and must be duly addressed from previous stages. In the perception study, job creation is the population's highest expectation. This responds to the data from the socioeconomic characterization of the AID districts and the All departments.

Currently, in the AID the same employment pattern is observed according to productive sectors as at the departmental level, with the predominance of livestock, commerce and agriculture, and followed by day laborer/changa type jobs. Fifth, employment in industries has been mentioned, especially in the districts of Belén (there is a meat processing industry) and Concepción. Finally, employment in the goods and services sector follows.

The need expressed by the communities, in relation to hiring local labor, was also linked to the importance of generating and strengthening capacities in the area, these in two directions; one on improvement issues in general issues and the other on issues related specifically to this type of undertaking, which in the long term will mean a benefit for creating new capacities installed in the department.

6.3.1.2. Environment immediate to the property of the Enterprise – social units closest to the enterprise

The community of Piquete Cue is located in the immediate surroundings of the surveyed area where 13 families (43 people) reside; of which 11 women and 10 men are heads of household, these have a rooting of between 6 and 94 years. Likewise, seven (7) predominantly livestock establishments (ranches) were identified.

In the case of the homes of the 13 families of Piquete Cue, they are located along approximately 3 km, on the left margin of the project's property area, and at a distance between 0.36 and 1.49 km from said area, is entirely family dwellings, of which 11 are their own. The predominant economic activity in the area is livestock and the inhabitants work mainly by season/day in nearby ranches (several in the Cerrito ranch), they are also engaged in the production of milk, cheese and animal husbandry.

Currently 16 people (7 women and 9 men) have work activity and income, 4 women are housewives and 11 people are unemployed and looking for work. 16 people currently attend an educational institution (primary, secondary and tertiary level).

Regarding basic services, 100% of the homes have electricity (ANDE) and cellular telephony, 53% have internet, but not with drinking water service. There is also no sewer drainage network or garbage collection service (currently they go to the burning).

The motorcycle as a means of transport is widely used in the absence of public transport service. There is only one road that is used by its inhabitants to move to other communities. As mentioned by the people surveyed, the community does not have health services in place.

In the design stage of the project, several alternatives of access/exit roads to the Industrial Mill were analyzed. These alternatives were based on two main scenarios:

1. Access to the mill entering through the area of the town of San Ramón, specifically through the Pyrenda ranch.
2. The second scenario, where the access would be by Piquete Cue, directly affecting 13 families that inhabit said community, and even with the possibility of physical displacement.

IFC Performance Standard 5 recognizes that land acquisition and land use restrictions associated with a project can have adverse impacts on the communities and people who use the land. Involuntary resettlement refers to both physical displacement (relocation or loss of housing) and economic displacement (loss of property or access to property resulting in loss of sources of income or other means of subsistence) as a result of the acquisition of land.

ND5 raises among its objectives: *"Avoid displacement or, when this is not possible, reduce it to a minimum by exploring alternative project designs"*.

In line with this standard, the preliminary data and results obtained in the field on this community were taken into account in the design alternatives review process, which were considered, thus ruling out the main entrance to the mill by Piquete Cue.

Chart 112. Potential socioeconomic impacts identified

Social Aspect	Social Factors Impacted	Impacts
Piquete Cue Community	Quality of life, uses and customs	Economic displacement (-)
		Affection of the community social network (cultural, linkage around the rooms, family disintegration) (-)
	Demography	Migration risk of the families dependent on ranches (-)
	Expectations	Generation of favorable expectations (+) Generation of fear and uncertainty (-)
Ranches	Economy	Economic displacement and impact on land (+/-)
	Job	Migration of workers from one sector to another (-)
	Expectation	Generation of favorable expectations for the community (+)
		Generation of fear and uncertainty (-)

Source: Own elaboration

Economic Displacement, (Income, Livelihood and employment)

Although the option of physical displacement to the homes of the Piquete Cue families has been avoided, the effects that could occur on the economic activities and way of life of these families must be addressed and compensated. These families work mainly by season/day in nearby farms and are also dedicated to the production of milk, cheese and animal husbandry for self-consumption and/or sale. Most of these families have only the property on which they reside and produce. Factors such as the availability of land to develop their subsistence/income activities and the current traffic dynamics on the road that the community uses, should be monitored to avoid any type of impact on their livelihoods and economy; either because of its proximity to the mill or because of the use of this road as a secondary road. This situation should also be addressed mainly for the communities near the main access/exit road to the mill, such as San Ramón.

In addition, the people surveyed have stated that they are "small producers", both for self-consumption and for eventual sale to third parties. This is also related to the "problems" manifested in the AID, where they have stated that in the area there is a lack of technical assistance specifically for small and medium producers, both livestock and agricultural as well as for entrepreneurs in general.

Likewise, the personnel linked to the ranches in the area could have some economic impact (foreman, day laborers, others). From the data collected, there is information linked to five of the seven stays, where a total of 52 permanent workers are registered, and approximately 41 people work indirectly in them.

Impact of the land or properties of the immediate surroundings of the mill

The loss of the land and related economic impact is thought of the owners of the ranches, but as it is expected that they will have an economic compensation, and that there would not be a total loss but a small impact compared to the surface that they occupy, it is considered a positive impact for the owners. This is indirectly linked to the negative impact of the economic impact suffered by the employees linked to the ranches.

It could be assumed that the loss is related to use, and not to property, in the event that a right-of-way agreement is reached that does not precisely involve the sale of land. This will depend on the agreements that Paracel reaches with said owners, prior to the start of works.

Affection of the community social network (cultural, bonding around the ranches, family desegregation)

This impact is related to changes in the quality of life, uses and customs of the communities in the immediate surroundings of the mill.

In gathering information, one of the main characteristics manifested by the community is the "tranquility" of the area. They also stated, both in the ADA and in the AID, living in those localities for "the people". There is a strong rooting to the area and a family social network linked to Piquete Cue, where almost all belong to the same genealogical line, and in turn all have direct dependence on the ranches in the area. These aspects could be altered either by the proximity to the mill or by the use of the Piquete Cue path as a secondary road. All these aspects will be monitored by Paracel within the framework of the measures proposed in the PGS in order to avoid any type of impact on the way of life, uses and current customs of these social units.

Migration risk of the families dependent of the ranches

The families (43 people) of Piquete Cué are related to the estancias in the area, and if one of them leaves the area, it could imply that some of the families decide to migrate to other areas, being also a practice rooted in the zone, considering that the LBS mentions that many people migrate to the Chaco or other areas in search of better conditions or for work reasons.

Migration of workers from one sector to another

This impact is linked to ranches, considering that their workers could be attracted from the early stages to change their category, or if this is not the case, the indirect impact of early migration to other areas could be had, anticipating what is projected in the industrial mill.

Generation of favorable expectations

Expectations in the population could result in both positive and negative effects. This section focuses on the favorable ones.

From the positive point of view, already identified from the early stages, it is associated with the need for work in the area, as they have stated in the "Preception Study". People from both the ADA and AID have stated that the project will provide sources of work, economic development, and even hope that the project will improve the conditions of public services in the area. This should be monitored throughout the project cycle.

Generation of fear and uncertainty

The uncertainties of the population consulted regarding the project have been identified, although the majority have stated as the main aspect in favor the fact that it generated sources of work, fear could be evidenced in relation to issues such as the change in the current way of life, little or no absorption of local labor and possible damage to the environment. The fear regarding the change in the way of life was mentioned mostly in the areas close to the one surveyed; micro-territories and ADA.

The specific measures will be addressed in the PGS, and the impact can be minimized if the related to the impact of "Deficient information for the community" mentioned in the previous section is addressed.

In addition, there are other fears related to possible damage to the environment. It is a point to address, since, if at the local level such fear is had, this could be extrapolated to other areas or to other actors, such as NGOs dedicated to environmental issues (national or international).

6.3.2. Evaluation of Social Impacts – Constructive Phase

6.3.2.1. *Matrix of Interaction Between Factors of the Social Environment and Social Aspects of the Construction Stage*

From the interaction of the aspects derived from the activities of the undertaking in the construction stage, as presented in chart 113; and of the social factors mentioned in 98; an interactive matrix is prepared, which allows previewing which activities could generate impacts, whether positive or negative.

Chart 113. Matrix of qualitative interaction, social factors and aspects derived from activities in the constructive phase

STAGE		CONSTRUCTIVE									
MEDIUM	<div> <div>SOCIAL FACTORS</div> <div>FORESEEN ACTIVITIES</div> </div>		Hiring of personnel for the construction of the Industrial Mill and related services conexos	Construction of the Industrial Mill and related services	Transportation of materials, supplies and machinery	Transportation of construction workers	Construction and/or adaptation of access roads to/out of the Industrial Mill	Construction and operation of accommodation	Construction of Transmission Line (LT)	Management of solid waste, effluents, emissions	Closure or completion of works, dismantling of workshop and/or homes
	RESOURCE	FACTOR									
SOCIAL	Social - Economic and Cultural	Employment	●	●							●
		Demography	●	●	●		●				
		Public/private services, infrastructure and/or property	●	●	●	●	●	●	●		●
		Archaeological, historical and / or cultural heritage		●			●	●	●		
		Local and regional economy	●	●	●	●	●	●	●	●	●
		Real-estate market	●	●	●	●	●	●	●	●	
		Occupational health and safety		●	●	●	●	●	●	●	●
		Third party health and safety	●	●	●	●	●	●	●	●	
		Quality of life, uses and customs, including ecosystem services	●	●	●	●	●	●	●	●	●
		Expectations	●	●	●	●	●	●	●	●	●

Source: Own elaboration

According to the interaction matrix of factors and aspects in the construction stage, it can be seen that the social factors "employment", "services, infrastructure and/or public or private property", "expectations", followed by "occupational health and safety" And "health and safety of third parties" could be affected, positively or negatively, by the various activities of the undertaking. Likewise, the impacts derived from the expectations generated by the project are considered in all aspects.

6.3.3. Social Impacts in the Construction Phase

The impacts derived from the intersection of social environment factors and entrepreneurial activities are listed below. First, in chart 114 the impacts are cited, their relationship with the activities, and to what social factor they are linked, later, in chart 115 the valuation of them is presented, following the methodology indicated above.

It should be noted that the aspect/activity of "Construction of the Industrial Mill and related services" has been used to refer to the impacts that derive from the construction of the Project as a whole, which are not linked to a particular activity of the same. For example, when speaking of the expectation of "development and progress" of the ADA/AID communities with the Project, this has been crossed or correlated with the aspect/activity of "Construction of the Industrial Mill and related services" in the impact identification chart 106. In addition, it is noted that two related activities relevant to the Industrial Mill are attended, "Construction and operation of accommodation" and "Construction of Transmission Line (LT), the first due to the potential impacts derived from the worker influx in the area, and the second due to the expectations that may arise in the area for large-scale electrical works, and both to be installed outside the property of the project itself.

It can be verified that they have been identified and grouped into thirty-four (34) potential social impacts in the construction stage. Descriptions of each of them are presented below. Although several of the impacts may occur in different aspects related to the activities of the undertaking, in the previous chart they were considered in

relation to only one aspect –where they have the greatest incidence–, in order not to make the quantification repetitive, however, in the description of the impacts mentions all the activities that cause/could cause them and that, therefore, require attention to prevent and/or minimize them. In addition, the impacts have been grouped by factors of the social environment, this allows identifying the particular modalities or disciplines that need to be addressed when establishing the measures in the Social Management Plan programs.

It should be noted that, in some cases, there may be social impacts with "low" social significance but that, nevertheless, they must be addressed because they affect vulnerable or sensitive groups, in order to comply with current regulations, as well as regulations of an international nature, cited above, based on international best practices and standards.

Chart 114. Social impacts identified in the constructive stage

Aspect or activity	Social Environment Factor	Social Impact
Hiring of personnel for the construction of the Industrial Mill and related services	Employment	Generation of Local Employment
	Employment	Salary Increase
	Employment	Formalization of labor ties
	Employment	Migration of workers from other productive sectors
	Employment	Capacity building
	Demography	Transitory population increase
	Public/private services, infrastructure and/or property	Increase in demand for public and non-public services
	Public/private services, infrastructure and/or property	Increase in demand for housing
	Real-estate Market	Increase in the price of properties and rentals
	Third party health and safety	Impact on the health of third parties
	Expectations	Generation of expectations and fears in the local population
Construction of the Industrial Mill and related services	Employment	Possible loss of employment and/or source of income
	Demography	Definitive population increase
	Archaeological, historical and/or cultural heritage	Affection of materials of archaeological, historical and/or cultural interest
	Local, regional and extra regional economy	Development of the local, regional and/or extra-regional direct economy (associated with construction) and
	Local, regional and extra regional economy	Increase in visitors to the area
	Occupational health and safety	Occupational health impairment
	Occupational health and safety	Impairment of occupational safety
	Third party health and safety	Affecting the levels of local citizen security
	Quality of life, uses and customs	Affection of the social network
	Expectations	Generation of negative perception and/or fears in the local population
Transportation of materials, supplies and machinery	Expectations	Generation of positive expectations at the regional and extra-regional level
	Expectations	Generation of negative perception and/or fears at regional and extra-regional level
	Public/private services, infrastructure and/or property	Increase in vehicular traffic
	Public/private services, infrastructure and/or property	Impact on road infrastructure
	Public/private services, infrastructure and/or property	Impact of land properties
	Public/private services, infrastructure and/or property	Impact on river and port traffic
	Third party health and safety	Impact on road safety
Construction and operation of temporary accommodation	Quality of life, uses and customs	Increased discomfort or restlessness
	Quality of life, uses and customs	Changes in customs and uses
Closure or completion of the works	Public/private services, infrastructure and/or property	Improvement in the quality of housing and in the provision of basic services
	Employment	Possible increase in unemployment in the area of influence
	Public/private services, infrastructure and/or property	Possible improper closure of temporary accommodation
	Local, regional and extra regional economy	Possible decrease in commercial activity and/or services

Source: Own elaboration

Chart 115. Assessment of social significance of social impacts identified in the construction phase

Social Impact	Social Variables					Social Index	Impact
	Sign	ICA	ID	II	PO		
Generation of Local Employment	1	7	7	7	0,99	6,93	HIGH
Salary Increase	1	3	7	6	0,69	3,68	MEDIUM
Formalization of labor ties	1	3	7	6	0,79	4,21	MEDIUM
Migration of workers from other productive sectors	-1	7	7	4	0,69	-4,14	MEDIUM
Capacity building	1	7	7	9	0,99	7,59	HIGH
Transitory population increase	1	6	6	6	0,99	5,94	MEDIUM
Increase in demand for public and non-public services	-1	6	6	8	0,99	-6,60	HIGH
Increase in demand for housing	-1	6	6	6	0,99	-5,94	MEDIUM
Increase in the price of properties and rentals	-1	6	6	7	0,69	-4,37	MEDIUM
Impact on the health of third parties	-1	6	6	6	0,79	-4,74	MEDIUM
Generation of expectations and fears in the local population	1	8	8	7	0,89	6,82	HIGH
Possible loss of employment and/or source of income	-1	1	1	7	0,79	-2,37	LOW
Definitive population increase	1	6	6	4	0,49	2,61	LOW
Affection of materials of archaeological, historical and/or cultural interest	-1	8	1	6	0,69	-3,45	MEDIUM
Development of the local, regional and/or extra-regional direct economy (associated with construction) and	1	7	9	7	0,99	7,59	HIGH
Increase in visitors to the area	1	5	5	5	0,59	2,95	LOW
Occupational health impairment	-1	3	3	5	0,39	-1,43	LOW
Impairment of occupational safety	-1	3	3	9	0,39	-1,95	LOW
Affecting the levels of local citizen security	-1	6	6	7	0,49	-3,10	MEDIUM
Affection of the social network	-1	3	3	7	0,79	-3,42	MEDIUM
Generation of negative perception and/or fears in the local population	-1	6	6	7	0,79	-5,00	MEDIUM
Generation of positive expectations at the regional and extra-regional level	1	9	9	7	0,69	5,75	MEDIUM
Generation of negative perception and/or fears at regional and extra-regional level	-1	9	9	6	0,49	-3,92	MEDIUM
Increase in vehicular traffic	-1	6	7	7	0,99	-6,60	HIGH
Impact on road infrastructure	-1	7	7	7	0,99	-6,93	HIGH
Impact of land properties	-1	2	2	7	0,99	-3,63	MEDIUM
Impact on river and port traffic	-1	3	9	4	0,49	-2,61	LOW
Impact on road safety	-1	6	7	8	0,99	-6,93	HIGH
Increased discomfort or restlessness	-1	6	7	7	0,99	-6,60	HIGH
Changes in customs and uses	-1	6	7	7	0,69	-4,60	MEDIUM
Improvement in the quality of housing and in the provision of basic services	1	2	2	6	0,99	3,30	MEDIA
Possible increase in unemployment in the area of influence	-1	7	7	7	0,99	-6,93	ALTA
Possible improper closure of temporary accommodation	-1	3	5	6	0,49	-2,29	BAJA
Possible decrease in commercial activity and/or services	-1	6	6	7	0,89	-5,64	MEDIA

Source: Own elaboration

JOB

Generation of local employment

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services.

Employment opportunities will be generated from the construction works of the Industrial Mill and related services. The types of employment will be skilled and unskilled labor, professionals, specialists, etc. that will carry out the construction of civil and road works, the assembly of equipment and machinery, as well as those related to the logistics of materials, supplies, machinery, equipment, human resources, waste, etc.

It is estimated that the Project will directly employ between 6,000 and 8,000 people in the construction phase, so the workers influx will increase, of which 10% will correspond to professionals, 30% to technicians and 60% to qualified. These direct jobs include people hired directly by PARACEL and people from contractors and subcontractors hired for construction and assembly. The Project must comply with the principles of IFC's Performance Standard ND 2 on "Labor and working conditions", clearly defining the labor links, depending on whether the employees are direct, contracted, or supply chain workers, as the case may be. Likewise, FSC Principle 4 on "Community relations and workers' rights" will be considered.

According to the socioeconomic data, the people of the department of Concepción will be able to cover the demand for unskilled employment, since there is a wide availability of people who could be suitable. In the department of Concepción, a large part of the population is young, of which 72% is under 35 years of age, and with an average of 7.61 years of studies. The Project may also contribute to increasing the employment of women, since 53% of the department's population is made up of women. Likewise, it is observed that most of the department's population, some 182,000 people, is concentrated in the four districts that make up the Project's AID and have a young population, following the trend of the department. For its part, the working-age population (WAP) is 186,627 people, of which 58.33% are economically active. With these data, it is estimated that a large part of the unskilled labor that will be employed by the Project could be local, from the same department of Concepción.

Likewise, the department of Concepción could also provide a certain amount of qualified labor, since the LBS revealed data that different types of technical courses are taught in the department with quick job opportunities, especially in the urban areas of the department, and that there are several public and private training centers.

Also the departments of Amambay and San Pedro, considered within the Project IIA, will be able to provide labor, mainly unskilled, for the Project. In both departments, most of the population is young, under 35 years of age (68% Amambay, 70% San Pedro), with averages of 8.48 and 7.21 years of study. Women make up about half of the population of the two departments.

The generation of jobs at the local level will contribute to the reduction of unemployment, which is 6.66% (about 7,247 people) in the department of Concepción, higher than the national average rate, and of income poverty and structural poverty, which in the department of Concepción are high, more than 40% in terms of income poverty and more than 50% in terms of at least one (1) Unsatisfied Basic Need (UBN), above the national average. Likewise, the creation of a source of employment, although transitory, may contribute to reducing the levels of migration from rural to urban areas observed in the department of Concepción, which would be motivated by work, study and, lately, due to the lack of security.

Salary Increase

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services.

The Project could grant higher salaries than the current average per capita income in the All departments, taking into account the related national regulations and the profiles or qualifications demanded. The average per capita income is Gs 896,026 in Concepción, Gs 981,516 in San Pedro and Gs 1,530,906 in Amambay, all below the current legal minimum wage of Gs 2,112,562. Although the quintiles with the highest incomes make up more than 50% of the population, they are around the minimum wage in force in Concepción and a little more than the minimum wage in force in San Pedro. Furthermore, according to the economic characterization of the area of influence, the total income poverty level in Concepción and San Pedro is above 40%.

Most of the population of the three departments of the IIA is rural (Concepción 57%, San Pedro 80%, Amambay 33%), with agriculture and extensive cattle ranching being an important sector of employment of the population, although behind the tertiary sector (commerce and services). Compared with these productive sectors, especially the primary one, the Project is expected to offer better paid jobs.

In addition, the supply of jobs associated with the Project work may produce an upward effect on salaries in the AID, which would benefit not only those employed by the Project but also those employed in other productive sectors in the area.

It is considered a positive impact because the increase in the level of income means a priori an increase in the purchasing power and debt capacity of the employed persons and their dependents, contributing to a greater consumption of goods and services and, therefore, to a greater development of the local economy and quality of life, expecting a decrease in the level of poverty, not only due to income, but also structurally.

Formalization of labor ties

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services.

The construction phase of the Project will create direct formal jobs, that is, in accordance with current national legislation. This will be comparatively beneficial in the IIA, since only a little more than a third of the salaried population employed in the three departments of the IIA have formal working conditions, in the sense that they are registered and make contributions to a retirement system. In absolute values, as of 2017, this involved only 13,969 people (38.41% of the population) in the department of Concepción, 19,171 people (38.24%) in the department of San Pedro, and 14,167 people (35.36%) in the department of Amambay.

Access to formal employment conditions is beneficial for workers and their dependents, since the system of pension contributions and social security is now integrated, access to other labor rights and guarantees, all of this contributing to a better quality of life of the worker (greater peace of mind regarding the future, etc.) and their dependents.

Migration of Workers from Other Productive Sectors

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services; transportation of materials,

supplies and machinery; transportation of construction workers; construction and operation of temporary accommodation.

It is expected that the industrial component of the project may have an impact on the migration of people, attracted by the project, as well as due to the increase in the workers influx in the area.

The employment opportunity generated in the construction phase of the Project may attract people who currently already have a job in another productive and/or service sector and promote migration to the Project, due to various factors that could make the job offer of the Project more attractive than the existing job offer, such as: better salaries, formalization of employment, related benefits, proximity to the home, desire for experience in a project with such characteristics, etc.

The impact would be positive if migration means an increase in the level of income and quality of life of the people who have migrated to the Project sector. The impact will be negative for the productive/service sectors that will lose employees and will have to hire new personnel and train them, or that will stop producing due to the lack of labor. Likewise, in the medium term the impact could be negative for the "labor migrants" themselves, given the temporary nature of the jobs in the construction phase of the Project, which will mean that once this phase is finished, a significant number of people could be left without a job and will have to seek either a new job or return to your previous job, with the difficulties that this could entail.

On the other hand, the economic development that may be induced by the Project in the AID during the construction of the Mill, may generate attractions for people, both local and foreign, who are currently engaged in certain productive areas, to migrate to productive sectors that may be indirectly promoted by the Project, such as shops and/or services (tertiary sector, in general). In these cases, the impact would be similar to that described.

In the department of Concepción, the main productive items historically have been agriculture and extensive cattle ranching, remaining predominant even before the authorization in recent years of industries such as: two meat processing plants, cement companies, service provider companies, the processing industry of dairy products. Also, in the departments of Amambay and San Pedro, the predominant productive activities have been agriculture and extensive cattle ranching, maintaining this way at least in San Pedro. Regarding occupation levels, as of 2017, most of the population of the department of Concepción were employed as private employees/workers and self-employed, the majority in the tertiary sector (47%) and then in the primary sector (36.2%).

In the AID the same pattern of employment is observed according to productive sectors as at the departmental level, with the predominance of livestock, commerce and agriculture, and followed by day laborer/changa type jobs. Fifth, employment in industries has been mentioned, especially in the districts of Belén (there is a meat processing industry) and Concepción. Finally, employment in the goods and services sector follows.

Regarding the ADA, which includes the area close to the area where the Mill is located, the main economic activity is livestock, followed by agriculture. The people of the Piquete Cue community are predominantly engaged in livestock sector activities, these being small producers, where men work in ranches in the area and/or the Chaco and women are dedicated to caring for the home and small herds of cattle (between 10 and 15 heads) for self-consumption or sale. A third source of income is commerce and service (pantries, minor sales, motorcycle workshop, sale of telephone credit).

It is estimated that the main migration of workers may occur from the extensive and small-scale agriculture and livestock sector, as well as from self-employed workers –formal and informal– to the Project. According to the surveys carried out with residents in the AID, the "low profitability of agricultural production" is the second most mentioned aspect regarding the economic problems that affect the communities, which may give an idea that, in

the face of better opportunities income, people would choose to change their productive area. On the other hand, it is likely that people who are already employed in other specific areas (for example, refrigerator manufacturers, dairy, etc.), and depend on type of employment, they may have fewer incentives (comparative salaries and/or working conditions, they already have specific training for their field) to abandon their current jobs.

According to the data from the All characterization, the departments of Concepción and San Pedro are the ones with the highest levels of pendular migrants (migration of a periodic nature and that does not result in a change of residence), generally for work reasons and at the intra departmental level.

Additionally, it is observed that the industrial sector in San Pedro is better paid than the industrial sector in Concepción. At the level of the ADA and AID residents, in the field information surveys they indicated “migration” due to lack of job opportunities as one of the social and economic problems that most afflict the communities. All this could indicate a favorable context for people interested in migrating from their productive sectors or from their current jobs to the Project sector to be mostly from the department of Concepción.

Possible Loss of Employment and/or Sources of Income

Activities or aspects that generate the impact: Construction of the Industrial Mill and related services.

The possible loss of sources of employment and/or income would take place due to the change in land use that the location of the Mill will produce, from the current use (predominantly livestock) to that of housing the Industrial Mill. This will affect the employees currently working in the aforementioned territory, almost mostly linked to stays. Although there are approximately 93 workers (52 direct and 42 indirect according to the ADA studies), these must be considered. The owners of the land are not considered, since they will have the freedom of decision and negotiation for the sale of the land.

Likewise, as already identified in the pre-construction or project stage, this impact could affect the social units of the Piquete Cue community, given its proximity to the enterprise and the alteration that could occur to their way of life due to the use of the current road as a secondary access road, and attending to the dependence of some families on activities related to the ranches in the area.

Possible Increase in Unemployment or Loss of Income in the AID

Activities or aspects that generate the impact: closure or completion of the works.

At the end of the construction phase of the industrial mill, there may be a significant decrease in jobs in the AID due to the completion of the phase itself, due to:

- The cessation of the need for qualified and unskilled labor for construction activities and industrial facilities, since the Mill will go into the operation phase.
- The cessation of the demand for materials, supplies, machinery, equipment, personnel and waste and their logistics, associated with the construction activities of the Project.

It is estimated that the project will go from 6,000 to 8,000 direct jobs in the construction phase, to around 600 to 1,000 direct jobs in the operational phase.

It is possible that to cover some of the needs of the operational phase, the services of part of the personnel who were already employed in the construction phase may be available, however, this number will be very limited.

The effect of this impact may be negative to the extent that unemployed people are or are not based in the AID (they have bought houses, their relatives are working in the area, etc.), since this will prevent them from returning easily to their places of origin or move to other geographical areas where they can access other job offers or return to their old jobs.

The effect of the impact will also depend on the expectations that part of the local and/or foreign population may express regarding the jobs that the construction phase of the Project will generate, since these will be temporary and will not offer guarantees or promises of rehiring for the operational phase, being able to cause frustration in the affected population and social tensions.

Both the decrease in jobs and commercial activity may have effects of economic stress on the households that remain in the AID after completion of the works, which will demand from these households' adjustments in their living conditions, in their access to goods and services and other aspects related to the greater liquidity they had during the construction phase.

Skills Development

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; closure or completion of the works.

The Project will train interested persons who may be employed in the construction phase of the Industrial Mill. This will be in order to counteract, to a certain extent, the lack of locally existing skilled labor and to enhance the existing one in accordance with Paracel's specific technical needs, highlighting that this could occur from the early stages of the project, that is, in project stage (pre-construction). On the other hand, this training will address what was referred to by the AID population in the field survey, the fear that there is a "low absorption of local labor" due to "not being trained". In this line, the training offered by Paracel will have a positive impact on the personal training of future construction workers and on the level of hiring of local labor, and as already mentioned in previous sections, this has already been initiated through of alliances with the MTESS and the SNPP, and with local educational institutions.

Along these same lines, unlike the negative impact that unemployment could generate and the decrease in commercial activity at the end of the construction phase, the positive impact of leaving “installed capacity” in the area of influence of the Project is considered, especially the ADA/AID. Although in the operational stage, a large part of the qualified workforce linked to civil works and assemblies will no longer be able to have continuity in the undertaking, the people who have been trained by the Project and who have settled in the area and intend to settle in any of the AID or All municipalities, they will have greater possibilities of hiring in other enterprises in the area, or in those that are projected in the department of Concepción or San Pedro, especially. It is highlighted that the project will establish alliances with the public and/or private technical training centers/institutions for rapid job opportunities in the AID, so that, in addition to the people trained for the construction of the Mill, the capacities of the local technical training centers/institutions.

It is worth mentioning that in the surveys carried out among the population of the AID districts, the third aspect most highlighted as a priority for a greater development of the communities was the possibility of improving the educational level of young people. In relation to this, one of the expectations of the population is that the Project promote synergies with educational institutions for the implementation of training programs. In this context of need and expectation, the Project's actions in this area will generate a very important positive impact on local technical capacities.

Furthermore, the development of the project is expected to have long-term multiplier effects on the economic development of the area of influence, even beyond the AID, and to attract new investments. For this scenario, the installed capacity in the area would be key, and it is estimated that the items related to construction, electrical and electromechanical assemblies, among others, could have a rapid labor insertion.

DEMOGRAPHY

Transitory Population Increase

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services; transportation of materials, supplies and machinery.

There will be an increase in the population, due to an increase in the workers influx, as a result of the project's need for between 6,000 and 8,000 skilled and unskilled labor for the construction of the mill, plus the families that these people could bring. I get to live in the ADA/AID communities. This increase will be temporary, during the period that the works last, which will be 2 to 3 years.

The population may be local or foreign. Local population will refer to people from the ADA/AID and the department of Concepción. Foreign population will refer to the population of the rest of the IIA (San Pedro, Amambay), of the other departments of the country and of foreign countries.

It is estimated that a large part of the qualified personnel during construction will be foreign, due to construction specialties that do not have similar antecedents in the area. In addition, specialized assemblies will use foreign labor due to the need to guarantee compliance with specific standards for which local personnel with international experience are not available.

Additionally, a transitory population increase is expected in the ADA/AID due to the arrival of people not directly related to the construction of the Project, but who see opportunities to generate income through shops and/or services in the area.

In general, AID districts are medium and small depending on the size of their population. There are about 85,876 people in Concepción, 62,008 in Horqueta, 18,791 in Loreto and 13,014 in Belén, distributed in urban and rural areas, with a predominance in rural areas with the exception of Concepción. The population density is low, from 18 to 80 people/km².

The ADA or environment closest to the location of the Mill is the area known as Piquete Cué, in which 13 families live and 7 rooms are located. A little less close are the populations of the micro-territories identified in the area of the access points to the mill. These amount to 1,634 people and 425 homes in the communities L. Petit, Cnel. Mongelós, Jhugua Zarzo, Laguna Plato, Mongelós Pirity and Piquete Cue; 532 people and 156 homes in Jhugua Gonzalez; 2,450 people in Callejón San Luis, Mbocayaty, San Ramón Alley, San Antonio, Curuzu Ñu, Costa Pucu, Paso Ita, Ko'ê Porâ and Saladillo; and approximately 250 people and 80 homes in Colony Primavera.

These data would indicate that the population associated directly and indirectly with the construction of the Project could be important compared to the local population according to the current size of the populated centers where they could settle, especially in the case of the closest communities mentioned and Loreto, which it is one of the two cities closest to the Industrial Mill area of the four AID cities. However, it is presumed that, due to the existing population density, the location of the temporary additional population is physically feasible.

In addition, in relation to the transitory population, directly linked to the project, it will be settled in buildings in the city of Concepción, where the construction of six temporary/permanent accommodations for Paracel personnel is planned.

Definitive Population Increase

Activities or aspects that generate the impact: construction of the industrial mill and related services (the project as a whole); construction and/or adaptation of access roads to/from the Industrial Mill; transport of materials, supplies and machinery.

The direct workers of the project, as a result of the increased workers influx linked, in case of being people outside the AID, would become part of the AID on a more permanent basis than the seasonal workers, and these will be installed in the accommodation to be built by Paracel, all in the city of Concepción.

In addition, in line with the aforementioned impact, the construction phase of the project will constitute an attraction not only for those interested in being employed in the works and/or related services of the Project, but also for local or foreign people who could obtain a commercial benefit and service development that the Project could induce in the ADA/AID communities, such as, for example, the creation of demand for basic goods and/or services and the creation of jobs associated with them; also, for people who see opportunities for a better quality of life in the vicinity of the Project, due to the potential increase in the area of basic services, greater consumption options, etc. These people would come to increase the definitive population of the AID communities.

Likewise, the increase in vehicular traffic by project vehicles, particularly those with heavy loads, and the construction and/or adaptation of communication routes for use by the Project may attract people, locals or foreigners, who seek to settle in the vicinity immediate access of these roads, due to the economic opportunities that the greater dynamism of vehicles and people could generate along these roads. These would also go on to increase the definitive population in the AID.

SERVICES, INFRASTRUCTURE AND/OR PUBLIC/NON-PUBLIC PROPERTY

Increase in Demand for Public and Non-public Services

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services; transportation of materials, supplies and machinery; transportation of construction workers; construction and operation of temporary accommodation; construction of LT.

The increase in the transitory and permanent population in the ADA/AID communities, generated by the hiring of personnel and consequent increase in the workers influx in the area, for the construction of the industrial mill, as well as the construction of accommodation and line of distribution, and by the potential arrival of other people attracted by the indirect effects of the project, as well as the needs of the construction of the mill itself and the increase in people visiting the area, will produce an increase in the demand for public services and not public, both existing and currently non-existent.

These services are: collection and final disposal of solid waste, drinking water, sanitation, electricity, transportation, health care, police and security, emergencies, education, communications and information, lodging.

Regarding existing services, the increase in project demand could affect the current service levels in the ADA/AID, since if their development does not adequately accompany the population increase and construction demands (even if they are temporary), the capacity of the services will be exceeded.

Regarding the currently non-existent services that are basic for human populations, the lack of these, together with the temporary and definitive increase in the population, could generate situations of deterioration of the urban environment in the affected communities and living conditions with unsatisfied basic needs.

It has been indicated that there is a problem in the supply of social services in the department of Concepción, which could be due to factors such as:

- Inefficient geospatial distribution of the same (for example, along important communication routes), in the quality of the provision (for example, the number of schools is not an indicator of the quality of education), in the slow growth in their coverage (which does not accompany population growth) and in the lack of adherence to anthropocentric drivers (population or socio-economic growth) for the development of services (development depends more on the political will of the moment than on Development plans). In this context, a fundamental impact of the Project will be the pressure of the temporary and definitive population associated with the Project on the existing services and on the environment, due to insufficient or lack of these.

This impact by service is analyzed below.

Solid Waste Collection and Disposal

In the department of Concepción, only a third of the population has access to the collection and final disposal of solid waste, while more than 50% burns and/or buries them as a final disposal method. The municipality of the city of Concepción provides the collection service to 8,500 taxpayers and disposes of the waste in a landfill from which it is mentioned that it is no longer capable of receiving any more waste. The Municipalities of Belén, Loreto

and Horqueta, which are the largest after Concepción in the AID, do not have or have very limited collection and final disposal services, so most of the population resorts to burning or burial. Given that the population associated with the construction phase of the Project will settle within the department, in the localities closest to the Mill, and the workers in the accommodations to be built in the city of Concepción, it is most likely that this population cannot count on the solid waste collection and disposal service offered by the municipalities, since the current service, even in the departmental capital, is insufficient.

The increase in population will add to the already existing problem of solid waste, which may aggravate the situation of inadequate solid waste management in the ADA/AID communities, promoting the practices of burning, burial, proliferation of collection sites in streets and/or vacant lots, etc. with potential effects on the health and quality of life of the communities, especially by vector-borne diseases (linked to rats, dengue-transmitting mosquitoes or similar, others).

Regarding the waste to be generated in the construction of the Mill, these would exceed the current capacity of the collection and final disposal services existing in the AID, already identified from the early stages of the project, this is why Paracel foresees the construction of a final disposal site (SDF) of solid waste within the industrial property (ZC) as a mitigation measure to this impact, which will already be operational in the construction stage of the Industrial mill and will serve also for the disposal of waste generated in the temporary/permanent accommodation of the operators.

Drinking Water

In the All departments, most of the drinking water is provided by Sanitation Boards, community networks, and wells. The Sanitary Services Company of Paraguay S.A. (ESSAP) only supplies the central part of the city of Concepción and Pedro Juan Caballero, the latter being outside the Project's AID. The levels of access to running water are for the district of Concepción 83.2%, Belén 80.6%, Loreto 72.2% and Horqueta 69.9% (STP/DGEEC, National Population and Housing Census, 2012). Although there is no detailed data on the drinking water systems in the Project AID, such as maximum capacity, useful life or others, it can be estimated that the increase in demand for the service by the transitory and definitive population associated with the phase construction of the Project may imply a significant load on the capacity of the current supply systems, and may cause frequent shortages in case it is not accompanied by development works of these systems.

According to data collected in the field in the ADA, access to potable water provision services is considered the second priority aspect for community development. The mention of this aspect may indicate that the current level of service in the ADA is low, or even null in the community of Piquete Cue (they use individual wells without treatment), therefore increasing the demand on an existing shortage could generate a significant negative impact on service capacity.

Considering that the need for drinking water consumption in the construction work fronts of the Industrial Mill would also put pressure on the current supply systems, the project foresees as a mitigation measure to this impact the construction of its own supply system of water, already from the construction stage of the undertaking; the same is envisaged for three temporary/permanent accommodations for Paracel staff.

Sanitation

In the department of Concepción there is only a small percentage, 18.2%, of the population with access to a sanitary sewer network for the collection and final disposal of domestic water in the central part of the city of Concepción. Most of the population has a cesspool, with or without a septic chamber, for the disposal of its

sewage and wastewater. The data indicate that more than 50% of the homes in the department of Concepción have at least one (1) Unsatisfied Basic Need (UBN), and that most of these have UBN in sanitary infrastructure. Access to improved sanitation is 69.1% for the district of Concepción, 43.4% for Belén, 24.4% for Loreto and 32.8% for Horqueta (STP / DGEEC, National Population and Housing Census, 2012). The low coverage of the final disposal service and the increase in the transitory and definitive population related to the construction phase of the Project may generate an unhealthy environmental situation in the AID communities where the population will settle, if the contingent of associated persons is not accompanying the Project with the development of the housing infrastructure and essential basic services. This could lead to settlements of people in a precarious state, and the deterioration of the general living conditions of the AID communities.

Although there is news of a project for wastewater collection networks and treatment mill for the city of Horqueta, under the Ministry of Public Works and Communications (MOPC) it is not possible to guarantee that this project will be available when the project of the construction phase of the industrial mill begins, so the sanitation services will most likely remain as they are.

For its part, given the need for sanitation in the construction work fronts of the Mill and the lack of collection and final disposal service in the area where it is located, the Project plans to address the correct disposal of effluents both in the construction/operational stage of the Industrial Mill as well as the three temporary/permanent accommodations for Paracel's personnel.

Electricity

It is estimated that the increase in the temporary and definitive population associated with the construction of the Mill may generate pressure on the current capacity of the electrical system in the ADA/AID.

In general, the level of electrical energy coverage is high in the department of Concepción, equal to 97.79% in 2017. In addition, there is a project to improve the electrical system in the department, which will implement improvements in the supply system for electricity in the cities of Concepción, Loreto and Belén. In general, the provision of electric power is the service that expands the fastest geographically, currently reaching around 99% of the country's population.

In addition, there is a history of medium and large-scale undertakings that use the public energy supply system in the country, such as the National Cement Industry (INC), Cervepar, Paresa, ADM, among others.

In view of the above, Paracel has already begun negotiations with the National Electricity Administration (ANDE), in order to provide the facilities required for supplying from the public network, planning the construction of an exclusive Transmission Line (LT) from the sub power station in Villa Real (Concepción) to the Industrial Mill.

Public Transport

The presence of a significant amount of transitory population associated with the construction of the Mill, in addition to their families, will imply an increase in the demand for means of transportation for the daily movement of people, both within their communities of residence in the ADA/AID such as from these to the Project work fronts.

Currently there are local and inter-departmental private transport services that connect the city of Concepción with Loreto, Horqueta and Belén, as well as with more distant cities such as Vallemí, Pedro Juan Caballero and Asunción. Regarding interurban public transport, the cities of Concepción and Horqueta do not have this service

and the population mostly uses motorcycles (60% of the enabled vehicles); this being the predominant means of transport in all the departments of the IIA. In Belén and Loreto there is interurban public transport, however, the use of motorcycles is also very widespread.

As there are no public transportation services that connect the area where the Mill is located with the main ADA/AID population centers, one option will be for the Project to provide daily means of transportation for construction workers (from their homes to the work and back), and another alternative is that the workers have their own means of transport, which is presumed to be preferably motorcycles.

Regarding the transitory and/or definitive population indirectly induced by the Project, it will also require daily public transport services, but as these are either non-existent or limited, a considerable increase in the circulation of motorcycles and other vehicles is expected for private use in all ADA/AID communities.

Health

The ADA/AID health services may be affected by the increase in the temporary and permanent population associated with the construction of the Project, which will settle in the ADA/AID communities. This could translate into a lower average attention span per person.

The most relevant data are those of the department of Concepción, as it is expected that most of the population will settle in the communities near the Mill, within the department. Concepción had 214 hospital beds in 2017 and 76 public health facilities in 2018, throughout the department. In the AID districts, there are the following numbers of establishments of different types, dependent and not dependent on the Ministry of Public Health and Social Welfare (MSPBS): Concepción 21 dependents and 16 non-dependents, Belén 3 dependents, Horqueta 15 dependents and 1 non-dependent, Loreto 5 dependent and 3 non-dependent. The care centers with the highest demand are those located in the district of Concepción, due to the degree of complexity, where 5,295 cases were attended in 2019; in Belén 343 were treated, in Horqueta 1,985 and in Loreto 116 cases.

According to the surveys carried out in the AID districts, “health” is the aspect most mentioned as a priority for a greater development of the communities. They consider that it is necessary to improve: access to quality health care, the number of health units close to the communities, the provision of the necessary equipment, supplies and resources for adequate care. This constitutes an indicator that, despite the numbers currently available in terms of health care units in the AID, these are not sufficient for the current population and would not be, even more so, if the population were to increase in AID districts and/or communities. Added to this is the COVID-19 pandemic, which is a threat that increases the demand for hospital beds.

Information has been accessed on the expansion and/or new opening of Family Health Units (USF, dependent on the Ministry of Public Health) in the AID districts, with a care capacity of between 2,500 and 3,000 people each. In the micro-territories closest to the location of the Industrial Mill, there is information on the short-term installation of a USF in the community of Roberto L. Petit, and the management for the installation of a health post in the community of Plato Lagoon. It is estimated that the existence of these by the beginning of the construction phase of the Project may contribute to decompressing the demand for more basic health services in the ADA/AID.

On the other hand, the Project will be able to provide better preventive health conditions to direct employees in the construction phase and to their families, while the work lasts, since to date only up to 15% of the department's population has medical insurance, either private or IPS. This impact is associated with the formalization of labor ties, since, since the jobs are not formalized, people do not have compulsory social security.

Security

Public services for the protection of the safety of the population may also be affected by the presence of a greater number of people in the ADA/AID communities associated with the construction of the Project.

According to the data obtained, there are police stations, sub-police stations and police posts in the AID. As for police stations, there are 5 in Concepción and one in each of the cities of Belén, Horqueta and Loreto. Sub police stations there are 5 in Concepción, 1 in Belén, 8 in Horqueta, 5 in Loreto.

The consulted ADA population has referred to the “little police presence” as one of the aspects of concern in the community. If this is the case, the effects induced by the construction phase of the Project may further increase the pressure on the currently existing police backup capacity.

The property of the industrial enterprise, as well as the forestry component, will have its own security personnel, which is common in private enterprises. In this sense, the need for the project to have the support of the public police/security service is reduced. However, as it is a sensitive aspect that could involve the violation of human rights, the project will observe, at a minimum, IFC PS 4 on “Community Health and Safety”, regarding the safeguarding of personnel and properties; on the one hand, and the minimization of security risks for the surrounding communities, ensuring that these personnel do not exercise “abuses of power” as an extortion measure or pressure on workers and/or the community; Paracel will have a specific area, under the human resources area, which will implement a “Security Policy” at the business level.

Emergencies

In the Concepción district, the Concepción Volunteer Firefighters Corps is the entity that helps in cases of accidents of various kinds and also provides services to the neighboring areas of the district. However, it has been indicated that their capacity is very limited, mainly due to lack of budgetary resources. The increase in the transitory and permanent population associated with the construction of the Mill may further affect the attention span of the Fire Department, as the probability of accidents and/or emergency events could increase, both due to the presence of the population as well as by the construction works of the Mill and related services, and by the increase in vehicle traffic due to the Project.

Education

There will be an impact on the capacity of the educational services, since it is estimated that the workers associated with the construction of the Mill could settle in the communities of the ADA/AID of the Project with their families, and due to their relative age, it will be it presumes that they would have children of school age, who would need to be inserted in the local educational context.

There is a total of 398 State institutions and 32 subsidized private institutions that offer Basic School Education in the department of Concepción, of which 21% are in urban areas. Only 42% of all institutions offer all educational cycles (first, second and third cycles).

Regarding Secondary Education, there are 111 institutions at the department level, of which 35% are in urban areas. It is observed that in 2015 55.7% of high school students were enrolled in urban areas, which indicates a greater demand for educational places in these areas.

In the districts of the Project AID, there are the following approximate numbers of educational institutions, as of 2016: Concepción, 60 in urban areas and 50 in rural areas; Belén, 3 in urban areas and 22 in rural areas; Horqueta, 20 in urban areas and 113 in rural areas; and Loreto, with 9 national schools and 32 basic schools.

Communications and information

In the department of Concepción, less than half of the population (46.05%) had access to the Internet in 2017, but of that percentage, around 97% accessed through a cell phone. On the other hand, it is indicated that 96.63% of the department's homes have a cell phone. Therefore, it is estimated that the low level of access is more related to the possibility of households to access certain types of durable goods such as smart cell phones, computers, etc., that allow Internet access, than with limitations in the service coverage.

Although the increase in the temporary and definitive population associated with the construction of the Project will demand the telecommunications service, it is considered that the Project will not imply a negative impact on the current provision capacity in the ADA/AID. It should be noted that telecommunications coverage is the private service that has been most easily expanded in the national territory in recent years, so that, in the event of a need for greater capacity, it is expected that the service goes together with the demand increase.

Hosting Services (rental capacity)

Regarding accommodation, there are currently approximately 1,107 beds in different accommodation establishments in the cities of the AID, which are distributed as follows: 960 beds in 20 establishments in Concepción, 52 beds in 3 Belen establishments, 43 beds in 5 establishments in Horqueta and 52 beds in 2 establishments in Loreto. Although it is expected that the majority of the transitory population will opt for lodgings in Concepción, there could be cases (due to the distance to the project) that the lodgings need to be promoted in the localities near the Project.

Increase in the demand of household

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services.

There will be an increase in the demand for housing in the ADA/AID due to the increase in the workers influx, and the consequent increase in the temporary and permanent population associated with the construction phase of the Project, both from the 6,000 to 8,000 people directly employed by the Project –and their families– in different stages of construction, as well as by the population that could reach the AID induced by the economic expectations that the construction of the Mill would generate.

Most of these people will be geographically located according to factors such as leasehold capacity (the existing offer of accommodation, rentals and housing) and the relative distance to the work fronts of the mill.

The site where the land is located for the mill is located about 20 km from Loreto, 22 km from Concepción, 50 km from Belén, and 60 km from Horqueta. Regarding lodging, there are currently approximately 1,107 beds in different lodging establishments in the cities of the AID, with the majority in establishments in Concepción. Therefore, it is expected that the majority of the transitory population that opts for lodging will stay in the city of Concepción. There is no data on homes that are for rent or sale in the ADA/AID cities.

The Project will provide accommodation to an important part of the workers in its construction phase who do not currently live in the ADA/AID, and these could also be used by people who live more than 45 minutes from the mill site. The construction of six lodgings has been defined, and the dwellings located there may be used permanently or temporarily.

Both in the case that the houses provided by the Project are not sufficient and, in the case, that the induced population cannot access houses with minimum habitability criteria - both due to the scarcity of the supply and due to lack of resources to acquire or rent them. There is a risk of the establishment of irregular and precarious settlements in the ADA/AID communities, contributing to the deterioration of their urban environment and the quality of life of the people in these settlements.

Currently, according to data from the Ministry of Social Development, within the framework of the national government program called "Tekopora", settlements have been identified in the city of Concepción (Aquino Kue settlement located between Route 5ta and Route Vallemí; Santa María settlement located in the airport area; San Francisco settlement, located in the airport area, Niño Salvador settlement, located in the Telefuturo antenna area, on the way to Loreto; Villa Redención settlement, located in the Cancha Obrerito area; New settlement in the Fatima neighborhood; New settlement in the Santo Domingo neighborhood).

Increase of vehicular traffic

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; transportation of materials, supplies and machinery; transportation of construction workers; construction and/or adaptation of access roads to/from the Industrial Mill; solid waste management, effluents, emissions.

There will be a significant increase in vehicular traffic in relation to that currently existing in the area of influence and especially in the ADA/AID, due to the transportation needs of materials, supplies, machinery, equipment, personnel and waste and/or effluents that will have the construction phase of the Project.

On the other hand, the increase in the transitory and definitive population will also contribute to the increase in traffic in the ADA/AID, as well as the increase in the workers influx linked to the project, since they will have transportation needs that, considering the context, and These will have transportation coverage through buses that will have hourly itineraries to be transferred to the site of the Industrial Mill and to the city; eventually, some operators could use their own, mainly motorcycles.

This increase in traffic may lead to a decrease in service levels (speed, travel time, freedom of maneuver, interruptions, comfort) or traffic flow on the affected roads, during peak hours of use of the roads. According to observations of the existing roads in the ADA/AID, the national routes and branches (such as those that connect Concepción and Belén with Loreto) are paved, have widths of up to 10 meters and two traffic lanes; other secondary roads are made of dirt (in some cases gravelly) and wide that allows two traffic lanes; these will be the routes shared by the Project with other users in the ADA/AID..

The determination of the access/exit path to the surveyed area was studied by Paracel, having had two options, but discarding the access by the Piquete Cue community, as a measure to minimize potential impact on the families of the same (resettlement was thus avoided of families).

Thus, the access will be made through the area of the town of San Ramón (Southeast area), passing through the Pyrenda ranch. The access road extends to a certain point within private property, so Paracel will adapt said access,

and also has the advantage that this section of the road would not be used by other users except the owners, thus minimizing road safety risks to third parties.

Due to all of the above, the increase in vehicular traffic would particularly impact the communities settled on the AID roads before reaching the access point to/from the Mill.

Likewise, the Project may require the construction of certain sections of new roads and/or adapting the existing roads in the AID beyond the access road to/from the Mill. If this is the case, it is not ruled out that the construction and/or adaptation of communication routes for use in the construction and operation phases of the Mill produce an effect of increasing traffic on said roads, due to the theoretical proportional relationship. that the greater the supply of roads, the greater the demand for vehicular traffic.

Impact on road infrastructure

Activities or aspects that generate the impact: transport of materials, supplies and machinery; transportation of construction workers; construction and/or adaptation of access roads to/from the Industrial Mill; solid waste management, effluents, emissions.

In the event that the existing road network is not adapted for the transit of materials, supplies, machinery, equipment, personnel and waste vehicles in the construction phase, the roads may suffer a negative impact in terms of their conservation and their life. useful, affecting not only the transit of Project vehicles but also other users of these roads, such as people who use them on a daily basis, the logistics of other productive activities in the area, the logistics of materials and/or products passing through, etc.

However, even with the roads that the Project could condition in its immediate surroundings, it is clear that there will be greater vehicular circulation on the roads beyond this environment, since materials, supplies, machinery and equipment will be received from central towns outside the district and/or the department of Concepción itself. The vehicular loads of the Project in its construction phase must be communicated to the local and national road authorities, in order to establish a strategy for the least affectation of the existing roads.

The duration of the causes of this impact is temporary, as it is expected that only during a few months of the total of the 2 to 3 years that the construction will last, there will be peaks in the circulation of heavy vehicles, according to each stage of construction (example: excavations, concreting, roads). It is estimated that the types of vehicles that would produce the greatest impacts are conventional and unconventional cargo trucks and, if any, personnel transport buses.

According to the data available regarding improvement works on bridges and roads, the department of Concepción does not plan to improve neighborhood roads in the National Program of Neighborhood Roads and Bridges, executed by the MOPC, but only improvement of bridges. Regarding asphalt paving works and improvement of sections of national routes, some works are planned that will improve access to the city of Concepción from different parts of the country, in particular of route No. PY05, which would directly benefit the urban area of the city of Concepción.

On the other hand, in case of adaptation of existing roads, on the one hand, it will temporarily affect the pedestrian and/or vehicular traffic that currently uses said roads, since the space of the same will be physically occupied to carry out the works, and on the other It will contribute to improving the conservation of the roads, thus improving the service levels of these, and consequently improving the comfort in their use. The section where new roads will be built for the Project, which in one sector would pass through private ownership, will be conditioned for the

exclusive use of the project, but which is also considered a positive contribution in terms of the conservation of said road.

It should be noted that "infrastructure and road safety" is the aspect most mentioned by the representatives of institutions and communities of the AID in relation to the aspects necessary for a greater development of their communities/districts. In this sense, they have highlighted the need to improve the state of the roads and neighborhood roads. The inadequate state of some roads in the ADA/AID plus the already existing perception regarding these in the AID and the load of the vehicles of the construction of the Project give the notion that the impact of the Project will be important on the road infrastructure from the social perspective.

Impact of land properties in the immediate surroundings of the Mill

Activities or aspects that generate the impact: transport of materials, supplies and machinery; transportation of construction workers; construction and/or adaptation of access roads to/from the Industrial Mill; construction of Transmission Line (LT); solid waste management, effluents, emissions.

This impact occurs by enabling a road to reach the mill 's land through the land properties adjacent to it, either for the passage of part or all of the vehicles of the construction phase of the Project, which will include vehicles transport of loads, construction personnel and waste and/or effluents generated in temporary accommodation. It is worth mentioning that properties will be affected, whether private or whose ownership will be confirmed according to public records, always safeguarding compliance with local regulations regarding land tenure and affectations that require some type of compensation.

This affectation of properties, as already described in the pre-construction stage, could generate rights of way that must be agreed with each of the owners of the affected properties. In a private legal agreement environment, there would be less difficulty in defining the precise precautions, mitigations and/or compensations that the Project must implement to be in compliance with the requirements of the affected owners.

The choice of access/exit to/from the Project's land through properties, via right-of-way, will mean - comparatively with access via the existing road through the Piquete Cue community - less alteration of the existing public roads and the living conditions of the populations located in the immediate proximity of these roads. As mentioned, Paracel has ruled out access by the Piquete Cue community, in order to avoid impacts due to resettlement (physical displacement), as established by IFC Performance Standard 5, which has as one of its objectives: Avoid displacement or, where this is not possible, minimize it by exploring alternative project designs.

In relation to the Transmission Line (LT), which will supply the Paracel station from the Villa Real substation, it will require a security and service strip in the public and private domain properties subject to the easement of the electroduct, and for 220 kV TL this is *25 meters measured perpendicularly from the geometric axis of the line, on each side (Art. N° 1 of Law 6681/2020)*¹⁴⁹. In this security strip, grazing or agricultural use is not prohibited, but in general, the other uses are incompatible. In addition, in accordance with IFC ND 5, the necessary compensation provisions will be made for these cases, with emphasis on private properties close to the development site, as well as those that may be affected along the electrical lines of the TL. Compensations are given only once, assuming that they later come under the jurisdiction or domain of ANDE.

Likewise, for all the above, following the principles of Ecuador and ND 5 of the IFC, the measures related to the temporary/permanent affectation or obstruction of properties should be considered.

149 Recent Law which modifies article 1° of the Law 976/82.

Impact on River and Port Traffic

Activities or aspects that generate the impact: transport of materials, supplies and machinery.

In addition to land transit, the project provides for the transportation of materials, supplies, machinery and equipment for the construction of the Mill by waterway, the loads of the Project may put pressure on the current capacity of the waterway and the existing ports in the proximity of AID. The charges for river traffic would be made from material from Brazil, in the early stages of the project, setting sail from Puerto Murtiño (Brazil), to the Port of Concepción.

In the AID and All they have several ports on the Paraguay River, highlighting in addition to the Port of Concepción the more than fifteen ports located upstream of the city, considering that the Paraguay River is navigable by vessels of greater draft, in the section that goes from the confluence with the Paraná River to Asunción, and with intermediate draft (to overcome the known obstacles) until reaching the port of Concepción, this water course being part of the Paraguay-Paraná waterway, the main axis of the country's transport with exit to the sea.

In addition, the pressure that could be exerted on river traffic and the port capacity of the area, it should be considered that this potential impact indirectly derives in others linked to the safety of personnel and/or third parties, or potential inconveniences that it may cause in the "use of water", bearing in mind that there are fishermen in the area, who fish either for their own consumption or for sale. The practice of "sport fishing" is also registered in the Department of Concepción, which could also be classified as a potential conflict in the use of water, as there are several activities related to water resources in the project's area of influence. These sub-impacts are detailed in the social factor "quality of life, uses and custom, including ecosystem services", to be presented in later sections.

Improvement in the Quality of Housing and in the Provision of Basic Services

Activities or aspects that generate the impact: construction of the Industrial Mill and related services; construction and operation of temporary accommodation.

The construction of temporary/permanent accommodation planned for part of the construction workers will meet habitability criteria and could be of better quality compared to the average homes of the IIA, since it is observed that in the departments of Concepción and San Pedro more than 50% of the population has at least one (1) UBN and that most of this population has UBN in quality of housing and/or in health infrastructure.

The planned accommodations will be in the city of Concepción, whose location and distribution details are presented in the Annex. These facilities, once the construction stage is completed, could continue to be used by project personnel who will be linked in the operational stage, but part of them could be posteriori projected to adapt to the urban plans that the Municipality of Concepción has. This will be taken care of by Paracel, as part of the inter-institutional coordination and corporate responsibility strategies, already initiated in the early stages of the project.

Possible Improper Closure of Temporary Accommodation

Activities or aspects that generate the impact: closing or culmination of the works.

Inadequate management of temporary accommodation could produce negative impacts in the closing phase of the construction of the Industrial Mill, as part of the population will return to their places of origin and the accommodation could be left to the discretion of spontaneous occupations, having as consequent, the emergence of irregular and precarious settlements, social and visual deterioration, as well as pollution and the shelter of people dedicated to criminal activities. In summary, improper management of these sites could turn them into marginal neighborhoods that will degrade the current living conditions of the AID communities and of the people themselves who remain occupying these accommodations.

This impact could be avoided, or minimized, taking into account what was stated above, regarding the possible management that would be done with the Municipality of Concepción, in later stages, in order for Paracel to respond to the urban plans of the local government.

CULTURAL HERITAGE

Affection of Materials of Archaeological, Historical and/or Cultural Interest

Activities or aspects that generate the impact: Construction of the Industrial Mill and related services; Construction and/or adaptation of access roads to/from the Industrial Mill; Construction and operation of temporary accommodation; construction of transmission line (LT); Management of solid waste, effluents, emissions.

This impact is considered here in accordance with the “Concepción Heritage Report”, specifically prepared by another Consultant (Bragayrac, February 2020).

The aforementioned study highlights properties with cultural and historical value, located in the urban centers of the cities of the AID, not in the vicinity of the property prospect for the undertaking. According to the information available on the land where the Project will be implemented, the site is used for livestock and agricultural activities, which implies that the subsoil of the site has not been intervened before.

The construction phase of the Project will carry out important soil movements for the construction of the civil works of the Industrial Mill, as well as of the accommodations in the city of Concepción and along the route of the projected TL, a phase in which it could be found in the subsoil materials of archaeological, historical and/or cultural interest that have not been found before due to the use that has been given to the soil in the place. These materials, although they could be found within the property/ies, would constitute materials of public value, so they must be rescued through safe procedures and delivered to the national authority responsible for the preservation of the national heritage. If these precautions are not taken, the existing material in the subsoil could be permanently affected. Therefore, the Project must design a construction method that already takes into account the potential for finding materials of archaeological, historical and/or cultural value in the intervention area.

Finally, if the Project carries out the extraction and/or exploitation of the construction materials for the Mill (stones, sand, etc.), also during these activities the impact of valuable materials may occur.

Paracel, for both the forestry and industrial components, will have an operating procedure for eventual finds, within the framework of the Archaeologic Finding Chance Program.

LOCAL AND REGIONAL ECONOMY

Development of the local, regional and/or Extra-regional Direct (associated with construction) and Indirect Economy

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services; transportation of materials, supplies and machinery; transportation of construction workers; construction and/or adaptation of access roads to/from the Industrial Mill; construction and operation of temporary accommodation; construction of transmission line; solid waste management, effluents, emissions.

Direct Economy, associated to the construction of the industrial mill.

The hiring of local labor for the construction of the Mill and related services, and other associated activities such as accommodation and transmission lines, as well as for the transport of cargo, waste and/or personnel will contribute to the development of the local economy by the greater purchasing power that these will have for the consumption of goods and services, and even investment in their own businesses, considering the increase in the workers influx in the area.

The demand for materials, supplies, machinery, equipment, construction services and logistics of cargo and people for the construction and related services of the Industrial Mill will generate a greater dynamism of the local and regional economy, depending on the local/regional feasibility of production and/or provision of these.

It will require the acquisition of significant volumes of construction materials, construction supplies, conventional and specialized equipment and machinery, and vehicles and their parts, as well as repair and maintenance services for these. Transportation services for these loads and construction personnel will also be required. All of these will be for the mill and its related services, as well as for the temporary/permanent accommodations, transmission line, and the construction and/or adaptation of roads for the Project.

It is observed that in the department of Concepción there are sectors of the secondary sector (industry) that carry out activities related to the materials that the construction of the Project may require: extraction of stone, sand and clay; wood sawmill; manufacture of non-metallic mineral products; manufacture of metal products for structural use; manufacture of other fabricated metal products and metal working services; furniture manufacturing; maintenance and repair of fabricated metal products, machines and equipment.

Indirect Economy

The increase in the temporary and permanent population, as well as the increase in the workers influx, associated with the construction phase of the Project will generate a demand for local goods and services that will necessarily be higher than the current one, due to the same number of people who will install or spend time at the ADA/AID.

This will generate higher income and investment stimuli for the establishment and/or expansion of providers of goods and services of different types (food, communication, vehicles, transportation, recreation, education, health, etc.), formal and informal. As examples, we can mention the opening of commercial and/or service premises with products for the workers of the construction of the Mill, in the vicinity of it (dining rooms, supermarkets/pantries, telecommunications, mechanical workshops, etc.); the opening of new commercial and/or service premises along the communication routes used, with the expectation of selling products to carriers; the expansion and/or authorization of currently insufficient or non-existent public transport services; the creation of jobs by the aforementioned enterprises, which will be able to employ more local people.

The greater dynamism of the local economy has as positive effects the increase in household income associated with the provision of goods and services, the possibility of accessing goods and services that are currently non-existent, limited, insufficient or inaccessible.

In the tertiary sector, it is observed that commercial and/or service activities are carried out in the department that could be required to a greater or lesser extent during the construction of the Project and that could be enhanced with this: trade, maintenance and repair of vehicles (including motorcycles) and its parts and accessories; food and beverage trade; fuel trade; trade in cultural and recreational goods; land transportation service; temporary accommodation service; restaurants, bars and the like; telecommunications; financial services;

real estate services for sale and lease; administrative support services for businesses; amusement and entertainment services. Regarding the AID, according to data collected in the field, it is observed that commerce is the activity that has expanded the most in recent years, including gastronomic businesses, supermarkets and pantries, beverage warehouses, places for the sale of household items, among others. All of these may benefit from the increase in population in the AID associated with and/or induced by the construction of the mill.

Finally, the temporary and definitive increase in the population, both during work at the Mill and during daily life in the homes, will generate volumes of municipal solid waste that could create an opportunity for collection and sale activities for recycling waste. This activity may, in turn, contribute to reducing the pressure of the waste generated on the collection services and on the existing final disposal sites.

Greater dynamism in the local economy will be very beneficial for local communities, since the total poverty rate by income in the department of Concepción is above 40%.

Increase in Visitors to the Area

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services; transport of materials, supplies and machinery.

The construction of the Industrial Mill, the first of its kind and magnitude in the area, may attract people with diverse interests to the site, such as, for example, media workers, national and/or local authorities, academic groups, tourists, curious people, etc.

Likewise, the presence in the ADA/AID of foreigners who work for the Project, particularly foreigners and/or from other departments of the country, and of the people who will settle in the area due to the expectations of the Project, may imply the visit frequent ADA/AID of people related to them (relatives, close friends).

It is also foreseen the transitory presence in the ADA/AID of non-local people related to the logistics of materials, supplies, machinery and equipment for construction, representatives of suppliers, personnel of international certifiers, etc.

These events, although even more transitory than the presence of construction workers, may contribute to energize various sectors of the local economy, such as food, accommodation, recreation, tourism, etc. In this context, it is expected that most visitors will stay in the city of Concepción (with greater rental capacity) and that they will make the transfer to the works area for visits.

Possible Decrease in Commercial Activities and/or services

Activities or aspects that generate the impact: closing or culmination of the works.

The end of the construction phase of the Project may also mean a decrease in commercial activity in the ADA/AID, because the direct jobs of the work will be reduced and, therefore, the population itself will be reduced (abandonment of the ADA/AID to migrate to other areas that offer jobs or income opportunities) and the demand for these for goods and services for daily life.

This decrease in commercial activity and/or services will lead to a decrease in the jobs associated with it and, in general, in income in the ADA/AID.

Both the decrease in jobs and the commercial and/or service activity may have effects of economic stress on the households that remain in the ADA/AID after completion of the works, which will demand from these households' adjustments in their living conditions, in their access to goods and services and other aspects related to the greater liquidity they had during the construction phase.

However, it should also be considered that during the operational phase of the Project, the area attracts other enterprises due to the availability of qualified and unskilled labor, commercial activities/services and/or basic services/infrastructures already developed in the AID during the construction phase of the Project, which would offer advantages to new ventures for their installation. This could contribute to counteract the decrease in direct jobs due to the closure of the construction phase of the Project and the indirectly associated commercial and/or service activity.

REAL-ESTATE MARKET

Increase in the Price of Properties and Rentals

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services; transportation of materials, supplies and machinery; transportation of construction workers; construction and/or adaptation of access roads to/from the Industrial Mill; construction and operation of temporary accommodation; solid waste management, effluents, emissions.

An effect of increasing the price of rents and properties could occur due to the limited supply of housing existing in the ADA/AID and the high demand for housing that will be generated by the number of employees that the construction phase of the Project will have. Also, considering that the Project will develop temporary/permanent accommodation for its employees, the price of the properties could also increase due to the perception that the owners may have of a wide availability of capital from the firm responsible for the Project.

This effect would be negative on the local or foreign population that requires a home, whether or not it is associated with the construction phase of the Project. The approximate housing demand data in the three AI departments is 27.6% for Concepción, 26.2% for San Pedro and 25.9% for Amambay. It is observed that the majority of the population in the IIA prefers their own home (between 68.6% and 87.6%), but it is estimated that, for the duration of the construction phase, it will be between 2 and 3 years, many of the people employed in the Project would opt only for rent.

It can also be estimated that, in general, the value of the properties closest to the land where the Industrial Mill is located, to the communication routes that will be used by the Project's vehicles for various transports, to the

communication routes for the Project that will be built and/or adequate, and the construction and operation sites of the temporary/permanent accommodations of the Mill workers, may be increased. This situation could occur as a result of the owners' expectations that the Project will provide greater dynamism to these areas, related to opportunities for greater economic development and provision of basic services infrastructure in the medium and long term. This effect would be positive for land and/or home owners.

On a lesser scale, a devaluation effect of the land price could occur on properties close to the transmission line to be built as part of the project. In similar works, there is experience of the loss of the value of the land in areas of installation of high voltage electrical conduits, for which the Project will make the necessary provisions, in coordination with ANDE, to meet the provisions of the ND IFC 5.

Finally, considering that the Project foresees the construction of a site for the final disposal (SDF) of solid waste within the industrial property (ZC), the location of this must be considered, in order to minimize impacts related to the possible devaluation of the nearest properties.

OCCUPATIONAL HEALTH AND SAFETY

Occupational Health Impairment

Activities or aspects that generate the impact: construction of the Industrial Mill and related services; construction and/or adaptation of access roads to/from the Industrial Mill; construction and operation of temporary accommodation; construction of transmission line; solid waste management, effluents, emissions; closure or completion of the works.

During the construction phase of the Project, the health of construction personnel could be affected by the following dangerous activities and/or events: the handling of powdery construction materials and/or toxic and/or dangerous supplies; exposure to disease vectors (dengue, chincungunya, chagas disease, among others); exposure to solar radiation and heat; exposure to high noise levels; exposure to stings or bites of wild animals; exposure to work at height and electrical risk; etc., which are dangerous activities and events present in any medium and/or large-scale construction site, and which vary according to the environmental context in which the work takes place.

These incidents affecting occupational health could occur in any of the construction activities, both at the mill and its related services, as well as on the roads necessary for the Project, the temporary accommodation, the transmission line and during the dismantling of the infrastructures. Temporary that were used in the construction, once these have been completed.

Likewise, occupational health may be affected during the management of solid waste, effluents and emissions from construction, in the case of contact with contaminated substances and/or materials that could have adverse effects on human health, for example, solid waste. organic, inert and powdery solid waste, solid waste and/or hazardous effluents (oils, paints, chemicals, etc. or materials contaminated with them), sewage effluents, paint emissions or other constructive chemical agents, among others.

Likewise, taking into account the pandemic declared by the World Health Organization, zoonotic diseases, such as COVID-19, could spread, and specific measures must be established to avoid or minimize contagion between workers.

However, this impact is preventable and/or mitigable through specific measures to protect occupational health. Consider IFC Performance Standards 2 on Labor and Working Conditions, as well as World Bank Group EHS Guidelines.

Paracel, both in its industrial and forestry component, plans to implement the best operational practices in order to minimize risks in OHS, as well as to have the necessary number of technicians specialized in the subject.

Impairment of Occupational Safety

Activities or aspects that generate the impact: construction of the Industrial Mill and related services; construction and/or adaptation of access roads to/from the Industrial Mill; construction and operation of temporary accommodation; construction of transmission line; transportation of materials, supplies and machinery; Transportation of construction workers; Management of solid waste, effluents, emissions; closure or completion of the works.

The construction phase of the Project will entail risks of affecting the safety of the personnel employed in this phase, in each of its activities, just like any other project that involves civil works of medium and/or large scale, assembly of equipment and machinery and different types of transport.

The impact on personnel safety could occur in this phase due to the following events: traffic accidents on and off the Project site; accidents of the type of falls to the same level, from places in height and/or inside excavations; blows by fallen objects and/or by the use of tools, equipment and/or machinery; cuts by equipment and/or machinery; electrocution during electrical installations; weld burns; hazards associated with manual handling of loads; eye damage; fires; among others.

The activities in which there would be risks of affecting occupational safety are all the activities involved in the construction: the works of the Mill and its related services; the logistical transport of materials, supplies, machinery, equipment and personnel; the construction and/or conditioning of the communication routes for the Project; construction of accommodation; construction of transmission line; the management of residues, effluents and emissions; the dismantling of temporary infrastructures that have been used during construction.

The impact on the safety of the personnel may present different degrees of severity, depending on each case, from minor damages to the death of the personnel. However, this impact is preventable through specific occupational safety protection measures. In all cases, the prevention established in IFC Performance Standard 2 on Labor and Working Conditions, as well as the World Bank Group guidelines on environment, health and safety, should be chosen first, and only afterwards, for the mitigation of this impact.

Paracel, both in its industrial and forestry component, plans to implement the best operational practices in order to minimize risks in OHS, as well as to have the necessary number of technicians specialized in the subject.

THIRD PARTY HEALTH AND SAFETY

Impact on Road Safety

Activities or aspects that generate the impact: transport of materials, supplies and machinery; transportation of construction workers; construction and/or adaptation of access roads to/from the Industrial Mill; solid waste management, effluents, emissions.

The transport of materials, machinery and equipment inputs, as well as the increased workers influx; and the management of waste and effluents from the construction of the Mill will produce an increase in vehicular traffic in the area of influence and particularly in the ADA/AID, increasing in turn the probability of accidents occurring and affecting people, infrastructures and domestic and/or farm animals of the communities that are crossed by the roads that will be used by the Project. In 2017, there have been 29 cases of death due to traffic accidents aboard motorcycles in the department of Concepción; In 2018, 7.9% of deaths from various types of accidents were recorded, without specifying the types of accidents.

In addition to the increase in the level of vehicular traffic itself, the probability of accidents is also increased by the existence or not of signs and by the behavior of the carriers or drivers of the vehicles in question. If these do not have a requirement from the Project to comply with certain strict rules of road behavior, the probability of inappropriate behavior and, therefore, accidents and/or conflicts with the communities in the area of influence could increase. Regarding the signaling, according to the available data on works in progress to improve the road infrastructure, there is a project for the Improvement of Road Safety in several Sections of the Road Network for the department of Concepción, with emphasis on school zones, which is executed by the MOPC, although the details of which areas of the department it will cover are not available.

Also, the improvement of the access roads to the Mill may, on the one hand, temporarily affect road safety, since it will involve construction work on existing roads that are used daily by pedestrians and/or drivers (bicycles, motorcycles, cars, etc.), and, on the other hand, contribute positively to avoid traffic accidents that could have their origin in potholes or other damage to the roads to be used.

Impact on the Health of Third Parties

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services; construction and/or adaptation of access roads to/from the Industrial Mill; construction and operation of temporary accommodation; construction of transmission line; transportation of materials, supplies and machinery; transportation of construction workers; solid waste management, effluents, emissions.

The increased workers influx will lead to contact between the current AID communities and the temporary and definitive local and/or foreign population, which could increase the transmission of contagious diseases (examples: HIV, hepatitis, other sexually transmitted diseases, etc.). Likewise, taking into account the pandemic declared by the World Health Organization, zoonotic diseases, such as COVID-19, could spread, and specific measures must be established to avoid or minimize the contagion of communities and populated areas.

Likewise, the increased demand for health services due to the presence of additional population during the construction of the works could not be accompanied by an increase in health care capacity, so that both the current local population and the additional population may suffer impacts from their health due to lack of sufficient care.

On the other hand, the increase in vehicular traffic through the Project vehicles (cargo, personnel, waste) and the construction and/or adaptation of access roads to/from the Mill may produce higher noise emission levels and dust and air pollution due to combustion gases from vehicles, which may affect the health of people located or who carry out daily activities in the immediate proximity of the communication routes to be used/intervened. In 2018, 9.4% of deaths from diseases of the respiratory system were registered in the department of Concepción, without knowing the specific cause; however, the possible increase in air pollution could worsen the health

conditions of people who already have respiratory problems. On a smaller scale, taking into account the low population that lives in riparian areas near the industrial mill property, there could be a risk in people who are engaged in fishing, or who use small boats in the area, due to related activities to be developed, as well as the river traffic that would transport machinery and supplies by said route.

Regarding the construction activity of the Mill itself, it could happen that third parties settle in the immediate vicinity of the Project property, with the expectation of economic income by providing goods and services to the construction employees. These people could be affected by noise and dust produced on construction sites. Similarly, although on a smaller scale, the construction of temporary/permanent accommodation will produce noise, dust and the emission of combustion gases from vehicles and machinery, with an impact on the populations that are in the vicinity of the construction sites.

Also, the potential improper disposal of waste, effluents and/or emissions from the construction of the Mill and/or the ease of third-party access to the final disposal sites could generate effects on the health of these people due to contact with substances and/or contaminated materials, for example, organic solid waste, inert and powdery solid waste, solid waste and/or hazardous effluents (oils, paints, chemicals, etc. or materials contaminated with them), among others. Or by generating environments conducive to the proliferation of insects and/or vermin that could be vectors of diseases.

It is important to consider all preventive measures set out in IFC Performance Standard 4 on Community Health, Safety and Security.

Impact of the Levels of Local Citizen Security

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services;

The establishment of a transitory and definitive population in the AID associated with the construction phase of the Project may increase the probability of crime and/or violence events in the ADA/AID due to the increase in population and the workers influx, since this will be significant in relation to the size of the current local population, due to cultural differences and the greater commercial and service dynamics that the Project is expected to produce, with the consequent increase in the circulation of money and assets. This could be favored if the public police service is insufficient for the size of the population to be had in the AID.

An increase in crime and violence levels cannot be properly estimated because the characteristics of the population that will settle in the AID are unknown.

Likewise, there is a risk that people who come to the area solely to commit criminal acts will settle in the AID, in view of the aforementioned conditions that would be generated by the presence of the Project. The increase in the workers influx, many times also leads to an increase in gender violence, attending to local sexist cultures, or due to the expected influx of a large number of male personnel.

According to the information collected in the field, both in the ADA and in the AID, “security” is the third and second most valued aspect, respectively, by the interviewees in terms of the positive aspects of living in their communities. Likewise, according to those surveyed in the AID, “violence” appears as one of the least mentioned aspects in terms of the problems identified in the territory. This indicates that people currently feel that there is an important level of citizen security and low levels of violence, so the alteration of these, induced by the Project, could be abrupt.

The baseline data indicate that in the entire department of Concepción an average of 22.25 intentional homicides have been committed for every one hundred thousand inhabitants, per year, between 2010 and 2017. Regarding punishable acts against property, has registered 82.76 events in 2017, visibly decreasing from the levels registered in previous years. At the regional level (departments of Concepción, San Pedro and Amambay), there is 18.2% of the population that has been the victim of crimes against the home, with theft at home being the most recurrent event (second area, after Asunción, where there are more complaints made about theft in homes); also 18% of the population has been the victim of crimes against people, due to extortion.

However, the perception of good security levels mentioned above, another perception of the communities of the micro-territories closest to the location of the Mill is that crime is increasing and is associated with the lack of employment, especially in the young population, as well as the consumption of alcohol and narcotic substances. They also commented that the improvement of the roads contributed to the increase in robberies in the area since it facilitates the rapid exit of those who commit the crime. In this sense, the offer of jobs by the Project to local people could in turn contribute to counteracting the trend of increased crime.

The property of the industrial enterprise, as well as the forestry component, will have its own security personnel, which is common in private enterprises. In this sense, the need for the project to have the support of the public police/security service is reduced. However, as it is a sensitive aspect that could involve the violation of human rights, the project will observe, as a minimum, IFC PS 4 on "Community Health and Safety", regarding the safeguarding of personnel and properties; on the one hand, and the minimization of security risks for the surrounding communities, ensuring that these personnel do not exercise "abuses of power" as an extortion measure or pressure on workers and/or the community; Paracel will have a specific area, under the human resources area, which will implement a "Security Policy" at the business level.

QUALITY OF LIFE, USES AND CUSTOMS

Increase of Discomfort or Restlessness

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services; construction and/or adaptation of access roads to/from the Industrial Mill; transportation of materials, supplies and machinery; construction and operation of temporary accommodation; construction of transmission line; transportation of construction workers; solid waste management, effluents, emissions; closure or completion of the works.

At this stage of the project, the quality of life of the AID population could be affected, mainly due to the increased workers influx linked to the enterprise. The quality-of-life aspects affected would be, mainly, the tranquility and comfort of the current inhabitants, attending to the manifestations of high valuation of these characteristics of the area by the people interviewed in the information survey in the field.

The increased workers influx and the presence of an unusual number of people associated directly and indirectly with the Project's works in the ADA/AID communities may promote the appearance (or increase) of activities such as sale and consumption of alcohol and drugs, sex work or prostitution, gender violence, crime, disrespect for the vulnerable population, disturbance of public peace due to a greater number of recreational and/or night-time activities (parties, leisure groups, etc.) on public roads and/or in homes within the communities, disrespecting the current levels of tranquility of the ADA/AID.

On the other hand, the current level of access to entertainment spaces for the local population may be diminished by an increase in demand for the use of these spaces, since the temporary and definitive population associated with the Project will be installed in the ADA/AID, generating competition for use between the different groups.

A third point implies the possible emergency or increase of union activities of workers in the area, given the number of people that will be employed in the construction phase of the Project and their interactions with the daily life of the communities where they will settle/work, since they will be able to carry out events in public (or even private) spaces that could alter the tranquility. On the other hand, the existence of these groups could also be positive for local communities, since it can instill in them notions of public participation, groups to defend rights or promote legitimate interests, etc.

Also, the increase in vehicular traffic due to the Project (cargo, personnel, waste) may affect the tranquility and comfort of the people in the area of influence and especially the ADA/AID, since this will cause higher levels of noise, vibrations and air pollution by dust and combustion gases, affecting the people who live or carry out daily activities in the immediate vicinity of the roads that will be used by the Project vehicles, within a minimum radius of 100 meters from the roads. Likewise, the increase in vehicular traffic, especially heavy traffic, may generate uneasiness regarding the potential impact on the structural condition of the homes or buildings located on the roads to be used.

In the event that the Project builds new communication routes, these could affect the current tranquility and comfort of the populations through which these routes will cross, due to the same impacts related to traffic, but more severely, since it would pass from a situation from non-existent annoyances to another situation of permanent annoyances such as those that can be caused by vehicular traffic. These annoyances could even generate opposition to the opening of the roads of interest. In case of adaptation of the roads, the works carried out may also generate temporary nuisance due to dust and noise affecting the population adjacent to these roads.

Other annoyances due to dust, noise and vibrations could occur in the direct proximity of the mill's work fronts and the handling and final disposal sites for solid construction waste, as well as the construction of temporary/permanent accommodation for operators, with an impact on the population that is adjacent to such sites.

According to the data collected in the field in the ADA and the AID, "tranquility" is the aspect most valued by the interviewees when they were asked about the positive aspects of living in their respective communities/districts. This seems to indicate that the current levels of tranquility are high, therefore, the impact of the construction of the Mill could be significant, given all the aforementioned changes that the Project will introduce in the medium.

Another aspect valued in the ADA and AID is "people", referring, in general, to the fact that the population feels comfortable and satisfied with their neighbors and other people in their communities/districts, also pointing out that there is unity and solidarity. This could be greatly altered by the arrival of large numbers of non-local people.

In the AID, the "little existing traffic" has also been mentioned as a positive aspect of the communities. This gives an idea of the importance of the impact that the Project's vehicular traffic (especially cargo traffic) will have in the construction phase on the communities through which it will pass.

Finally, the closure of the work will return certain levels of comfort and/or tranquility to the local population of the AID, especially in relation to the abandonment of the AID of a large part of the population hired directly by the Project for the construction phase and for the cessation of some of the activities that increase the levels of dust and noise in the local environment. However, in the event of improper delivery of temporary

accommodation, new levels of discomfort or unease may be generated in the local AID population if these are occupied by people who turn them into “marginal settlements” or “slums”. The latter is expected to be minimized, taking into account the steps that Paracel is already carrying out with the Municipality of Concepción, in order to adapt to the urban plans that the local government has. This will be taken care of by Paracel, as part of the inter-institutional coordination and corporate responsibility strategies, already initiated in the early stages of the project.

Changes in Customs and Uses

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction and/or adaptation of access roads to/from the Industrial Mill; Transportation of materials, supplies and machinery; Transportation of construction workers; solid waste management, effluents, emissions.

The increase in the workers influx, and the consequent increase in the transitory and definitive population associated with the construction phase of the Project will force the interaction of the customs, uses and current values of the local ADA/AID communities with those of the additional population in the zone.

This could result in a negative impact if these customs, uses, values and habits are changed by the predominant ones that emerge from said interaction, thus losing the sense of identity, belonging, community and mutual respect.

Also, the possible alterations in the tranquility, comfort and even the security of the current population of the AID may lead to the need to change their daily habits, customs and ways of life to adapt to the new conditions that the presence of additional population would generate, due in large part to the increase in the workers influx linked to entrepreneurship. The impact would be adverse if it implied a deterioration of the freedoms enjoyed by the current communities and/or the normalization of acts contrary to the tranquility and harmony of the communities (for example, annoying noise, lack of respect towards vulnerable members of the local communities, with an emphasis on women and children, lack of respect for the property of third parties, etc.).

The existing data at the regional level (departments of Concepción, San Pedro and Amambay) indicate that people adopt practices such as security measures due to the perception of insecurity. For example, some practices are reduced, such as allowing minor children to go out alone (54.4%), going out at night (48.9%), leaving the house alone (48.2%), visiting relatives or friends (42.9%), frequent shopping centers (35.3%), among others, which generally reduce people's freedom of movement, the habits of cultivating interpersonal relationships that could be important for supporting families and even affect to trade.

On the other hand, the increase in vehicular traffic due to the construction of the Project (cargo, personnel, waste) may also generate changes in the practices and habits of the ADA/AID populations that are located in direct proximity to the roads used, such as, for example, stop attending sites or take greater precautions to safeguard their physical safety by avoiding the use of the roads, reducing the use of sidewalks as a place for recreation or meeting with neighbors, etc.

The recreation and leisure to which the inhabitants are currently accustomed is largely related to the spas on the shores of natural water courses. There are 17 watering places in the AID of which only 5 are authorized by the national authority. Other options are recreational fishing activities and boat trips on the Paraguay River. It is estimated that the leisure/recreation sites will be visited by the temporary and permanent population associated

with the construction of the Project, with potential negative impacts on their carrying capacity and natural state, the forms of use and the frequency of visits of the locals to/from these sites.

In turn, another aspect related to water uses, and that is related to the provisioning ecosystem services, are those related to fishing for self-consumption and/or sale on a smaller scale. IFC PS 4, on “Community Health and Safety”, establishes that the decline or degradation of natural resources, such as adverse impacts on the quality, quantity and availability of fresh water, can cause risks and impacts. related to the health of the communities, as well as their livelihoods. Considering that the implantation of the industrial mill takes place on the Paraguay River, and although the ADA communities do not directly source water for consumption, we do not want to fail to mention a small number of people who are dedicated to artisanal fishing for consumption and/or sale on a smaller scale. These could be minimally affected by construction activities linked to associated activities in the river, as well as by the transport of materials by river.

Impact of the Social Network

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services; transportation of materials, supplies and machinery; construction and operation of temporary accommodation.

The impact on the customs and uses of the ADA/AID population due to the Project may have consequences on the networks/interconnections of the communities. For example, in the event that people decreased their visits to recreational sites or the homes of relatives/neighbors due to fears caused by the increase in the workers influx, and the additional population associated directly and indirectly with the project, and/or the potential impacts Due to the increase in traffic through the Project cargo, it is possible that there will be a gradual erosion of relationships between people, due to the decrease in encounters and direct contact between them.

Likewise, once the direct workers of the Mill -and their families- and/or the population that has come to the ADA/AID indirectly induced by the Project decide to leave the area due to the completion of the works, the social networks that will be created in the course of the 2 to 3 years of the construction of the Industrial Mill may be affected, having to face the challenge of restarting daily life in another place, without these networks.

It should be noted that social networks are important factors for the subsistence of, above all, families with limited economic resources, since through them the burdens of family expenses, housework and raising children are shared.

EXPECTATIONS

Generation of Positive Expectations in the Population

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services;

The construction phase of the Project may generate expectations in the population that could result in positive effects for the Project.

On the one hand, there are the expectations of the population of the ADA and the AID regarding the improvements and/or opportunities that the Project would bring to the area of influence, especially the AID, such as the generation of direct and indirect jobs, dynamization of the economy at the local and departmental level,

enhancement of industrial development and, in general, progress and development. These expectations may generate feelings in favor of the Project in the local population.

According to data collected in the field in the ADA, half of the interviewees referred to "emigration and migration" (regionally and abroad) associated with the "little labor supply" as one of the problems in their community. Along the same lines, "work" is the aspect that they consider a priority for the development of the community. Also, the interviewed representatives of institutions and communities of the AID indicated the "generation of sources of work" as one of the preponderant aspects to achieve greater local development, as well as the "importance of the installation and operation of industries" in view of the lack of job opportunities in the area. And in the surveys carried out in the AID, "migration (country-city)" and the "lack of sources of work" are the most mentioned aspects in terms of social and economic problems. In this sense, the expectation related to job creation by the Project is expected to be very high, especially at the local level. In this regard, AID people also observed that they expect the hired labor and suppliers to be local.

Generation of Negative Perception and/or Fears in the Local Population

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; construction of the Industrial Mill and related services; construction and/or adaptation of access roads to/from the Industrial Mill; construction and operation of temporary accommodation; construction of transmission line; transportation of materials, supplies and machinery; transportation of construction workers; solid waste management, effluents, emissions; closure or completion of the works.

In addition to the expectations considered positive, expectations may be generated in the population related to desires for support from the Project to cover certain basic needs deferred from the ADA/AID communities in terms of infrastructure and services, thus supplying the functions of provision of services and/or care that should be provided by local and national governments. The survey in the AID showed that the "improvement of community infrastructure" is a positive aspect or benefit that people believe that the Project will be able to offer the community, as well as "supporting the growth of the communities in the area" is a of the most mentioned expectations in relation to the Project.

However, if the expectations generated in the population were not satisfied in reality, conflicts and/or feelings of rejection towards the Project could be generated; for example, in the event that local workers are not "sufficiently" employed, that the existing infrastructure is not improved and that it is exceeded in its capacity to share it, in its current conditions, with the demands of the Project, etc.

Likewise, the Project may generate negative perceptions and/or fears in the ADA/AID population in relation to various aspects. According to the field survey, to date, the AID population states that their main concerns regarding the Project are "possible damage to the environment and/or human health", the "low absorption of local labor", "Non-compliance with national and international regulations", the possibility of "generation of conflicts if there is no good communication" or "lack of information". For its part, the ADA has not revealed perceptions of negative aspects in relation to the implementation of the Project, but they could appear over time.

In addition, it should be considered that the following negative perceptions and/or fears may also appear in Projects of this magnitude:

- Regarding the number of foreigners who will arrive and settle in the ADA/AID to be employed in the work and/or establish businesses and/or services,

- The increase in citizen insecurity and/or addiction problems (mainly the problem of alcoholism was mentioned in the ADA and the AID),
- The decrease in the capacity of basic services (drinking water, health, etc. that are already referred to as insufficient in the ADA and AID),
- The deterioration that construction activities could cause on existing infrastructures (roads, etc. that are already in a state of deterioration according to the ADA and AID),
- The potential increase in traffic congestion and the risks of road accidents, the potential opening of new roads that would alter current living conditions,
- Potential changes in daily habits and customs and quality of life in general (tranquility, comfort, public safety, etc. which are currently highly valued in the ADA and AID), among others.

These negative perceptions and/or fears could be generated by the Project's lack of attention or information on these aspects.

For its part, the final stage of construction, which will involve the demobilization and abandonment of temporary accommodation, may generate both expectations and fears among the population and local authorities.

The closure stage of the work may also generate a negative perception of the population and local authorities due to the potential social impacts that they have already described before such as: the increase in unemployment in the AID, the decrease in commercial activity, the closure and potential improper delivery of accommodations.

The ultimate consequence of these impacts would be support for and/or rejection of the Project and potential social conflicts.

Generation of Positive Expectations at the Regional and Extra-regional Level

Activities or aspects that generate the impact: hiring of personnel for the construction of the Industrial Mill and related services; Construction of the Industrial Mill and related services; Construction and/or adaptation of access roads to/from the Industrial Mill; Transportation of materials, supplies and machinery; construction and operation of temporary accommodation; construction of transmission line.

The Project may generate expectations in the population of the districts and departments outside its AID, for reasons similar to those set forth in terms of expectations of the local population: generation of direct and indirect jobs, creation of demand for trade/services in the ADA/AID and along the roads used by the Project, improvement of infrastructure and existing services, etc. According to these expectations, the arrival of foreigners in search of new and/or better employment conditions, higher income, improvements in habitability, etc. may be presented.

The age, socioeconomic and migratory conditions of the inhabitants of the department of Concepción beyond the AID, which are similar to the conditions found in the department of San Pedro mainly and to a lesser extent of Amambay, provide a propitious context for expectations to be generated at regional level on the possibility of getting a job in the construction phase of the Industrial Mill.

Likewise, the Project may generate expectations at an extra-regional level in suppliers of goods and/or services due to the demands that the different construction activities of the Project will have (Mill and related services, temporary accommodation, construction and/or adaptation of roads) of materials raw materials, supplies, machinery, equipment, specialized engineering and assembly services, cargo logistics by land and/or river, etc.

Generation of Negative Perception and/or Fears at the Regional and Extra-regional Level

Activities or aspects that generate the impact: construction of the Industrial Mill and related services; transport of materials, supplies and machinery.

In general, it should not be ruled out that there may be a negative perception of the Project by people, groups, organizations and/or institutions at a regional or national level in relation to environmental issues, due to the belief that the Project will cause environmental damage, for example, to the Paraguay river, to air quality. It should be noted that at the national level there are problems of trust on the part of the general population towards the management of national and local public institutions that must ensure the well-being of the population, so it could be argued that the Project will not comply with national regulations nor international standards with the endorsement of these institutions.

Other uncertainties may emerge in other road users, land and/or fluvial that will be used to transport raw materials and supplies for the construction of the Mill, in terms of potential increase in traffic congestion and deterioration of the condition and useful life of the road network.

6.4. Social Impact Assessment – Operational Phase

6.4.1. Interaction between factors of the social environment and social aspects of the operational stage

From the interaction of the aspects derived from the entrepreneurial activities in the operational stage, as presented in chart 106 and the social factors cited in chart 107, an interactive matrix is elaborated, which allows to preview which activities could generate impacts, whether positive or negative at this stage of the project.

Chart 116. Matrix of qualitative interaction, social factors and aspects derived from the activities in the operational phase

	STAGE		OPERATIVE								
	<div> <div>SOCIAL FACTORS</div> <div>FORESEEN ACTIVITIES</div> </div>		Chiring of personnel to operate the Industrial Mill and related services contexts	Operation of the Industrial Mill and related services	Transport of raw materials, supplies and products	Transport of workers of the Industrial Mill	Production and management of emissions (gases, vapors, odors)	Production and management of effluents	Production and management of solid waste	Maintenance of access roads to/from the Industrial Mill	Accommodation of the Industrial Mill workers
MEDIUM	RESOURCE	FACTOR									
SOCIAL	Social - Economic and Cultural	Employment	●	●							
		Demography	●	●							
		Public/private services, infrastructure and/or property	●	●	●	●				●	
		Archaeological, historical and / or cultural heritage		●							
		Landscape		●			●				
		Local and regional economy	●	●	●	●	●	●	●	●	
		Real-estate market	●	●	●	●			●	●	●
		Occupational health and safety		●	●	●	●	●	●	●	
		Third party health and safety	●	●	●	●	●	●	●	●	
		Quality of life, uses and customs, including ecosystem services	●	●	●	●	●		●	●	●
		Expectations	●	●	●	●	●	●	●		●

Source: Own elaboration

According to the interaction matrix of factors and aspects in the operational stage, it can be seen that the social factors "services, infrastructure and / or public or private property", "local and / or regional economy", followed by "health and safety occupational ", " health and safety of third parties ", as well as" quality of life "and" expectations ", could be affected, positively or negatively, by the various activities of the undertaking.

6.4.2. Social Impacts in the Operational Phase

The impacts derived from the intersection of social environment factors and entrepreneurial activities are listed below. First, in chart 117 the impacts are cited, their relationship with the activities, and to which social factor it is linked, and later, in chart 118 the evaluation of these is presented, following the same structure presented in the construction phase.

It can then be verified that thirty-one (31) potential social impacts have been identified and grouped in the operational stage. Descriptions of each of them are presented below. Although several of the impacts may occur in different aspects related to the activities of the undertaking, in the previous table they were considered in relation to only one aspect –where they have the greatest incidence–, in order not to make the quantification repetitive, however, in the description of the impacts mentions all the activities that cause/could cause them and that, therefore, require attention to prevent and/or minimize them.

In the description of the social impacts identified for the operation phase of the undertaking, it is important to note that several of the impacts already identified for the construction phase are also present in the operation, but with some differences derived from the nature of the activities involved. Therefore, many of the data already provided in the description of the social impacts of the construction phase are not repeated in this section, such as, for example, the aspects of the socioeconomic characterization that help to magnify and/or understand the impacts.

In the case of similar impacts in the construction and operation phases, their differentiation, if applicable, is reflected in the assessment they have received, since this depends on the scores of each variable that makes up the social significance.

As in the description of impacts in the construction phase, in the operation phase the activity of "Operation of the Industrial Mill and related services" is also used to refer to the impacts that derive from the conception of the Project as a whole, that are not linked to a particular activity of the same.

Chart 117. Social impacts identified in the operational stage

Aspect or activity	Social Environment Factor	Social Impact
Hiring of personnel for the operation of the Industrial Mill and related services	Employment	Generation of local employment
	Employment	Salary increase
	Employment	Formalization of labor ties
	Employment	Migration of workers from other productive sectors
	Employment	Capacity building
	Demography	Definitive population increase
	Public/private services, infrastructure and/or property	Increase in demand for public and non-public services
	Public/private services, infrastructure and/or property	Increase in the demand for housing
	Expectations	Generation of positive expectations in the local population
Operation of the Industrial Mill and related services	Public/private services, infrastructure and/or property	Provision of electrical energy
	Archaeological, historical and/or cultural heritage	Management and enhancement of local and national heritage
	Landscape	Landscape affectation
	Local, regional and extra regional economy	Development of the local, regional and/or extra-regional direct economy (associated with the sector) and indirect
	Local, regional and extra regional economy	Increase in visitors to the area
	Real-estate Market	Increase in the price of properties and rentals
	Health and Safety of third parties	Impact on the health of third parties
	Health and Safety of third parties	Affecting the levels of local citizen security
	Expectations	Generation of positive expectations at the regional and extra-regional level
Transportation of raw materials, supplies and products	Public/private services, infrastructure and/or property	Increase in vehicular traffic
	Public/private services, infrastructure and/or property	Impact on road infrastructure
	Public/private services, infrastructure and/or property	Impact of land properties
	Public/private services, infrastructure and/or property	Impact on river traffic and/or ports
	Occupational Health and Safety	Impairment of occupational safety
	Health and Safety of third parties	Impact on road safety
	Quality of life, uses and customs	Increased discomfort or restlessness
	Quality of life, uses and customs	Changes in customs and uses
	Quality of life, uses and customs	Affection of the social network
	Expectations	Generation of negative perception and/or fears in the local population
Production and management of emissions (gases, Effluent production and	Occupational Health and Safety	Occupational health impairment
	Local, regional and extra regional economy	Affecting the local and regional economy with the use of water
	Expectations	Generation of negative perception and/or fears at regional and extra-regional level

Source: Own elaboration

Chart 118. Assessment of the social impact of identified social impacts in the operational phase

Social Impact	Social Variables					Social Index	Impact
	Signo	ICA	ID	II	PO		
Generation of local employment	1	7	7	5	0,99	6,27	HIGH
Salary increase	1	2	7	6	0,69	3,45	MEDIUM
Formalization of labor ties	1	2	6	6	0,99	4,62	MEDIUM
Migration of workers from other productive sectors	-1	7	7	4	0,39	-2,34	LOW
Capacity building	1	5	5	9	0,99	6,27	HIGH
Definitive population increase	1	5	5	4	0,99	4,62	MEDIUM
Increase in demand for public and non-public services	-1	5	5	5	0,99	-4,95	MEDIUM
Increase in the demand for housing	-1	5	5	4	0,99	-4,62	MEDIUM
Generation of positive expectations in the local population	1	8	8	6	0,79	5,79	MEDIUM
Provision of electrical energy	1	6	6	8	0,99	6,60	HIGH
Management and enhancement of local and national heritage	1	8	8	4	0,99	6,60	HIGH
Landscape affection	-1	3	3	6	0,99	-3,96	MEDIUM
Development of the local, regional and/or extra-regional direct economy (associated with the sector) and indirect	1	7	9	8	0,99	7,92	HIGH
Increase in visitors to the area	1	5	5	5	0,49	2,45	LOW
Increase in the price of properties and rentals	1	4	4	6	0,69	3,22	MEDIUM
Impact on the health of third parties	-1	5	5	6	0,69	-3,68	MEDIUM
Affecting the levels of local citizen security	-1	5	5	7	0,39	-2,21	LOW
Generation of positive expectations at the regional and extra-regional level	1	9	9	7	0,69	5,75	MEDIUM
Increase in vehicular traffic	-1	6	7	8	0,99	-6,93	HIGH
Impact on road infrastructure	-1	7	7	7	0,99	-6,93	HIGH
Impact of land properties	-1	2	2	7	0,99	-3,63	MEDIUM
Impact on river traffic and/or ports	-1	3	9	4	0,49	-2,61	LOW
Impairment of occupational safety	-1	3	3	9	0,39	-1,95	LOW
Impact on road safety	-1	6	7	9	0,99	-7,26	HIGH
Increased discomfort or restlessness	-1	6	7	8	0,99	-6,93	HIGH
Changes in customs and uses	-1	6	7	7	0,69	-4,60	MEDIUM
Affection of the social network	-1	6	7	6	0,49	-3,10	MEDIUM
Generation of negative perception and/or fears in the local population	-1	6	6	8	0,79	-5,27	MEDIUM
Occupational health impairment	-1	2	2	8	0,39	-1,56	LOW
Affecting the local and regional economy with the use of water	-1	6	5	7	0,39	-2,34	LOW
Generation of negative perception and/or fears at regional and extra-regional level	-1	9	9	7	0,69	-5,75	MEDIUM

Source: Own elaboration

JOB

Generation of Local Employment

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services.

Between 600 and 1,000 direct jobs will be generated for the operation of the Mill, in the operation phase, which is why a decrease in the workers influx is expected. Qualified and unskilled labor will be required for the production of cellulose, for the maintenance of equipment and machinery, for administrative tasks, cleaning, transportation, security, and other related services. It is estimated that 20% of those hired will be professionals, 70% technical and 10% suitable. Regarding qualified and/or specialized labor, depending on the specialty, possibly foreign personnel will be hired, even foreign personnel, if necessary, since there is possibly no specific experience related to the pulp production sector in the area of influence. Along the same lines, local people will be able to cover the demand for employment that does not require specialized training for the production and/or maintenance of equipment and machinery; therefore, it is expected that most of the unskilled labor may come from the local population.

It is possible that part of the jobs in the operation phase do not require recruiting new personnel, but may be able to rehire the personnel that already intervened in the construction phase of the Project. In addition, the jobs offered will provide staff training, which is a positive aspect of the hiring itself.

The Project will comply with the principles of IFC's Performance Standard ND 2 on "Labor and working conditions", clearly defining the labor links, depending on whether the employees are direct, contracted, or supply chain workers, as the case may be. Likewise, FSC Principle 4 on "Community relations and workers' rights" will be considered.

Salary Increase

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; operation of the Industrial Mill and related services.

The Project could provide higher salaries than the current average per capita income in the All departments, according to certain criteria, as described for the construction phase. The effect would be an increase in the purchasing power and debt capacity of the employed persons and their dependents, with the possibility of reducing the poverty of the families in question.

Likewise, the supply of jobs associated with the operation of the Project may produce an upward effect on salaries in the ADA/AID, which would be beneficial for more people than those directly hired by the Project.

Formalization of Labor Ties

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services.

It is expected that the Project will provide formal labor links, that is, in compliance with current national legislation, thus improving working conditions with respect to the existing job offers in the IIA, whose characteristics have already been described for the construction phase.

The formalization of labor ties, which will be less in quantity, but of medium and long-term duration (during the operation of the Mill), will improve the quality of life of direct employees and their dependents, by increasing the level of security labor and social present and future.

It is key that the venture considers IFC Performance Standard 2, as well as the work standards and working conditions recommended by the World Bank.

Migration from Workers from Other Productive Sectors

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; operation of the Industrial Mill and related services.

The operation of the Project may generate an attraction for people currently employed or producing in other productive sectors, and promote migration to the Project. The impact would be positive for the people who manage to be employed in the Project, since it is expected that this migration is due to a comparative advantage in terms of income levels and/or working conditions with respect to their current jobs/occupations and also because the jobs they would be permanent and/or long-term. On the contrary, the impact would be negative for the productive sectors that will lose workers, including small producers; However, it should be noted that this impact will be less than in the construction phase, due to the more limited supply of jobs.

Indirectly, the expansions and/or new business and/or service undertakings that could be generated within the framework of the expected economic development induced by the Project, may mean the migration of workers from the existing productive sectors to the new undertakings/extensions. Similarly, this impact would be positive for people who migrate from the sector since it is expected that they are motivated by greater comparative advantages, but it would be negative for the productive sectors that would lose workers.

In the analysis of the probability of occurrence of this impact and of the area from which the “labor migrants” could come, the same aspects of the socio-economic characterization of the ADA, AID and AII are considered as already described for the phase of construction.

Skills Development

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services.

As in the construction phase, the Project will promote the training of interested persons who may be employed in the operation phase of the Industrial Mill. This will be in order to counteract, to a certain extent, the lack of locally existing skilled labor and to enhance the existing one in accordance with Paracel's specific technical needs.

On the other hand, this training will address what was referred by the AID population in the field survey, the fear that there is a “low absorption of local labor” due to “not being trained”. Along these lines, the training offered by Paracel will have a positive impact on the personal training of future workers in the operation and on the level of hiring of local labor.

DEMOGRAPHY

Increase of the Definitive Population

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; operation of the Industrial Mill and related services.

A certain increase in the definitive population could be expected in the ADA/due to the hiring of between 600 to 1,000 people for the operation of the Mill for the medium and/or long term, which, it is estimated, will live in the ADA/AID of the Project, in order to optimize the daily distance, they must travel from their homes to the Mill. It is important to highlight that part of the personnel that will be linked in this stage could already be residing in the area from previous stages, but it is relevant to consider the workers influx in the area compared to the current situation.

Consideration should also be given to the families that each person might have with them in the ADA/AID. Compared to the construction phase, this impact will be less as the number of employees is reduced to approximately 15% of the number of employees in the construction phase. However, the length of stay in the ADA/AID is considered longer, since in the operation the jobs would be long-term and/or permanent.

In addition to those directly hired by the Project –and their families, it is estimated that other people will settle in the ADA/AID motivated by the expectation of greater economic opportunities with the population, commercial and service dynamism that the Project would generate.

PUBLIC/NON-PUBLIC SERVICES, INFRASTRUCTURE AND/OR PROPERTY

Increase in Demand for Public and Non-public Services

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; operation of the Industrial Mill and related services; transportation of raw materials, inputs and products; transportation of workers from the Industrial Mill.

The services referred to are the same as those described for the construction phase: collection and final disposal of solid waste, provision of drinking water, sanitation, electricity, transportation, health care, police and security, emergencies, education, communications and information, lodging.

The increase in the definitive population by the direct employees of the Mill operation - and their families, generated by the hiring of personnel and consequent increase in the workers influx in the area, as well as by the population induced by the Project, will cause an increased demand for all basic public and non-public services in the ADA/AID, which could affect current service levels in the area. Although the pressure on each of the services is expected to be less compared to the construction phase (due to the lower number of direct jobs, first), if the current conditions of the services were maintained and/or they were exploited or used after the phase of 2 to 3 years of construction of the Mill, these may also be affected by the increase in the population during the operation phase.

Also, the temporary increase in visitors to the area associated with the Project and non-local people related to the logistics of materials, supplies, machinery and equipment for the operation and final products, representatives of suppliers and/or customers, personnel international certifiers, etc., will generate temporary demands for all services, contributing to pressure on them.

For its part, the operation of the Mill itself will require the provision of some of these services, such as transportation, communication/information, health, and emergencies. In accordance with the existing capacities in the ADA/AID, the Project plans to self-manage some services, such as water supply and sanitation, final disposal

of effluents and solid waste. Regarding electrical energy, the Project foresees the self-provision of energy from fuel oil type fuel for one of the processes and from renewable Sources (biomass) with a production of around 200 MW, with which it is not expected to generate pressure on the public electricity supply service. In addition, at this stage, the 220-kV transmission line would already be active, already under the operational responsibility of ANDE.

In relation to security, it will have its own security personnel, which is common in private enterprises. However, as it is a sensitive aspect that could involve the violation of human rights, the project will observe, as a minimum, the IFC PS 2 and PS 4, regarding the safeguarding of personnel and property; on the one hand, and the minimization of security risks for the surrounding communities, ensuring that these personnel do not exercise "abuse of power" as a measure of extortion or pressure on workers and/or the community; Paracel will have a specific area, under the human resources area, which will implement a "Security Policy" at the business level.

The transportation related to the operation of the Mill, both of raw materials, inputs and final products as well as of the employees of the Mill, may require public emergency care services in the event of any occurrence, such as volunteer firefighters and of the national police, which according to their current conditions –as described for the construction phase– could be insufficient to serve the current ADA/AID population and the final and transitory additional population.

The operation of the Mill will also require an increase in the level of public transport services, in the event that the Project does not itself provide means of transportation for the workers (special buses that pick up the workers from their homes or specific points and redistribute them at the end of the working day). Using existing public transportation to get closer to the ADA may imply congestion in the capacity of transportation units during peak hours, which include the start and end of the workday.

As for the solid waste that will be generated during the operation phase of the Mill, these will be disposed of at the final disposal site that will be built within the industrial premises, exclusively for the Project. Therefore, pressure on the existing public and/or private services for the collection and final disposal of solid waste is not expected in the ADA/AID.

Increase in the Demand for Housing

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; operation of the Industrial Mill and related services.

The demand for housing could increase, in relation to the current baseline, due to the increase in workers influx, and the consequent increase in the temporary and definitive population associated with the operational phase, whether of purchase or rent, due to the increase of the population directly associated with the operation of the mill, between 600 and 1,000 people - and their families - during the medium and long term, although it is important to note that part of these people would already be settled in the ADA/AID from stages previous. This impact will be less than that of the construction phase of the Project, since the number of employees will be more limited and because it is expected that during construction the number of homes available in the ADA/AID will already increase and that these will be vacated once the construction is finished, to give place to the personnel of the operation phase, with this last statement it could even cover the needs.

The population estimated to be able to reach the ADA/AID, induced by the expectation of greater economic opportunities, with the population, commercial and service dynamism that the operation of the Project would generate, will also contribute to the increase in the demand for housing.

Increase in Vehicular Traffic

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; transportation of raw materials, inputs and products; transportation of workers from the Industrial Mill; production and management of solid waste.

The presence of a larger population due to the hiring of Project personnel, and the consequent increase in the workers influx compared to the current situation –and their families– will produce an increase in vehicular traffic in the ADA/AID, since the population will have transportation needs that, considering the context, could be covered with the use of own vehicles, mainly motorcycles.

On the other hand, the transportation needs of materials, supplies, machinery, equipment, personnel, waste and/or effluents and final products that the Project's operation phase will have will contribute to a significant increase in vehicular traffic in relation to that currently existing in the area of influence and especially in the ADA/AID, particularly on the roads that connect the national routes with the access to the Industrial Mill property. Both the number of vehicles and their type, medium (buses, vans) and large (cargo trucks) that could only circulate at low speed, may affect the capacity of the roads during peak hours, contributing to increased congestion in local vehicular traffic.

The access road to/from the Mill, already detailed in the construction stage, will adapt a new road for the use of the Project and the owners of said lands, in order to minimize the impact on the part of the ADA communities.

It is emphasized once again that this is an issue already identified from the early stages, as one of the main concerns expressed by the people consulted in the "Perception Study".

Impact on Road Infrastructure

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; transportation of raw materials, inputs and products; transportation of workers from the Industrial Mill; production and management of solid waste; maintenance of access roads to the Industrial Mill.

The increase in vehicular traffic through the Project vehicles may affect the structural condition, the state of conservation and the useful life of the communication roads, particularly in the event that the necessary maintenance is not carried out on the roads that will be used, which they are for non-exclusive public use by the Project.

The Project vehicles will be of different types, but it is estimated that those that may cause the most impacts are heavy-duty trucks, which are estimated to circulate in the ADA and AID at the rate of one truck for every four minutes during the working day.

The periodic maintenance of the access roads to/from the Mill will have a positive impact on these roads, but to a limited extent that would mainly benefit the Project. However, it is highlighted that the project would improve the levels of road services, taking into account the coordination carried out by Paracel with the MOPC, from the early stages of the Project.

In addition, once the roads are adequate, compared to the current situation, the benefit of the structural improvement and paving of all the public routes used to transport wood/machinery/others to the Industrial Mill will imply a drastic and positive change in the current situation, reducing travel times, improving road safety, as

well as facilitating access to/from emergency services (ambulances, police, firefighters).

It is worth highlighting once again what was described for the construction phase of the Project, that the current AID population considers that “infrastructure and road safety” is the most priority aspect for the development of their communities/districts, precisely because part of the roads current ones need to be improved. This may indicate that, if the current roads are not improved, the impact of the Project on them will be very high.

Impact of Land Properties in the Immediate Surroundings of the mill

Activities or aspects that generate the impact: transportation of raw materials, supplies and products; transportation of workers from the Industrial Mill; production and management of solid waste; maintenance of access roads to the Industrial Mill.

Considering that access to the Industrial Mill property will be through the rooms adjacent to the Mill's land, the right-of-way will be maintained for the vehicles associated with the Project to transit through these properties, to enter/exit the mill.

Taking care of the easement already defined in the construction stage, throughout the operational stage, and as long as these roads are maintained through said properties, the agreements reached in the construction phase of the Project must be maintained. The measures to be adopted must comply with the recommendations of IFC Performance Standard 5.

Impact on River Traffic and/or Ports

Activities or aspects that generate the impact: transportation of raw materials, supplies and products.

The Project will carry out part of the transportation of materials, supplies, machinery and equipment for the operation of the Mill, as well as the final products by river. In this sense, the transportation of the Project's cargo may put pressure on the current capacity of the Paraguay River waterway.

In this context, the Project plans to build its own port for the loading and unloading of its raw materials, inputs and final products, so the impact on other AID ports is expected to be low.

In this case, if the necessary improvements are not made to the navigation lane and/or the adjustments in the port terminals and warehouses - if necessary, to absorb the demand of the Project - favorable conditions could be created for potential conflicts with other users of the roads and ports, due to fears of possible delays in navigation and/or in the embarkation/disembarkation processes, with the consequent associated costs.

As mentioned in the construction phase, in addition to the pressure that could be exerted on river traffic and the port capacity of the area, where there would be an increase in barges in the area of the project, it should be considered that this potential impact, indirectly it leads to others linked to the safety of personnel and/or third parties, or potential inconveniences that it may cause in the "use of water", bearing in mind that there are fishermen in the area, who fish either for their own consumption or for sale. The practice of “sport fishing” is also registered in the Department of Concepción, which could also be classified as a potential water use conflict, as there are several activities related to water resources in the project's area of influence. These sub-impacts are detailed in the social factor "quality of life, uses and custom, including ecosystem services", and rather there could be a "competition" for such use in a sector close to the enterprise.

Provision of Electrical Energy

Activities or aspects that generate the impact: operation of the industrial mill and related services.

The Project will generate approximately 200 MW of energy, from fuel oil type consumption and from renewable Source from wooded biomass. This energy will be used for the Mill's own consumption and the surplus will be delivered to the public service for the provision of electricity, for the benefit of the communities in the area of influence.

It is estimated that the energy surplus will be in the order of 100 MW, which could supply up to approximately 200,000 homes. Considering the current quality of the public energy supply service, of which frequent cuts in the supply are reported, with the consequent inconvenience to the population, the delivery of excess energy to the area of influence will imply a positive social impact, since it could be reinforced the current provision of electrical power.

CULTURAL HERITAGE

Management and Enhancement of Local and National Heritage

Activities or aspects that generate the impact: operation of the industrial mill and related services.

Once the industrial mill is operational, no negative impacts on the cultural heritage are expected, beyond the possible effects that may occur on the "intangible heritage". However, taking into account the baseline, the Project plans to take care of all the necessary measures to avoid damage to the heritage, and if necessary, provide support for the enhancement of the local cultural heritage (Bragayrac, March 2020).

This enhancement will constitute a positive social impact of the Project due to its contribution to eventual rescues that may occur in the construction stage, and its possible systematization and making available to the competent institutions. Likewise, other measures such as the dissemination of the results of specific studies, linked to the component of local, regional and national historical heritage, with effect in the medium and long term, could contribute to people from the education, academia and tourism sectors, both local and foreign (even nationally).

LANDSCAPE

Landscape Impact

Activities or aspects that generate the impact: operation of the industrial mill and related services; production and management of emissions (gases, vapors, odors).

There will be a specific alteration of the current local landscape, perceived from the Paraguay River and from the ADA, due to the location of the Mill facilities, given their proximity to the river coast and the ADA communities, their physical dimensions and lighting that this will have at night.

Likewise, during the process of production and management of emissions in the operation of the Mill, the emission of water vapor from the chimneys and exchangers will also contribute to the alteration of the local landscape, perceived from the Paraguay River and from the towns and/or ADA and AID locations, according to their proximity to the Mill.

From a social point of view, the impact on the landscape is important when it is perceived by the population. It is estimated that the affected people would be those who take boat trips on the Paraguay River and/or use the beaches on its coast, as well as the people who live in nearby towns.

According to the data collected in the ADA, the “environment/landscape” is the second most mentioned aspect by the population that lives there regarding the advantage of living on the site. Therefore, the introduction of the Industrial Mill in the middle may imply a significant negative impact for the people of the ADA, who should get used to observing the Mill for the long term.

LOCAL, REGIONAL AND EXTRA REGIONAL ECONOMY

Development of the Local, Regional and/or Extra Regional Directa (associated to the sector) and Indirect Economy

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; operation of the Industrial Mill and related services; transportation of raw materials, inputs and products; transportation of workers from the Industrial Mill; production and management of emissions (gases, vapors, odors); effluent production and management; production and management of solid waste; maintenance of access roads to/from the Industrial Mill.

Direct economy, associated to the pulp production sector

The employment of people for the operation of the mill, which entails an increase in the workers influx compared to the current situation, will directly contribute to the individual and/or family economy of the people employed in the mill and its related services, granting them greater purchasing power and the possibility of access to goods and/or services that should be provided, for the most part, locally.

For its part, the operation of the mill itself and the maintenance that must be carried out on the access roads and/or other communication routes as the case may be, will require raw materials, supplies, equipment and related services, as well as the transportation service of the same and of the final products, generating a greater dynamism of the local and regional economy in the medium and long term, depending on the local/regional feasibility of production and provision of the same.

The aforementioned transport will also require the acquisition of different types of vehicles, both for the mobility of employees and cargo. This will also entail the acquisition of spare parts and the need for periodic maintenance and repair services. Additionally, it should be noted that the increase in the definitive population will produce a greater demand for mobility itself, which will promote the acquisition of individual-type vehicles (motorcycles, bicycles, automobiles, buses) and their parts, as well as maintenance services and vehicle repair.

The specific lines of operation of the mill related to the management of emissions and effluents will in turn require specific inputs and specialized services for maintenance and repair of the facilities. As for solid waste, these will be managed and disposed of in a specific area within the industrial premises, promoting the development of certain related items.

Indirect economy

The definitive increase in the local population, both by the mill's employees and by the induced population, will

generate an increase in the demand for goods and services and the opportunities to offer these goods and services, generating income that does not exist today, thus boosting the local economy ADA/AID and contributing to the reduction of local poverty levels.

It is estimated that the project will produce an incentive to open commercial and/or service premises with products for the workers of the Mill operation, in the vicinity of it (dining rooms, supermarkets/pantries, telecommunications, mechanical workshops, etc.)

Likewise, the greater movement of vehicles in the area of influence, and particularly in the ADA/AID, could encourage the opening of new commercial and/or service premises, especially along the communication routes used, with the expectation selling products to carriers and to the general user population of these roads.

For its part, the increase in the definitive population and its demand for transport could motivate the expansion and/or establishment of currently insufficient or non-existent public transport services.

Related to all of the above, the increase in the demand for goods and services, in addition to contributing to the economy of entrepreneurs and investors, will contribute to the generation of new jobs in all these areas, with the possibility of employing a greater number of people from local people.

Additionally, it is estimated that part of the municipal waste that will be generated in greater quantity in the ADA/AID could constitute an additional or main source of income for ADA/AID people who could dedicate themselves to its collection and sale for recycling.

Already in the medium and/or long term, the greater economic development in the ADA/AID, induced by the Project, may contribute to the improvement in the provision of basic services to the population and urban equipment, which in turn would generate more attractive for locating new investments, of all types and sizes, in the same area.

Finally, it can be mentioned that the project could generate an interest in installing ventures or investments - related or not with the project - in the vicinity of this and/or beyond the AID, since the location of the Project could constitute an indicator that the site is conducive and/or favorable for investments. These interests may materialize in the medium and long term, attracting greater investments in the area, synergistically promoting local and regional economic development.

Increase of Visitors to the Area

Activities or aspects that generate the impact: hiring of personnel for the operation of the industrial mill and related services; operation of the industrial mill and related services; transportation of raw materials, inputs and products; production and management of emissions (gases, vapors, odors); effluent production and management; production and management of solid waste.

The presence of employees of the mill operation in the ADA/AID may attract family members and/or close friends to visit them. Considering the expected number of employees, the visitors could be numerous, although in a smaller number than in the construction phase, but with an extension in the medium and long term.

In the same way, the operation of the mill may attract the visit of the press, academic groups, tourists, and people with curiosity in general, since it will constitute the first mill of its kind in the area.

On the other hand, it is estimated that non-local people such as those related to the logistics of materials, supplies,

machinery and equipment for the operation and final products will arrive in the area temporarily; supplier and/or customer representatives; staff of international certifiers; specialists in repairs and/or maintenance; etc.

All these people may mean a greater promotion and dynamism of the area, particularly the ADA/AID, being able to contribute not only to the consumption of basic goods and services but also to the development of tourism and recreational activities that generate profit and economic benefits for the ADA/AID and even beyond this area, since visitors could take advantage of their passage through the ADA/AID to visit other nearby areas as well.

It is worth mentioning that the area has sites that could be promoted at a tourist level, such as watering places and/or beaches, historical sites and monuments, museums, among others, as well as tourist and recreational/sports activities, such as rides in boat on the Paraguay river and sport fishing.

These positive situations have been observed in other cities and towns in the country. For example, in the case of the city of Pilar, the development of industries, port terminals and/or public works have increased its economic development, due to the greater number of people who come to the area and the demands they have for food and lodging, mainly, but also for recreation and other basic services (telecommunications, health, etc.).

Impact on the Local and Regional Economy with the Use of Water

Activities or aspects that generate the impact: transportation of raw materials, supplies and products; production and management of effluents.

This impact would be produced in the event of contingencies. One case could be that of contingencies within the mill and the release of effluents into the Paraguay River without proper treatment. Another case may be that of contingencies in the river transport vessels of the loads of the Project operation, and spillage of fuels or other substances in the river.

These contingencies could generate water pollution, with a negative effect on commercial and recreational/sport fishing activities for profit. This impact could extend beyond the ADA to and/or beyond AID as well, depending on the extent of the pollution effects along the river.

The aforementioned contingencies, in addition to the effects on the environment, could affect both the aforementioned economic activities, as well as potential claims from the population.

REAL-ESTATE MARKET

Increase in the Price of Properties and Rentals

Activities or aspects that generate the impact: hiring of personnel for the operation of the industrial mill and related services; operation of the industrial mill and related services; transportation of raw materials, inputs and products; transportation of workers from the Industrial Mill; production and management of solid waste; maintenance of access roads to/from the Industrial Mill; accommodation of the workers of the Industrial Mill.

It is estimated that the increase in the definitive population due to the hiring of employees for the mill, and consequent increase in the workers influx compared to the current situation, and due to the arrival of other people to the ADA/AID induced by the project will generate an increase in the demand for rentals and the purchase of properties, essentially for housing, since they would remain in the ADA/AID during the medium and long term, for more years than those of the construction phase, where it was estimated that due to the nature of temporary

jobs the greatest demand for housing would be through rent. Likewise, it is possible that for the operation phase of the Mill some basic services have been improved in the ADA/AID communities. These two factors, the demand and the improvement of services, may produce an increase in the value of properties and rents, although the impact could be less than that of the construction phase where the demand will be greater. The effect will be positive for the owners, who would see their real estate valued, but negative for the people who require a home.

On the other hand, there could be an effect of increasing the price of the properties closest to the land where the Mill is located and the port that the Project will build, due to the expectations that its location will generate economic development in the area in the medium and long-term and/or infrastructure improvements that the Project could introduce in the area during its operation.

Likewise, the properties located in direct proximity to the roads used by the Project vehicles may experience an increase in their value, due to their proximity and exposure to the greater social and economic dynamism that the traffic is expected to generate.

In the scenario where specific accommodation areas are established for the workers of the Mill operation, the properties in its vicinity may increase their value, due to the greater endowment in the area of services and/or basic urban facilities that may occur in time and due to its exposure to the greater social and economic dynamism that is estimated to occur due to the presence of a large number of people (assimilable to a new neighborhood/s).

Finally, considering that in the construction stage the location of the site for the final disposal (SDF) of solid waste within the industrial property (ZC) has already been foreseen, this will be managed properly, in order to minimize impacts related to the closest properties.

OCCUPATIONAL HEALTH AND SAFETY

Occupational Health Impairment

Activities or aspects that generate the impact: Operation of the industrial mill and related services; production and management of emissions (gases, vapors, odors); effluent production and management; production and management of solid waste; maintenance of access roads to/from the industrial mill.

It could affect the health of the employees of the operation of the mill and its related services due to exposure to dust, noise and vibrations, to raw materials or toxic inputs, to heat, etc. during your daily work activities.

Special attention should be given to the potential impact on occupational health during production and management activities of emissions, effluents and solid waste from the operation of the Mill, due to potential exposure to contact with emissions, effluents and/or hazardous solid waste, with chemical or organic content that could be toxic. Likewise, exposure to disease vectors (dengue, chincungunya, chagas disease, among others) could occur at this stage.

Similarly, employees exposed to noise, dust and combustion gases generated by the movement and use of vehicles and machinery in the periodic maintenance activities of the roads used by the Project may also suffer an effect on their health, although these activities will be of much shorter duration than the activities of the operation of the Mill itself, and would not involve exposure to potentially toxic substances.

Likewise, taking into account the pandemic declared by the World Health Organization, this situation or others that may occur over time and that spread zoonotic diseases, such as COVID-19, must be addressed, and specific

measures must be established to prevent or minimize contagion between workers.

Paracel plans to implement the best operational practices in order to minimize risks in OHS, as well as to have the necessary number of technicians specialized in the subject.

Impairment of Occupational Safety

Activities or aspects that generate the impact: operation of the industrial mill and related services; transportation of raw materials, inputs and products; transportation of workers from the Industrial Mill; production and management of emissions (gases, vapors, odors); effluent production and management; production and management of solid waste; maintenance of access roads to/from the industrial mill.

In general, it is considered that the physical safety of the employees of the operation of the Mill and their related services could be affected during each and every activity of the operation, since every work environment presents certain types of security risks.

The most common occupational accidents that may take place are: traffic accidents within the Project site; accidents such as falls at the same level and/or from high places; blows by fallen objects and/or by the use of tools, equipment and/or machinery; cuts by equipment and/or machinery; electrocution during the manipulation of electrical installations; burn in the boiler area; hazards associated with manual handling of loads; eye damage; fires; among others.

Another environment with risk of affecting safety is during the transport of the loads and the Project personnel, due to traffic accidents that could occur on the roads and / or other types of accidents in case the means of transport are unsuitable (bodies, etc.).

In general, the project will have a strong occupational health and safety component, which can be considered inseparable from daily activities. With the implementation of the measures of this component, it is estimated that the risk is reduced to a minimum, but not completely eliminated.

The severity of the effects on occupational safety may range from mild to very serious, and may involve, in the most extreme case, the death of the worker. However, as mentioned above, this risk is not exclusive to the Project. Paracel plans to implement the best operational practices in order to minimize risks in OHS, as well as to have the necessary number of technicians specialized in the subject.

THIRD PARTY HEALTH AND SAFETY

Impact on Road Safety

Activities or aspects that generate the impact: transportation of raw materials, supplies and products; transportation of workers from the Industrial Mill; production and management of solid waste; maintenance of access roads to/from the Industrial Mill.

The current levels of road safety may be affected by the increase in vehicular traffic by vehicles of different types of the project, as well as by the increase in the workers influx compared to the current situation. It is estimated that those that can cause the most risks are large vehicles (heavy loads), which will circulate at the rate of one truck for every four minutes during the working day. However, small and medium-sized vehicles may also increase the probability of road accidents due to the increase in their number and because, in general, these can circulate

at a higher speed than heavy vehicles. The main impacted would be the users of the roads, both pedestrians and vehicle drivers (bicycle, motorcycle, car), and also people who are in the immediate proximity of the roads (special attention to children and domestic animals and/or farm), who would be exposed to a higher level of risk of accidents due to collisions and/or run over.

The deterioration that the roads may suffer due to the increase in vehicular traffic associated with the project is also another source of potential impact on road safety, since the poor condition of the roads could lead to a greater number of traffic accidents.

On the other hand, road safety may be affected during the improvement works and/or periodic maintenance of the existing roads used by the Project, which are also used daily by pedestrians and/or vehicular users (bicycle, motorcycle, car) or they have people living or working in their immediate proximity. This impact could be due to accidents of the type of collision and/or run over that involve the Project's vehicles and/or machinery carrying out the road works, on the one hand, and the population on the other.

Regarding the signaling, it is expected that the projects undertaken by the MOPC in the area, will make the provisions related to the signaling, but these could be reinforced by the project, giving express indications of reduction in the area of entry and exit of trucks to the Industrial Mill as well as in areas where vulnerable groups or groups of children and people in general settle (schools, health centers, churches, others located on the roads of nearby communities). Along these lines, IFC PS 4 on "Community Health and Safety" will be observed by the project.

Impact on the Health of Third Parties

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; operation of the industrial mill and related services; transportation of raw materials, inputs and products; transportation of workers from the industrial mill; production and management of emissions (gases, vapors, odors); effluent production and management; production and management of solid waste; maintenance of access roads to/from the Industrial Mill.

It could have negative impacts on the health of third parties due to the operation of the mill and its related services, derived from the different activities and/or induced by the Project. The increased workers influx will lead to contact between the current AID communities and the temporary and definitive local and/or foreign population, which could increase the transmission of contagious diseases (examples: HIV, hepatitis, other sexually transmitted diseases, etc.).

Likewise, taking into account the pandemic declared by the World Health Organization, zoonotic diseases, such as COVID-19, could spread, and specific measures must be established to avoid or minimize the contagion of communities and populated areas.

The population increase will also mean an increase in the demand for health services, which could affect the capacity for health care in the ADA/AID, given the current conditions that were described for the construction phase. In general, it is considered that the decrease in care capacity may mean lower levels of health not only for the local population but also for the additional population.

During the same activities of the operation of the mill, noise and particle emissions will be produced that would not be incorporated into the emission treatment processes, such as those derived from cutting wood into chips (chipping). These emissions may impact on the resident population in the immediate vicinity of the Mill, in a

minimum radius of around 100 meters. It should be noted that there is currently no population living or working in what would be the affected area, however, it is not ruled out that once construction begins and then the operation of the Mill, people could be located in its proximity, particularly to offer goods and/or services to workers of the Mill, but even to inhabit. This will depend exclusively on the land use planning done in the ADA and its immediate proximity (for example, not allowing businesses and/or homes to settle within a radius defined from the boundaries of the Mill's land).

Regarding the land vehicle traffic associated with the project, both for loads (at the rate of a truck every four minutes) and for the operation personnel, this traffic will constitute another Source of impact as it contributes to the increase in current levels of noise, dust and gases combustion from engines. These levels may be detrimental to the health of the population in the immediate vicinity of the roads used. On a smaller scale, taking into account the low population that lives in riparian areas near the industrial mill property, there could be a risk in people who are engaged in fishing, or who use small boats in the area, due to related activities to be developed, as well as the river traffic that would transport machinery and supplies by said route.

Related to the roads used by the project, it is expected that during the periodic maintenance of the same there would also be the emission of noise, dust and combustion gases from construction vehicles, with a negative impact on the health of the people who are in the immediate proximity of the tracks. However, these maintenance activities will be very specific in time and space, so it is assumed that their impact is less than that of the daily vehicular traffic associated with the Project.

During the production and management of emissions, effluents and solid waste from the operation of the Mill, sources of impacts for the health of third parties may also emerge in case of contingencies in the operation of the treatment lines of the mill's emissions and effluents and/or in solid waste management. A similar situation in relation to effluents and solid waste, although on a smaller scale, could occur in the staff quarters, which would continue to operate to house people at this stage.

Regarding emissions, the release of untreated gases could occur, which could be dangerous or toxic for the population located in a geographic area that will depend on the characteristics of the emission and the atmospheric conditions in situ.

Regarding effluents, they could also be released without proper treatment, discharging substances harmful to human health into the Paraguay River and with variable extent of affectation depending on the characteristics of the substances, the behavior of the river and the weather conditions (winds, rains, etc.). The impact on human health could occur both by direct contact with river waters (for example, on beaches) and by consumption of contaminated products from subsistence fishing and commercial fishing (affecting consumers at the local and regional level), as well as the consumption of drinking water from the supply systems that are downstream of the Mill and that use river waters as a source of supply (for example, ESSAP in the city of Concepción).

Finally, regarding solid waste, considering that the project provides for a final disposal site within the industrial premises, the probability of affecting the population by contact with solid waste from the operation would be minimal.

Impact on the Levels of Local Citizen Security

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; operation of the industrial mill and related services.

An increase in the probability of crime and violence events in the ADA/AID could occur due to the increase in population and workers influx, and the circulation of money and material goods among them, since this population will be important in relation to size of the current local population, although much less than in the construction phase.

On the other hand, it is expected that the project will also indirectly contribute to a greater economic and cultural dynamism in the ADA/AID, with the development of shops and/or services and the consequent circulation of money and assets. This could be attractive to people with the intent to commit crimes such as robberies, robberies, kidnappings, etc.

Finally, it is not ruled out that among the additional definitive population that will settle in the ADA/AID there could be people who come into conflict with members of the current local population, especially in the first years of the Project's operation, and events of violence between people may occur. Due to the increase in the workers influx, many times it also leads to an increase in gender violence, attending to local sexist cultures, or due to the influx of a large number of male personnel.

As described for the construction phase, this impact may be significant considering that currently there are levels of "security" highly valued by the ADA and AID population and levels of "violence" that do not constitute a major problem for local people., indicating that, in general, security is good and violence is low. Although it is estimated that there may be an alteration of these levels in the operation, this will be preceded by the construction phase where the movement of people and assets will be greater and, therefore, the magnitude of the potential impact will also be greater.

Finally, as mentioned in the construction stage, the industrial development property will have its own security personnel, which is common in private enterprises. However, as it is a sensitive aspect that could involve the violation of human rights, the project will observe, as a minimum, IFC PS 4 on "Community Health and Safety", regarding the safeguarding of personnel and properties; on the one hand, and the minimization of security risks for the surrounding communities, ensuring that these personnel do not exercise "abuse of power" as an extortion measure or pressure on workers and/or the community.

QUALITY OF LIFE, USES AND CUSTOMS

Increased Discomfort and/or Tranquility

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; operation of the Industrial Mill and related services; transportation of raw materials, inputs and products; transportation of workers from the industrial mill; production and management of emissions (gases, vapors, odors); effluent production and management; production and management of solid waste; maintenance of access roads to/from the industrial mill.

The increased workers influx and the presence of an unusual number of people directly and indirectly associated with the Project's works in the ADA/AID communities may promote the appearance (or increase) of activities such as sale and consumption of alcohol and drugs, sex work or prostitution, gender violence, crime, disrespect for the vulnerable population, disturbance of public peace due to a greater number of recreational and/or night-time activities (parties, leisure groups, etc.) on public roads and/or in homes within the communities, disrespecting the current levels of tranquility of the ADA/AID. In addition, among the vulnerable groups that may be exposed to the aforementioned situations, there are women, children and the elderly.

The project could also cause discomfort in the ADA/AID due to the competition that is estimated to arise from the use of resources, sites, equipment and/or recreation/leisure infrastructures, since their capacity may be congested by the additional population.

Likewise, the emergency or the increase in union activities (demonstrations, marches, others) among the employees of the Mill may create discomfort or uneasiness in the ADA/AID population, because they are not used to this type of situation.

Regarding the operation of the mill itself, the increase in noise and dust levels in the immediate surroundings of the mill due to noise from machinery and chimneys, due to the loading and unloading of raw materials, supplies, machinery and products within the mill, and dust from some stages of the operating flow, may have a negative impact on the comfort of the population in this environment. This impact will depend on the territorial organization that exists in the surroundings of the mill, which could prohibit the installation of shops, services and/or homes within a defined radius to avoid or reduce their impact.

For its part, the production and management of emissions and effluents at the Mill could produce the release of bad odors in case of contingencies in the operation and/or out-of-regime operations (stops and starts) of the emission treatment lines. –Especially– and effluents. These episodes will cause discomfort to the population of the ADA and probably the AID, depending on the atmospheric conditions at the time of the release of the odors.

On a lesser scale, there could be discomforts in the population near the staff quarters, in case of inadequate waste and effluent management, as well as due to changes in the dynamics of the areas where they will be operating at this stage.

Another important source of discomfort and/or restlessness of the population in the ADA/AID will be the increase in vehicular traffic by vehicles of all types associated with the project, although it is estimated that those that may cause more discomfort are those with heavy loads and the buses. It should be noted again that the circulation of heavy vehicles is expected at the rate of one truck for every four minutes during the working day. The main impacted would be the users of the roads, both pedestrians and vehicle drivers (bicycle, motorcycle, car), and also the people who are - live or work - in the immediate proximity of the roads, who would be exposed to a greater noise level, vibrations and air pollution by dust and combustion gases.

Finally, an additional source of inconvenience to the population will be the production of dust, vehicle fumes, noise, vibrations during the works that will be carried out periodically for the maintenance of the roads used by the project. The affected population will be the people who are - living or working - in the immediate vicinity of the roads.

As mentioned for the construction phase, “tranquility” is the aspect of the communities most valued by those interviewed in the ADA and AID and the “little existing traffic” is one of the aspects considered positive of living in the communities. In this context, it is estimated that the operation of the Mill will significantly and permanently affect the current levels of tranquility, given all the potential negative impacts mentioned. It should be noted, however, that this impact will be the continuation of the effects already introduced in the construction phase.

Changes in Customs and Uses

Activities or aspects that generate the impact: hiring of personnel for the operation of the Industrial Mill and related services; operation of the industrial mill and related services; transportation of raw materials, inputs and products; transportation of workers from the Industrial Mill; effluent production and management;

production and management of solid waste.

The increase in the workers influx compared to the current situation, and the consequent increase in the temporary and definitive population in the ADA/AID, associated directly and indirectly with the project, could generate definitive cultural changes in the communities of these areas, since it will remain in them in the long term, being able to affect both the social environment and the people who currently live in the area. As an important part of the employees and other people who will come to the ADA/AID may be foreigners and even foreigners, it is estimated that they may have customs, uses and values different from those of the ADA and AID currently. The impact would be adverse if the practice of traditions, customs, uses and values beneficial to the communities were eliminated, or if they implied a deterioration of existing freedoms and/or the normalization of acts contrary to the tranquility and harmony of the communities (for example, annoying noises, lack of respect for vulnerable members of local communities, lack of respect for the property of third parties, etc.). Although this impact would be had already in the construction stage of the Project, it is considered that in the mill's operation stage it could be consolidated and imply permanent changes.

Greater economic development in the ADA/AID could encourage the establishment of new recreational options, such as shopping centers, which, although they will contribute to the economic development of the area, could end up relegating the traditional recreational activities of the communities/districts, which make up their current identity. Some of these activities that have been reported in the ADA and AID are the patron saint festivities and the rope festivals.

On the other hand, the increase in vehicular traffic in the ADA/AID by vehicles of all types associated with the Project could generate an impact of alteration of daily customs and practices, since there is a greater vehicular movement, people could stop driving attending certain places in order to avoid using the streets, or interrupting certain practices that make use of the streets beyond mobility, such as spending part of their time on the sidewalks and/or using certain streets as gambling sites/entertainment. It is estimated that, mainly, large vehicles (heavy cargo) are those that may generate this impact.

Another impact on customs and uses in the ADA/AID may be the impact on subsistence fishing practices or self-consumption and/or recreation and the recreational use of beaches due to accidental contamination of the river or the simple suspicion of contamination, in case of contingencies at the Mill that imply the discharge of improperly treated effluents, or in eventual failures derived from port activity and/or river traffic. These impacts are related to the ecosystem services linked to the use of water, but it is considered that they would be avoidable and minimizable, taking into account the good operational practices provided by Paracel.

Finally, as mentioned before, the project could induce the emergency and/or a greater frequency of certain illegal/criminal activities in the ADA/AID, due to the presence of a greater number of people and due to the increase in economic dynamism. The occurrence of these criminal/illegal acts could mean changes in the habits and customs of the population in order to avoid them, such as stopping attending certain places, leaving the house at certain times of the day, letting the children go out alone from the houses, among others.

Impact on the Social Network

Activities or aspects that generate the impact: Hiring of personnel for the operation of the Industrial Mill and related services; operation of the industrial mill and related services; transportation of raw materials, supplies and products.

As described for the construction phase, in the operation phase of the industrial mill, the existing social network in the communities and districts of the ADA/AID could also be affected.

In general, the impact of the social network may occur in relation to the changes in uses and customs that were identified. For example, by stopping visiting certain recreational sites due to fears or the additional population or traffic associated with the Project, people could lose direct and/or frequent contact with each other, weakening existing social relationships. This could occur both in the communities near the project site, or those located in the vicinity of the roads where the vehicles associated with the Project would travel, as well as in the areas near the staff's accommodation

Another case may be the abandonment of the practice of traditional recreational activities, due to new options for leisure and/or recreation. Changes like this could suppress the regular meeting of people and affect their degree of relationship, especially of older people who have already become accustomed to attending traditional activities for much of their lives.

EXPECTATIONS

Generation of Positive Expectations in the Local Population

Activities or aspects that generate the impact: Hiring of personnel for the operation of the industrial Mill and related services; operation of the industrial mill and related services.

As in the construction phase, in the operation phase the project will also generate expectations among the population, especially the local population, of getting a job at the Mill, although the number of jobs offered will be reduced to around 15% of jobs in the construction phase.

Other positive expectations regarding the project are those described for the construction phase: the generation of indirect jobs, the revitalization of the economy at the local and departmental level, the enhancement of industrial development and, in general, the progress and development of the AID communities and districts. These expectations would already be given before the construction phase, but they would be maintained and it is expected that they will materialize in the operation since it is expected to be extended to the long term.

Generation of Negative Perception and/or Fears in the Local Population

Activities or aspects that generate the impact: Hiring of personnel for the operation of the Industrial Mill and related services; operation of the industrial mill and related services; transportation of raw materials, inputs and products; transportation of workers from the industrial mill; production and management of emissions (gases, vapors, odors); effluent production and management; production and management of solid waste; accommodation of the workers of the industrial mill.

As in the operation phase the job offer will be less and as most of the labor to be hired would be of a qualified or specialist type, there is the possibility that a negative perception of the Project will be generated due to the "insufficient" hiring of local labor, since in the ADA/AID there is mainly unskilled labor.

Additionally, the AID has mentioned expectations regarding the improvement of existing infrastructure and services. It has been observed in the field survey that the people and local authorities approached pointed out the possibility that the project will contribute to the "improvement of community infrastructure" as a positive aspect or benefit that the Project can offer to the community, "support for the growth of the communities in the area"

was one of the most mentioned expectations in relation to the project. This may indicate the potential occurrence of a situation in which the Project will implement certain improvements in the ADA/AID communities as part of a Corporate Social Responsibility (CSR) scheme, but that these practices are seen by the population and/or the authorities' premises as a resource to meet their basic needs in terms of, for example, basic infrastructure, humanitarian aid, etc., which are not intrinsic responsibilities of the Project. Thus, the communities could become overly dependent on the Project's performance instead of improving their own capacities for self-organization and management for the legitimate claim of their rights before the local and national governments, as well as to press for the development of the communities. institutions necessary to develop their communities.

As most of the necessary labor force will be qualified and/or specialist, it is expected that fewer fears will be generated in the population and/or local ADA/AID authorities about the potential formation of working-class neighborhoods that deteriorate the current urban environment (due to unsanitary conditions, overcrowding, the occurrence of activities that disturb the current tranquility) and/or that become centers of proliferation of crime and other illegal activities (prostitution, drug trafficking, etc.), whose probability of occurrence could be higher in the construction phase.

On the other hand, the operation of the Mill itself and its cargo and personnel transportation vehicles may also generate other negative perceptions and fears in the ADA/AID population. Sources of fears may be: the safety of the operation and the transparency in the socio-environmental management of the mill (for example, that it really operates according to its standards, that it does not take undue actions outside of contingency events, etc.); the increase in vehicular traffic, especially cargo traffic, and the potential negative impacts on infrastructure, road safety, comfort, tranquility, customs and uses, and people's health; contingency events that could occur in the mill and that imply the release of nauseating odors, dangerous emissions and/or effluents without proper treatment, with potential impact on human health, commercial, recreational and subsistence fishing, to recreational activities with the use of water from the Paraguay River, to the environment, to tourist and recreational activities, among other aspects. In the same way, the management of solid waste from the operation of the Mill may also be a source of negative perception, generating fears regarding their inappropriate disposal, especially those of a dangerous nature, with potential impact on the human health and the environment; fears regarding the potential overloading of current landfills by the Project; and/or fears in the event that the Project opens its own sanitary landfill outside the Mill's premises, related to the choice of disposal sites.

Regarding several of the potential Sources of negative perception mentioned, what has already been mentioned for the construction phase should be highlighted, regarding the aspects that have been relieved in the AID as concerns regarding the Project: the "possible damage to the environment and/or human health", "low absorption of local labor", "non-compliance with national and international regulations", the possibility of "generation of conflicts if there is no good communication" or "lack of information" .

The ultimate consequence of negative perceptions, fears and unrealistic expectations could be the generation of an environment of latent tension and distrust on the part of the population and/or local authorities towards the Project and, in extreme cases, generating conflicts, which could be recurring over time, with their corresponding transaction costs.

Generation of Positive Expectations at the Regional and Extra-regional Level

Activities or aspects that generate the impact: Hiring of personnel for the operation of the Industrial Mill and related services; operation of the industrial mill and related services; transportation of raw materials, supplies and products.

Positive expectations may be generated at a regional and extra-regional level of getting a job in the mill's operation phase since, although the number of people to be employed is less than in the construction phase, the type of skilled labor and/or specialist can attract people from beyond AID.

The operation of the mill itself and its related services may generate positive expectations from potential suppliers of raw materials (wood), inputs (chemical products), specialized services, other services for the operation of the Mill, cargo transportation services heavy, land and/or river routes, as they could establish commercial relationships with the Project and broaden its spectrum of clients.

Likewise, the operation of the project may produce expectations of developing other ventures/investments in the same area of influence, given the importance that the Mill could confer as an indicator of a suitable site for locating ventures of different magnitude and/or by economies scale that could be identified when undertaking in the vicinity of the Mill, with the improvements in public and private infrastructure already introduced by it.

Along the same lines, there could also be expectations of people from outside the AID who could see the area as conducive to migrating and developing commercial and/or service activities, given the dynamism of people, monetary assets and goods that the Project would generate. Other expectations could arise in the population located in the vicinity of the roads to be used by the Project, even beyond the AID, since the frequency of vehicle circulation could provide greater dynamism and opportunities for economic development along these roads.

Generation of Negative Perception and/or Fears at Regional and Extra-regional Level

Activities or aspects that generate the impact: Transportation of raw materials, supplies and products; production and management of emissions (gases, vapors, odors); effluent production and management; production and management of solid waste.

In the operation phase of the project, negative perceptions and/or fears may also arise at a regional and extra-regional level in relation to the operation of the Mill.

Among these, there could be uncertainties of other users of the land and/or river routes that will be used for the transport of raw materials and inputs and the final products of the operation, due to the potential increase in traffic congestion - land and/or fluvial - and the deterioration of the condition and useful life of the road network. Other important fears may occur between people, groups of these, investors from other sectors (for example, tourism, accommodation, etc.), environmental defense groups (NGOs or others) and/or human rights, institutions and others for the potential environmental contamination that emissions, effluents and solid waste from the mill may generate, potentially affecting human health, deteriorating the tourist attraction of the area and opposition to the project.

6.5. Synthesis of Impacts Due to Significant Conditions Created by the Activities of the Industrial Component

Due to the logic of presentation of impacts of this study, developed previously, these were grouped by "factors of the social environment" and not by activities/causative aspects. Given the need to respond to a specific question to better make visible the impacts caused by activities that generate significant conditions such as the workers influx –and other population induced by the Project–, the impacts related to this people influx condition are grouped in this section.

However, it should be noted that these impacts have already been presented throughout the description of impacts for each factor of the social environment, and in each of the stages, mainly in all cases in which the “hiring of personnel” activity (involving workers influx) is indicated as a shocking activity. Both the construction and operational stages would have similar impacts, but it is considered that this will decrease in the second stage, since it would go from hiring 6,000-8,000 people to 600-1,000 people, respectively.

The increase in the workers influx, as well as the population induced by the project (temporary and/or definitive), could generate the following impacts:

- Significant increase in the employment rate, in a formalized manner, attending to the workers influx derived from the hiring of the enterprise, thus contributing to reduce the gap linked to the unemployment of the AID/ADA of the enterprise, which in turn leads to development of the local economy.
- Dynamization of the economy, due to the greater purchasing power that they will have for the consumption of goods and services, and even investment in their own businesses. This, indirectly, in both stages of the industrial component of the project, will generate a demand for local goods and services that will necessarily be higher than the current one, which will generate greater income and investment stimuli for the establishment and/or expansion of suppliers of goods and services. services of different types (food, communication, vehicles, transportation, recreation, education, health, etc.), formal and informal. Possible examples include the opening of shops and/or services with products due to the workers influx linked to the project (dining rooms, supermarkets/pantries, telecommunications, mechanical workshops, etc.), both in the area of the undertaking and in the vicinity of staff accommodation; the opening of new commercial and/or service premises along the communication routes used, with the expectation of selling products to carriers; the expansion and/or habilitation of currently insufficient or non-existent public services; the creation of jobs by the aforementioned enterprises, which will be able to employ more local people. The greater dynamism of the local economy has as positive effects the increase in household income associated with the provision of goods and services, the possibility of accessing goods and services that are currently non-existent, limited, insufficient or inaccessible.
- The temporary and definitive increase in the population in the AID communities, generated by the hiring of personnel and consequent increase in the workers influx in the area, and by the potential arrival of other people attracted by the indirect effects of the project, or by people who visit the area will produce a certain increase in the demand for public and non-public services, both those already existing and those currently non-existent. It could generate stress in some services, as well as an increase in the demand for housing, and to minimize these impacts, Paracel plans to develop its own infrastructure linked to drinking water, effluent management, and waste management, both on the property of the Industrial Mill, as in the staff accommodation sites. Likewise, it provides for the adaptation of the access road to the Industrial Mill, and in other areas through coordination already initiated with the MOPC, as well as the negotiations with ANDE in relation to the construction of a transmission line for the undertaking.
- Occupational health and safety, taking into account the number of workers linked to the undertaking, could have risks related to vector diseases, such as those transmitted by rodents, due to the solid organic waste generated by the staff, as well as the proliferation of other diseases vectors such as dengue, chincungunya, rapidly transmitted through the mosquito "aedes aegypti", and currently COVID-19.
- In relation to the health and safety of the communities, the increased workers influx will lead to the

contact of the current AID communities with the transitory and definitive local and/or foreign population, associated with both stages of the industrial component, which that could increase the transmission of contagious diseases (examples: HIV, hepatitis, other sexually transmitted, etc.). Likewise, taking care of the pandemic declared by the World Health Organization, zoonotic diseases, such as COVID-19, could spread to individuals and families residing in communities.

- In addition to the risks related to the health of the communities, there are citizen security risks, and the probability of crime and/or violence events in the AID may increase due to the increase in population and the workers influx. In the interrelationships with the communities, the increase in the workers influx often leads to an increase in gender violence, attending to local sexist cultures, or due to the influx of a large number of male personnel.
- Perception could also be negatively impacted, considering that "security" and "tranquility" are the aspects most valued by the interviewees regarding the positive aspects of living in their communities. Likewise, according to those surveyed in the AID, "violence" appears as one of the least mentioned aspects in terms of the problems identified in the territory. This indicates that people currently feel that there is an important level of citizen security and low levels of violence; therefore, their alteration, induced by the project, could be abrupt.
- In both stages of the industrial component of the Project, the quality of life of the AID population could be affected. The quality-of-life aspects affected would be, mainly, the tranquility and comfort of the current inhabitants, attending to the manifestations of high valuation of these characteristics of the area by the people interviewed in the information survey in the field.
- The increased workers influx and the presence of an unusual number of people directly and indirectly associated with the project in the AID communities may promote the appearance (or increase) of activities such as sale and consumption of alcohol and drugs, prostitution, crime, gender violence, disrespect for the vulnerable population, disturbance of public peace due to a greater number of recreational and/or nighttime activities (parties, leisure groups, etc.) on public roads and/or in homes within the communities, disrespecting the current levels of tranquility of the AID. The presence of foreign personnel could impact on the current tranquility of the AID people, since they have referred that "getting to know each other" is a highly valued aspect in the communities, thus contributing to greater tranquility. This situation could occur both in the area of the Industrial Mill and in the accommodation of the staff.
- The increase in the workers influx, and the consequent increase in the transitory and definitive population associated with both stages of the industrial component, as well as the induced population, will force the interaction of the customs, uses and current values of the local AID communities with those of the additional population in the area. This could result in a negative impact; if these customs, uses, values and habits are changed by the predominant ones that emerge from said interaction, thus losing the sense of identity, belonging, community and mutual respect.
- Also, the possible alterations in the tranquility, comfort and even the civil security of the current AID population (as described before) may lead to the need to change their daily habits, customs and ways of life to adapt to the new conditions that would generate the presence of additional population, due in large part to the increased workers influx linked to the enterprise. The impact would be adverse if it implied a deterioration of the freedoms enjoyed by the current communities and/or the normalization of acts contrary to the tranquility and harmony of the communities (for example, annoying noise, lack of respect

towards vulnerable members of the local communities, with an emphasis on women and children, lack of respect for the property of third parties, etc.).

- Another aspect related to the uses and customs of the community is related to the “use of water”, both because of the “competition” that could be had over ecosystem services, although compared to the forestry component, this would be punctual and low probability of occurrence, considering that there are fishermen in the Paraguay River who engage in such activity for self-consumption or small-scale sale; likewise, there are customs linked to sport fishing, boating or recreational activities on beaches. This would be minimized by the undertaking, taking into account the good operational practices to be implemented by Paracel, both in the operation of the Industrial Mill and in river transport, activities that are related to this impact.
- Finally, it could have consequences on the networks/interconnections of the communities, as well as on family networks. For example, in the event that there are marked differences between the current population and the installed population, or in the event that people decrease their visits to places of recreation or the houses of relatives/neighbors due to fears caused by the increase in the workers influx, and the additional population directly and indirectly associated with the project, it is possible that there is a gradual erosion of relationships (beyond daily customs) between people or even within families or family networks, and may even promote the breakdown of these.

All the aforementioned impacts are addressed in one way or another by the various Programs detailed in the Social Management Plan (PGS) of this study, as well as in specific protocols to be developed by Paracel, in order to meet internal measures and procedures. that prevent or minimize, or failing that, mitigate them.

6.6. Cumulative Impact Analysis

The analysis of cumulative impacts is presented as an Annex, and for its evaluation, for which the “*Manual of Good Practice for the Evaluation and Management of Cumulative Impacts: Guide for the Private Sector in Emerging Markets*” (IFC, 2015)¹⁵⁰, was considered, guides the steps to follow for an assessment and management of cumulative impacts (CIA), bearing in mind that this is evolving, and there is no single globally accepted practice. Thus, the identification of environmental and social impacts and risks is sought, where promoters/operators: (a) recognize that their actions, activities and projects - their undertakings - can contribute to producing cumulative impacts on valued environmental and social components (VEC by its acronym in English - Valued Environmental and Social Components) on which other existing or future ventures could also have negative effects, and (b) to the extent possible, avoid and/or minimize their contribution to these cumulative impacts.

In accordance with the aforementioned manual, the steps of a rapid CIA were adopted, with the aim of:

- Identify the VECs (valued environmental and social components) of the project's area of influence. Only those from the socio-economic and cultural environment will be considered.
- Determine the existence of other enterprises, natural and social factors that occur in the area of influence studied, and how these will impact on the socio-environmental factors that would be generated as a result of the execution of the enterprise.
- Geospatially assess the risks and potential impacts of the project in the short and long term, in the context of the potential effects that other projects and/or external socio-environmental factors could have on the

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same VEC.

- Verify that the cumulative environmental and social risks and impacts of the project do not exceed a threshold in the condition of the selected VECs, so that their sustainability or viability is not compromised.

The Valued Socio-Environmental Components (VECs), recipients of the impacts, were taken into account, similar to the social factors considered in the impact analysis, that is: i) Jobs; ii) Demography; iii) Public/private services, infrastructure and/or property; iv) Archaeological, historical and/or cultural heritage; v) Landscape; vi) Local, regional and extra-regional economy; vii) Real estate market; viii) Occupational health and safety; ix) Health and safety of third parties; x) Quality of life, uses and customs (including ecosystem services); xi) Expectations.

From the information collected in the LBS, the projects developed or planned in the AID were briefly detailed, a total of twelve, these being linked to the water and sanitation sector, road projects, electrical system, dredging of the Paraguay River, industrial (cold storage).

From the relationship between social VECs and entrepreneurship, a total of 98 interactions were obtained. The VECs most affected by AID ventures are employment (100%), services, infrastructure and public/non-public property (100%), local, regional and extra-regional economy (100%), occupational health and safety (100%) and quality of life, uses and customs (100%), followed by real estate market (83%), health and safety of third parties (83%) and expectations (75%). Although expectations are considered as a result of perception studies carried out in stages prior to projects, these can be monitored throughout their life cycle, in order to see if they are maintained or changed, and if the change occurs in a positive way or if "negative perceptions" are generated about the undertaking/s.

Regarding the interaction of the project with other enterprises, there was greater interaction with industrial enterprises and with projects related to sanitation, a priori, due to the issues of water use, the influence on the quality of life of the population and the impact on jobs, public services and infrastructures and the local, regional and extra-regional economy. There was also a strong interaction with road and sanitation projects, interacting with each other on issues related to the pressure that could be exerted on road infrastructure and the safety of third parties.

The cumulative impact analysis showed a positive synergy in the generation of employment and in the development of the local, regional and extra-regional economy, as well as in other social factors. Likewise, the potential cumulative negative impacts due to pressure on public/non-public services and infrastructures have been detailed, associated with the people employed and induced by the projects in the AID and the increase in truck traffic in the area of influence. Thus, the Valued Socio-Environmental Components (VECs) mainly impacted are: i) Local, regional and extra-regional economy; ii) Public/non-public services and infrastructure and/or property; iii) Health and safety to third parties; iv) Quality of life, uses and customs.

The minimization of cumulative impacts, from Paracel, would be to strictly comply with all the measures indicated in the Social Management Plan; likewise, monitoring measures in the conditions of the water resources, attending the activities of the Industrial Mill, since the use that is given to the water in the area is directly linked to customs in the area (recreation, fishing, others); as well as in the supply for human consumption.

6.7. Identification and Analysis of Social Risks

Following the social evaluation of the undertaking of the Paracel pulp manufacturing industrial mill, located in the Zapatero Cué locality of the Concepción district of the Concepción department of Paraguay, the analysis of social risks is developed, with a focus on the operational stage of the entrepreneurship.

It is considered that for the pre-construction or design stage, the main risk of the project is misinformation, and to a lesser extent the possible economic displacement of families settled in the ADA, for which, in the first case, Paracel has started from early stages a Communication and participation Plan with local governments, potential suppliers, as well as with the general population. In the second case, although it is a low risk, in case of economically affecting ADA families, due to the high dependence of some of them on the ranches that could stop operating in the area, Paracel will define specific programs in the PGS that serve this situation, as well as compliance with IFC PS 5.

Environmental and social standards and safeguards policies adopted by financial institutions, including IFC, the World Bank, among others, focus both on promoting sustainable and positive development and managing the risk of impacts. adverse of the project. Although the terms risk and impact are sometimes used interchangeably, as defined by the Social Impact Assessment document (Kvam, Reidar, 2018), impacts can be both positive and negative, while risks refer to potential negative impacts that the project may cause or contribute to, or issues that may adversely affect the project.

The analysis of social risks is carried out for those impacts considered MEDIUM and HIGH social significance, and negative, described in section 6.4 that could lead to stoppage of the Mill or adverse risks to the health or safety of the population. In addition, as was already presented in the previous section, the impact of the impact on occupational health and safety gave a LOW significance, considering that compared to the construction stage, the number of personnel that could be hired is lower, and having assumed good management of occupational health and safety (OHS), however, it is recommended that before the start-up of the enterprise, depending on the technologies to be used in the enterprise, an analysis of specific risks in OHS be carried out.

Although, most of the risks in the industrial mill could be avoided with efficient and automated operating systems, permanent maintenance of the equipment, constant training in occupational health and safety issues, norms of conduct for the personnel and related suppliers; the need to have permanent communication between Paracel and the community is still relevant, before it is put into operation and throughout the project cycle, especially in order to minimize the risks to which third parties are exposed, with an emphasis on women and children (either due to issues related to road safety, customs and customs, annoyances due to possible odors or noise).

Although the risk analysis in this section focuses on the impacts identified in this study, it is recommended that they be deepened before the industrial mill is put into operation, adapting and specifying more specific measures related to specialized topics in industries with similar characteristics, and according to the social monitoring that is given to the communities in the immediate environment in question.

6.7.1. Definition of Risks and Methodology

As defined in the Social Impact Assessment document (Kvam, Reidar, 2018), risk is the combination of the expected intensity of (i) a potential adverse impact that a project can cause or to which it can contribute, or (ii) of issues that may negatively affect the project and the likelihood of one or both of them occurring.

The risk is calculated with the following formula:

$$R = P * C$$

RISK = PROBABILITY x CONSEQUENCE

R = risk
P = probability of occurrence of an event
C = consequence or magnitude of the event

As there are five levels of probability and five levels of vulnerability, a five-by-five matrix is formed in whose cells are the risk rating values. This rating is obtained by multiplying the value of the probability by the value of the severity of the consequence. The result of the possible values can be seen in chart 119.

Chart 119. Assessment of probability and consequence of the risks' matrix – Semi-quantitative method (de Deere et al., 2001)

	Severity of the Consequence					
		Insignificant 1	Mild Effect 2	Moderated Effect 3	Serious Effect 4	Catastrophic Effect 5
Probability or frequency	Almost always / Once a day Punctuation: 5	5	10	15	20	25
	Probable / Once a week Punctuation: 4	4	8	12	16	20
	Moderated / Once a month Punctuation: 3	3	6	9	12	15
	Improbable / Once a year Punctuation: 2	2	4	6	8	10
	Exceptional / Once every 5 years / Punctuation: 1	1	2	3	4	5

The probability or frequency of the occurrence of a risk has been taken on a smaller scale than is usually considered from the environmental point of view, considering that social issues require less response time in order to minimize social contingencies. Regarding the severity of the consequence, the following chart describes each criterion adopted:

Chart 120. Description of the Magnitud of a consequence

MAGNITUDE OF A CONSEQUENCE	DESCRIPTION
Insignificant	Has an impact on the point of emission or causes an internal limit to be exceeded, without affecting personnel or third parties
Mild Effect	Causes an impact on the mill area or increases the load on the treatment mill, or the chimney, slightly affecting mill personnel or a resident of the area
Moderated Effect	Causes a slight negative impact on the environment and/or annoyance on ADA populations
Serious Effect	It causes a notorious problem to the environment, treatment mill, and affects the health of the AID population or accidents in the personnel
Catastrophic Effect	It interrupts the operation of the mill, and generates some fatality either to the personnel or to third parties

Source: Adaptated from OPS (2009)

It is important to be clear about how the different levels of risk are defined. To a large extent, social risks are a function of the expected “footprint” of a project. Its scale, complexity and inherent sectoral risks have to be seen in the context of local conditions, such as people's vulnerability, poverty levels, lack of resilience or social exclusion (IDB, 2018). Chart 105 summarizes some of these aspects:

Chart 121. Description of the risk class and its assessment

CLASS	PUNCTUATION OF THE RISK	DESCRIPTION
IV	<5	LOW Risk: Project activities with minimal or no adverse social risks and impacts. No specific mitigation measures are required, only preventive and communication.
III	5-8	MEDIUM Risk: Although not significant, operational risks and challenges still deserve attention. Adverse impacts can be limited and few in number and easily addressed through mitigation measures.
II	9-16	HIGH Risk: The nature and magnitude of potential or actual social risks and impacts are significant and problematic. While the likelihood of such a risk occurring may be low, the high intensity of the impact indicates a substantial risk overall.

CLASS	PUNCTUATION OF THE RISK	DESCRIPTION
I	>20	Risk VERY HIGH: The nature and magnitude of the potential or actual risks and social impacts of a project can cause serious adverse impacts on the people affected by the project. Unless properly managed, the impacts can be irreversible

Source: Social Impact Assessment (Kvam, Reidar, 2018)

6.7.2. Social Risks of the project

Chart 122 shows the main social risks identified, and a proposal for general measures to be addressed.

The values represented in said chart are the result of crossing the magnitude scores (from 1 to 5), according to the criteria mentioned in Chart 120, and considering the probability of occurrence (from 1 to 5) of the risks, as they may exceptionally or almost always occur, as indicated in the matrix in chart 119.

Risks related to road safety, or increased discomfort and uneasiness, could lead to "VERY HIGH RISK", in the event of a fatality, and specific protocols must be established for said situation. Paracel foresees high safety standards, and these will be extrapolated to all activities that generate HIGH risk to the surrounding community.

Chart 122. Main social risks of the project

Social Factor	Impact	Probability	Severity	Value	Risk rating	Measurement guidelines
Public/private services, infrastructure and/or property	Increase in demand for public and non-public services	2	3	6	MEDIUM	It is minimized from the design stages, anticipating meeting the necessary demand
Public/private services, infrastructure and/or property	Increase in demand of houses	2	3	6	MEDIUM	It is minimized from the design stages, anticipating meeting the necessary demand
Landscape	Landscape impact	2	3	6	MEDIUM	It is minimized from the design stages, foreseeing to cover the necessary demand and with communication programs and permanent community accompaniment
Health and Safety of third parties	Impact on third parties health	2	4	8	MEDIUM	It is minimized with permanent community support and with protocols to suppliers for the transfer of goods and products
Public/private services, infrastructure and/or property	Increase of vehicular traffic	4	4	16	HIGH	Require permanent community support, awareness campaigns on road safety and with protocols for suppliers of goods and products transfer
Public/private services, infrastructure and/or property	Impact on the road infrastructure	3	4	12	HIGH	It is minimized from design stages. The maintenance of the roads must be agreed with the authorities or covered with the project
Public/private services, infrastructure and/or property	Impact of land properties	2	2	4	LOW	It is minimized from design stages. Address agreements with third parties from the early stages of the project
Health and Safety of third parties	Impact on road safety	3	5	15	HIGH	Require permanent community support, awareness campaigns on road safety and with protocols for suppliers of goods and products transfer
Quality of life, uses and customs	Increased discomfort or restlessness	4	4	16	HIGH	Requier acompañamiento comunitario permanente y con protocolos a proveedores de traslado de mercaderías y productos. En caso de manifestaciones deberá preverse protocolos específicos y voceros de PARACEL que medien con la comunidad
Quality of life, uses and customs	Changes in customs and uses	3	4	12	HIGH	Require permanent community accompaniment. In case of demonstrations, specific protocols and PARACEL spokespersons should be provided to mediate with the community
Quality of life, uses and customs	Affection of the social network	2	3	6	MEDIUM	It is minimized with permanent community support and with protocols for suppliers and workers who live in the built accommodation
Expectations	Generation of negative perception and/or fears in the local population	2	3	6	MEDIUM	It is minimized with permanent community support and communication strategies
Expectations	Generation of negative perception and/or fears at regional and extra-regional level	2	3	6	MEDIUM	It is minimized with permanent community support and communication strategies

7. Measures and Programs

7.1. Identification and Justification of the Programs/Measures

Based on the social baseline (LBS) and the impact assessment developed, the Social Management Plan is structured in this chapter, which guides and defines the scope of the programs and measures proposed to mitigate and manage the identified social impacts.

The measures and programs will seek, in addition to mitigating and preventing negative impacts, optimizing and/or enhancing those positive impacts, contributing to local development and improving people's quality of life.

In order to achieve this objective, mitigation and/or compensation measures, communication and monitoring measures, in addition to the implementation of programs, should be foreseen, according to the associated impact and the stage of the project.

7.2. Social Management Plan (PGS)

Considering the impacts of medium and high significance identified through the evaluation presented in chapter 6. Evaluation of social impacts of this document, the programs and measures were formulated taking into consideration the national and international legislation cited at the beginning of the document, and that seek to guarantee the sustainability of actions within the framework of social management.

Through the measures and programs, the following will be sought:

- To establish the bases of relationship with the community, enabling their participation.
- To establish a healthy bond between the community and the company.
- To promote local development.
- To raise awareness and keep the population in the area of influence informed about the activities and processes planned in the framework of the project and its stages.
- To encourage the participation of the population in the identification and solution of problems.

Paracel will implement the PGS through the Communication and Social Sustainability Management, working in a coordinated manner with the Environmental Sustainability Management; and in coordination with the other departments of the company. This PGS is also integrated with the Environmental Management Plan (PGA), thus developing an Environmental and Social Management System (ESMS) at the business level. This ESMS, as well as the PGS, apply to both the industrial and forestry components of the enterprise.

Certain programs in the social field are configured considering the close relationship with impacts that will be addressed from the environmental, engineering or technical areas, and that will be coordinated and managed in an articulated manner with the different areas to achieve a comprehensive approach. This is the case of impacts such as: impact on road safety, impact on road infrastructure, impact on the landscape, impact on river traffic and ports, temporary increase in population, impact on ecosystem services with emphasis on the forestry component, among others.

To monitor socio-environmental performance; and for the coordination and socialization of information, a Socio-Environmental Committee will be created and formed by the supervisors or teams involved in the social and environmental field of Paracel who will coordinate, depending on the particular issues for follow-up, the

participation of local referents and/or institutions. The Committee will establish by common agreement, the dates and frequency of meetings, work spaces and joint tours.

In addition, the company has created a Communication and Monitoring Committee; composed, among others, by referents of the districts of the areas of influence and whose objective is to involve the population in each stage of the project and establish a direct communication channel between Paracel and its different interest groups.

Various measures and programs will be planned and implemented by interdisciplinary teams from Paracel; and will require coordination with national level institutions, local governments or other organizations (such as, for example: Signaling and traffic management, training of local labor¹⁵¹, among others). For this, the Environmental Sustainability Management and the Communication and Social Sustainability Management will coordinate the alliances and necessary steps for said articulations.

Some of the programs and measures are transversal to all stages of the project; that is, they will be implemented from the pre-construction stage (in the case of the industrial component) or design, to the operation phase (in both components). Monitoring at all stages will be key, in order to guarantee the follow-up of the proposed measures; and, eventually, propose the necessary adjustments that guarantee the sustainability of the undertaking.

In addition to the Human Talent policies related to occupational health and safety (OHS), specific strategic guidelines related to COVID-19 are added, addressing the pandemic declared by the World Health Organization in the period of development of social studies.

Next, the programs and measures are presented in chart 123, linked to the stages and the impact associated with each of them. The main guidelines, objectives and scope of each program are described below. The programs will be elaborated in detail, in a timely manner, when the development of the project so demands.

It is important to mention that this PGS integrates the measures that are applicable for both components (industrial and forestry), with the exception of the “Social management program for ADA communities”, applicable only for this component.

Chart 123. Programs and measures

PROGRAMS/MEASURES	STAGES OF THE PROJECT	ASSOCIATED IMPACT
ADA Social Management Program for Communities	Pre construction	<ul style="list-style-type: none"> - Impairment of properties - Economic displacement - Affection of the social network - Economic displacement and impact on land (ranches) - Migration of workers from one sector to another - Generation of favorable expectations - Generation of fear and uncertainty
Community and Stakeholder Relations Program	Pre construction, construction and operation	<ul style="list-style-type: none"> - Impact of the social and community networks (family, social, productive) - Impact on units in the immediate surroundings due to access or proximity to the mill - Changes in customs and uses - Increased discomfort or tranquility

¹⁵¹ To be worked from the Human Talent area of Paracel.

PROGRAMS/MEASURES	STAGES OF THE PROJECT	ASSOCIATED IMPACT
Programa de desarrollo y vinculación de mano obra local	Pre construction, construction and operation	<ul style="list-style-type: none"> - Generation of local employment - Formalization of labor ties - Skills development
Local workforce development and linkage program	Pre construction, construction and operation	<ul style="list-style-type: none"> - Development of the local economy - Generation of local employment - Temporary population increase
Dissemination and communication program	Pre construction, construction and operation	<ul style="list-style-type: none"> - Increase in vehicular traffic - Temporary population increase - Impact on road safety - Generation of local employment - Generation of expectations and fears in the local population - Generation of expectations at a regional and extra-regional level - Changes in customs and uses - Increased discomfort or restlessness
Complaints, claims and concerns management program	Pre construction, construction and operation	<ul style="list-style-type: none"> - Generation of expectations and fears in the local population - Generation of expectations at a regional and extra-regional level - Affecting the social and community networks
Road safety program for institutions and communities of the ADA and AID	Construction and operation	<ul style="list-style-type: none"> - Increase in vehicular traffic - Temporary population increase - Impact on road safety - Changes in customs and uses - Impact on the health and safety of third parties
Awareness and monitoring program for contractors and workers on compliance with regulations	Construction and operation	<ul style="list-style-type: none"> - Impact of the social network - Impact on road safety - Impairment of occupational health - Impairment of occupational safety
Community Health and Safety Program	Construction and operation	<ul style="list-style-type: none"> - Impact on health and safety of third parties
ADA cultural heritage protection and enhancement program	Construction and operation	<ul style="list-style-type: none"> - Impact of materials of archaeological, historical and/or cultural interest - Management and enhancement of local and national heritage
Social contingency prevention and management program	Construction and operation	<ul style="list-style-type: none"> - Impact on health and safety of third parties - Impairment of occupational health - Changes in customs and uses - Affecting the security of third parties - Impact on river traffic and ports
Internal management program for land affectation (easement) ¹⁵²	Construction and operation	<ul style="list-style-type: none"> - Impact of land properties
Social monitoring program	Construction and operation	<ul style="list-style-type: none"> - Generation of expectations and fears in the local population

152 In the forestry component, this program is complemented by measures linked to risks from external agents.

PROGRAMS/MEASURES	STAGES OF THE PROJECT	ASSOCIATED IMPACT
		<ul style="list-style-type: none"> - Generation of expectations at a regional and extra-regional level - Changes in customs and uses

7.2.1. ADA Social Management Program for Communities

Stage: Pre construction

Objectives: To identify the effects generated from the definition of the design of the work and accesses, seeking to minimize the effects of the ADA population, with emphasis on vulnerable groups.

Measures/Guidelines

The determination of the access path to the mill, as mentioned in item 6.3.1.2. The immediate surroundings of the development site, sought to minimize the impact and avoid the possibility of resettlement to the Piquete Cue community. Although resettlement has been avoided, the effects that could occur on the economic activities and way of life of these families and the communities near the defined main access should be evaluated and monitored.

Measures to be established according to the impact on the Piquete Cue community and other units in the immediate vicinity of the mill

Taking into account the particular characteristics of the Piquete Cue community (presented in chapter 4) and the evaluation of possible impacts evaluated in chapter 6, the measures described here seek to minimize the impact on said community. The measures may include, among others: construction of an alternative road for the community in case the current road is affected by the Project. Likewise, specific communication measures with said community, in order to inform the progress of the Project, and monitor possible impacts that may occur as a result of the undertaking. In the same way, within the framework of other Programs of this PGS, awareness related to road safety, health and other issues will be promoted, verifying that the scope of the measures defined therein has coverage in families in this community.

These measures will be designed in consultation with the community, taking into account the expectations and concerns of the inhabitants in relation to the new dynamics that will take place in the area and the possible impacts evaluated.

For the units near the main access (Pyrenda), it will be sought to minimize the impact on the current dynamics of the way of life, uses and customs. These should provide signaling and communication measures, within the framework of a consultation process with the community.

Follow-up and monitoring measures in the ADA

The impacts on the current dynamics of the population adjacent to the mill are also determined by the proximity to the site where the installation is planned. In this sense, follow-up, accompaniment and monitoring measures will be envisaged to ensure that people maintain or improve their way of life that they had prior to the undertaking.

In the case of dwellings located along 3 km (mostly belonging to the community of Piquete Cue), given the proximity to the prospective property, measures should also be evaluated once the definitive data of the design and location of the mill, to mitigate and monitor the impacts that may occur due to being adjacent to the north of the mill.

Complementary programs/measures

The following complementary measures apply for this Program:

- Relationship program with the community and Stakeholders
- Dissemination and communication program
- Program for the reception and management of complaints, claims and concerns
- Road safety program for institutions and communities of the ADA and AID
- Social monitoring program

7.2.2. Community and Stakeholder Relation Program

Stage: Design, Construction and operation

Objectives: Encourage local development and promote close ties between the community and the company.

Measures/Guidelines

The program of relations with the community and local development refers, firstly, to the generation of mechanisms for the participation of the population of the areas involved in the project for both components (ADA/AID for the industrial component and AID for the forestry component). In actions that are oriented to the identification and formulation of alternatives to the changes that could occur with the implementation of this. Likewise, it seeks to contribute to the strengthening and development of the communities, both in the social, economic, cultural, and other aspects; and the active involvement of the inhabitants in matters that affect the transformation of the current conditions of their environment.

With the field work carried out for the preparation of the LBS studies; both in the first stage and in the second, survey and information exchange activities were developed with the population of the areas that make up the AID in each of the components, enabling a first communication channel with them, being able in turn know the situation of these territories regarding access to basic services, health, education, participation, others. This process and the international regulations involved constitute the basis for the generation of community development proposals in these areas, before which the following points should be considered:

- The importance of sustaining the communication, already initiated, in the territory by returning the results of the information survey; carried out for the baseline studies and the involvement of the various stakeholders and interest groups; already identified in the different spaces.
- All actions that involve the community must contemplate the prior elaboration of participatory diagnoses in consultation spaces, promoting equitable participation between women and men in the community, and permanent monitoring of the activities planned for this purpose.

The implementation of the activities with the aforementioned considerations ensure compliance with the principle of Ecuador No. 5; that highlights the importance of the “effective participation of Stakeholders in a continuous, structured and culturally appropriate manner for the Affected Communities; and, where appropriate, for Other Stakeholders”, the importance of carrying out consultation processes according to the degree of adverse

impacts that may occur in each area, adapted to their linguistic preferences; their decision-making processes, and the needs of disadvantaged and vulnerable groups.

The communities located on the access roads to the area surveyed for the installation of the mill; They have the particularity of becoming an area with an identity of cohesion between communities that are linked to each other and that are interdependent on each other; Saladillo, Mongelos and Roberto L. Petit are communities with greater capacity, in which educational institutions, health services, etc. are concentrated. which are attended daily by inhabitants of neighboring communities with less capacity.

For their part, the AID communities of the forestry component also constitute territories in which educational, health, recreational and religious institutions, among others, are present. Those with the largest number of institutions and centers are the district capitals such as Puentesíño, Paso Barreto and large towns such as Paso Mbutú and Colonia Jorge Sebastián Miranda (Hugua Nandu).

In the areas involved in the project (both components), community organizations, producer committees, neighborhood commissions, water and sanitation boards, among others, were also identified; as well as, private initiatives for recreation such as watering places, and also small businesses and places with some type of service.

Taking into account this information and other characteristics surveyed, the following measures are proposed for the strengthening of local capacities by the project to be implemented within the framework of this program for both components:

- **Support to the strengthening of community identity:** Measure by which it is intended to generate activities that promote the strengthening of the existing community nexus between communities; accompanying the process of change that could be generated with the implementation of the project. The activities may include the participatory development of joint projects; including vulnerable groups (women, children, people with disabilities and the elderly), the establishment of community centers, the preparation of training plans in coordination with the regional offices of the MIC, SNPP, USF (training in preventive measures against COVID-19, HIV, and other public health issues), the organization of cultural events, etc.
- **Support to the strengthening of community organizations in the area:** In connection with the previous measure; It will seek to offer the organizations in the areas activities that promote their strengthening, placing special emphasis on productive committees (for example, in the forestry component, artisans dedicated to the production of karanday products), technical assistance with a gender approach the provision of marketing spaces in coordination with different relevant actors in the district. In addition, actions related to the rational use of water, the importance of the prior purification of the water provided by the sanitation boards or commissions, water quality monitoring, among others, will be promoted.
- **Promotion and development of local initiatives:** Aiming to provide technical support for the improvement and sustainability of local initiatives such as MSMEs, small businesses, workshops and others. In addition to support and advice for legal issues; such as the provision of tourist and recreation spaces (watering places) in the area.
- **Improvement of existing infrastructure:** In coordination with departmental and municipal governments, support the generation or improvement of spaces for recreation and outdoor recreation (squares, parks, courts, etc.), road safety signs in areas with concurrence of people and especially children

(squares, schools, churches); as well as the improvement of the local landscape and all kinds of infrastructure of community relevance.

Complementary programs/measures

The following complementary measures apply for this program:

- Dissemination and communication program.
- Program for the reception and management of complaints, claims and concerns.
- Program for the development and linking of local labor.

7.2.3. Local Workforce Development and Linkage Program

Stage: *Design, construction and operation*

Objective: To promote the generation of local employment through the linking of qualified and unskilled labor from the project's area of influence and the development of capacities.

Measures/Guidelines

Partnerships for capacity development

One of the measures that the company is working on, in order to promote the employment of local labor, is the development of links with educational institutions present in the department in coordination and in alliance with the Ministry of Labor, Employment and Social Security (MTESS). Currently Paracel has two agreements signed with this ministry. These alliances aim to join forces between the company and the education sector, for the planning of training courses and training within the framework of capacity development.

In addition, in the forestry component, Paracel will promote the inclusion of female labor in the nurseries to be installed, thus developing actions for the inclusion of women in the forestry sector.

The characteristics surveyed in each social base line, related to the employment issue; the expectations of the population; the educational institutions present in the department of Concepción and the profiles of qualified and unskilled labor required by the company will be taken into account for the planning of actions and the design of the courses.

This measure is currently being implemented, as it was planned for the stage prior to construction, in order to have the necessary local labor. In addition, with a view to the following stages, new training courses may be designed in accordance with the personnel requirements necessary for the project's operation stage in each of its components. Currently the company is making the first calls for hiring and training of required personnel.

The capacities developed will remain at the end of the mill construction stage (as with the forestry component process), as installed capacity, thus enhancing the local qualified workforce that could be reintegrated into other ventures.

Promotion of the linkage of local labor

Paracel's human resources policy prioritizes the hiring of local labor, in the first place; and of national labor, in second place; over the hiring of foreign labor.

The diffusion and promotion for the hiring of local labor is carried out by different means. The planning of promotional activities takes into account the information channels most cited by the population in each of the components.

The MTESS created an exclusive job bank to respond to the needs of Paracel and its suppliers; in order to attract the largest number of local workforces. In accordance with the signed agreement, the MTESS will finance the training of the first 350 operators of the industrial mill.

Currently, courses are being developed through the SNPP in Concepción, to respond to the hiring needs of Paracel and project contractors. The areas covered are construction and forestry through training in the handling of large machines.

The promotion of this program is carried out through informational meetings, job fairs, and other identified spaces, in coordination with the MTESS, the focal points of the local governments, and references from the different localities in the areas of influence.

Applications are made through the website, to the email: talentohumano@paracel.com.py or from the company's customer service offices and from other points that are coordinated with local institutions.

Paracel will generate periodic reports on the hiring and the process carried out, with information about:

- a) Number of vacancies and required profiles
- b) Media used
- c) Number of applicants presented
- d) Number of applicants hired
- e) % national, local and international skilled and unskilled labor

In addition, the labor hiring process will guarantee equal opportunities for men and women, with special emphasis on equal criteria for selection, remuneration and promotion and on the equal application of such criteria (Performance Standard 2, on Work and Conditions IFC Standards on Environmental and Social Sustainability). Likewise, it is estimated that both components (industrial and forestry), in the different stages of the project, can generate around 40,000 jobs (4,000 direct, 16,000 indirect and 20,000 indirect-direct). Considering the specific hiring profiles, it is foreseen that 90% of the people who work in the nurseries will be women, in the case of the forestry component; attending to international standards that ensure, among others, employment opportunities and the promotion of gender equity in undertakings of this nature.

Promotion of the hiring of local workforce from subcontractors

Considering that for the constructive stage, PARACEL will subcontract to other companies, in the tenders or contracts to be signed with each one, the same promotion and equity requirements mentioned in the previous measure will be established.

Complementary programs/measures

The following complementary measures apply for this Program:

- Relationship program with the community and Stakeholders
- Dissemination and communication program
- Program for the reception and management of complaints, claims and concerns
- Awareness program to monitor contractors and workers on compliance with regulations

7.2.4. Promotion and Development Programa for Local Suppliers

Stage *Design, construction, operation*

Objective: To promote the development and growth of the local economy through the promotion of local and national companies as possible suppliers.

Measures/Guidelines

In the areas of influence of the project there are important companies and people who are dedicated to providing goods and services of different areas, whether they are large or small companies. The largest proportion of people who work do so in MSMEs.

Taking into account the positive impact that the company will generate in terms of the demand for products and services to attend the different activities related to each component of the project; under this program, it will be sought to encourage the development of local suppliers.

Paracel has promoted and initiated an open channel of communication with the different local suppliers and merchant associations in the area; in coordination with local governments, organizations related to MSMEs and references from certain sectors; some identified in the process of consultation and preparation of the baseline.

In the case of the forestry component, the inclusion of 20% of local producers (large, medium and small) is foreseen; and in coordination with INFONA, a pilot project is currently being developed through which the socioeconomic and technical conditions of potential producers are evaluated, for the definition of lines of action such as: Investment funds for small producers, technical assistance and training, among others.

Paracel will provide, in a transparent and clear manner, information related to the demand for goods and services that it will have in each stage, estimated times, processes of contests and tenders, quality standards and required management.

Through this program, other activities and processes that help to:

- Achieve more competitive compliance standards
- Improve business and operational management processes
- Optimize production and delivery times
- Improve the quality of products and services, and the response capacity of suppliers
- Develop new products, services and position itself in other markets

- Contribute to sustainable local development in communities through the strengthening and development of SMEs
- Promote integration and coordination between supplier companies
- Contribute to economic decentralization

Complementary programs/measures

The following complementary measures apply for this Program:

- Relationship program with the community and Stakeholders
- Dissemination and communication program
- Program for the reception and management of complaints, claims and concerns
- Awareness and monitoring program for contractors and workers on the code of conduct and compliance with regulations

7.2.5. ADA Cultural Heritage Protection and Enhancement Program

Stage: *Construction and Operation*

Objective: To ensure a sustainable management of heritage, promoting the enhancement of Concepción's heritage value.

Measures/Guidelines

Although the social significance of impacts on heritage is low in both components, it is also expected to promote actions that help achieve a visible presence of tangible heritage; and, eventually, minimize its impact, as well as respect the intangible heritage, present in the way of life and culture of the population settled in the study areas.

In order to ensure a sustainable management of the project, and to take into consideration eventual findings – which, although they were not confirmed in the LBS field work–, construction contractors will be required to implement management protocols in case of eventual findings. Said protocols must foresee the participation of the National Secretariat of Culture, as well as that of local governments, as the case may be.

In order for the project to promote the revaluation and enhancement of the tangible and intangible heritage of Concepción -Villa Real de Concepción-; as well as its cultural identity, Paracel will promote actions with local and national cultural authorities, thus helping to ensure their safeguarding.

As already mentioned in the first version of this PGS; this is achieved through simple measures, such as, for example; support cultural centers or museums with graphic and printed material; as well as, in the event that during the works (industrial component) or in the installation of forest fields, the participation of archaeological specialists is required, they can document the findings, and the results be made available to local actors and institutions linked.

In the case of the forestry component, the largest number of planned activities will be of small-scale facilities that would not affect materials of archaeological value that could be found in the subsoil; also foreseeing the request of specific protocols to subcontractors linked to the adaptation of internal roads (roads, drains, others) and soil

preparation. Likewise, the project expects to comply with the principles of IFC Performance Standard 8 on Cultural Heritage and current national regulations.

7.2.6. Road Safety Program for Institutions and Communities of the ADA and AID

Stage: Construction and Operation

Objective: To reduce the probability of occurrence of road accidents; and the impact on the way of life of the communities surrounding the mill and the properties for forest plantations, originated in the increase in traffic.

Measures/Guidelines

The measures mentioned here are complementary and must be coordinated with the guidelines or road safety program set out in the Environmental Management Plan; and that are related to the fulfillment of traffic and signage requirements and regulations (permitted traffic hours, speed regulations, avoid circulating in the vicinity of sensitive areas, installation of signage and signage, etc.). According to the field trips, a deficient signaling of the existing roads has been visualized, proposing that these be reinforced with the support of the enterprise, but through inter-institutional coordination with local governments and/or with the MOPC; this in the case of roads linked to both components.

To address these impacts from the social sphere, awareness-raising and information dissemination actions should be planned, in coordination with the other related programs.

Awareness and dissemination of information to neighboring communities and public institutions

In addition to the community relations and communication program, specific information should be shared with the communities and public institutions in the area about:

- Stages of the project and changes in the dynamics of vehicular traffic
- Traffic management plan
- Installation of regulatory and preventive signs (clear and easy-to-interpret signs)
- Details of the service offices installed by the company and the mechanism for inquiries and complaints

This socialization may be accompanied by training articulated with the competent regulatory institutions, or by distributing materials (posters, brochures, others) to educational centers, health centers and USF in the area.

Training and awareness-raising for drivers and workers related to transportation

In the framework of the development of training or induction processes for contracted personnel linked to the transport area, and suppliers in general, information will be provided related to the characteristics of the communities and their dynamics of use of access roads, location of the sensitive areas as school or health centers, among others. These trainings will be complementary to the trainings that the company will give on basic traffic rules, signage, schedules, etc.

The following complementary measures apply for this Program:

- Relationship program with the community and Stakeholders
- Dissemination and communication program
- Program for the reception and management of complaints, claims and concerns
- Awareness program to monitor contractors and workers on compliance with regulations

7.2.7. Awareness and Monitoring Program for Contractors and Workers on Compliance with Regulations

Stage: *Construction and Operation*

Objective: Accompany and monitor contractors and workers to ensure compliance with international regulations and national legislation.

Measures/Guidelines

Contractors and workers in the framework of subcontracts with Paracel are not considered third parties for the purposes of international regulations. They act on behalf of Paracel, and must be under the direct control of the company.

The trainings, workshops or meetings that the company dictates to its own workers or operators must also be extended to subcontractors and their workers; in order to optimize the programmed spaces and to promote a greater sense of belonging to the project by everyone.

It is important, therefore, that all related workers are aware of the scope of the project in general, of the code of conduct, of the environmental and social management programs that will be implemented in all stages, and that they handle clear information; so that it can be relayed to the community, when it requires it. In addition, there will be specific norms of "conduct" linked to the communities.

Paracel will ensure compliance by all contractors with the Human Resources Policy; and the principles and regulations that they must comply with such as: Principle of equal opportunities and fair treatment, priority of hiring local labor, working conditions, health and safety at work, principles of non-discrimination, preventive measures against COVID-19, among others. These requirements will be explicit in the bids and contracts to be signed. In addition, compliance with IFC Performance Standard 2, on Labor and working conditions, as well as the World Bank Group guidelines on the environment, health and safety, social management and coexistence in temporary accommodation.

In the framework of the construction of the mill (industrial component) and use of the accommodation to be built by Paracel; part of the personnel linked to the undertaking will temporarily live in the area. In this regard, standards of conduct will be established especially linked to minimizing the effects on the ADA communities, as well as reducing the effects on the uses and customs of the communities.

In addition, in both components, there will be specific personnel for the security area. Paracel will ensure that they do not exercise "abuses of power" as an extortion measure or pressure on workers and/or the community, conducting specific training.

Induction in SSO and follow-up

Although this will be addressed by specific programs, it is important to note that to minimize the impact on health and occupational safety, inductions will be made to workers in the current safety regulations (Decree 14,390; General Technical Regulation of Safety, Hygiene and Medicine at Work); as well as the IFC performance standard and the World Bank's general guidelines on environment, health and safety. In addition, considering that Paracel will require contractors to have occupational health and safety technicians as established by local labor legislation. The inductions will make the provisions on informing specific protocols in cases of accidents, incidents, emergencies, informing about the specific areas of the company that address these issues (SSO Technician, Emergency Brigades and Risk Management, others).

In addition, in response to the pandemic declared by the WHO, specific protocols will be established to prevent the spread of the virus both in Paracel personnel and in the communities surrounding the industrial mill and forest fields. Other diseases of hydric origin, transmitted by water, as well as diseases by vectors will also be addressed in the inductions, mentioning specific measures for their prevention and eventually, reducing the risk of their spread.

The proper management of solid waste is also related to OHS (many times a generator of vector diseases), as well as the handling and special disposal of hazardous waste, so inductions to staff will include these topics.

The monitoring of the implementation of the standards in OHS will be attended by specialists in OHS from Paracel, registered and authorized in the Ministry of Labor for this purpose.

Complementary programs/measures

The following complementary measures apply for this Program:

- Local workforce recruitment and development program
- Dissemination and communication program
- Program for the reception and management of complaints, claims and concerns

7.2.8. Community Health and Safety Program

Stage: *Construction and Operation*

Objective: To implement an efficient program of hygiene, safety and health care for the population, with emphasis on the prevention of diseases of hydric origin, transmitted by water and others that could be related to the increase in the workers influx.

Measures/Guidelines

In addition to the specific measures of preventive signs mentioned in the road safety program for institutions and communities of the ADA and AID, as well as the planned training, Paracel will establish specific alliances with local health institutions (USF, health centers) identified in the AID/ADA, in order to contribute to the management and monitoring of information related to water-borne diseases, vector diseases, respiratory diseases, sexually transmitted diseases, pregnancies, drug use, alcohol, among others.

In response to the pandemic declared by the WHO, special attention will be paid to supporting and disseminating the MSPyBS campaigns, both in measures against COVID-19, and other vector diseases that may occur.

Disease awareness campaigns

Paracel will support health campaigns in the AID communities, promoted by the MSPyBS, as well as in the distribution of awareness materials on sexually transmitted diseases, protocols against COVID-19, preventive measures against dengue and other vector diseases. Likewise, specific campaigns will be carried out to prevent water-borne diseases (with emphasis on children and women), considering the low quality of the water and the lack of treatment systems in certain areas; as well as dissemination of water quality results in the AID water courses (Paraguay River, Aquidabán River, others).

Other diseases can occur due to the inappropriate use of solid waste (many times generators of vectors) or due to poor disposal of packages of chemical products used as could be evidenced in previous chapters; especially in the forestry component, for which specific campaigns will also be carried out on the proper management and disposal of solid waste, as well as on the management of hazardous waste.

The information related to the attended campaigns, the number of people who receive the materials, the talks given by Paracel staff will be recorded; as well as possible claims related to illnesses that may be attributable to project personnel and/or activities, among others.

Disease baseline studies

Paracel will support specific studies to systematize information from the USF; and then deliver them to the MSPyBS, as well as to the Municipalities, in order to contribute in establishing the bases to have reliable statistical data in the area; moreover, taking into account the recent disintegration of some districts, of which there is no baseline data for subsequent monitoring.

In addition, a record will be kept of the illnesses related to the personnel of the work; and related to these issues, in order to prevent the spread of disease to communities. According to the results, specific awareness campaigns will be carried out with Paracel personnel, always promoting the norms of conduct with the communities.

Health impact monitoring

Specific studies will be carried out in order to monitor the health data of the community; and those that may be attributable to the project (accidents, sexually transmitted diseases, by vectors).

In addition, third party health and safety impacts will be monitored, as mentioned in the impact assessment chapter; in order to document possible cases of water-related diseases (water-borne or water-borne).

Complementary programs/measures

The following complementary measures apply for this program:

- Community and stakeholder relations program.
- Awareness program to monitor contractors and workers on compliance with regulations.
- Road safety program for institutions and communities of the ADA and AID.

- Social monitoring program.
- PGA environmental education program.

7.2.9. Dissemination and Communication Program

Stage: *Design, construction and operation*

Objective: Delivery of information about the project to the general population and to the resident communities in the project's areas of influence, in each of its components, in order to maintain and guarantee constant and timely communication.

This program is transversal to all the programs and measures of the PGS and PGA.

Measures/Guidelines

Information dissemination/disclosure

Communication represents a fundamental pillar of the PGS, through the design of alternatives for the use of different spaces and media; that allow the dissemination of clear and precise information about the project, among the different interest groups linked to it and the population in general.

Actions will be envisaged to ensure the arrival of information to the population of the areas linked to the project, in each of its components (AII, AIDs and ADA) periodically; containing deadlines, advances and setbacks (if any) of the project. The strategy will also involve planned communication for other levels such as regional and national. This means that communication, in addition to focusing on business and institutional matters, must have a social communication strategy focused on the communities surrounding both the mill and the properties for forest plantations and accesses, with emphasis on the most vulnerable groups, such as It is presented below in specific guidelines for these social actors.

Currently, the company has various communication channels such as: Social networks, website, exclusive service numbers for this purpose, institutional email: info@paracel.com.py, a YouTube channel.

Likewise, Paracel has promoted the creation of a Communication and Monitoring Committee of the company, a committee created with the purpose of involving the population in each Stage of the project, achieving a collaborative development of socio-environmental programs; and above all, establish a direct communication channel between Paracel and its different stakeholders.

All channels and spaces ensure that the content to be transmitted on the stages of the project is sufficiently clear and adapted to the cultural and linguistic particularities of the areas, in order not to generate confusion/doubts at the moment of reception. In connection with the Program of Attention to Queries and Claims; it will seek to generate materials in various formats (printed and digital), based on the registered concerns, in order to respond to the specific information needs; especially of the resident population in the area of direct influence of the project, in a timely manner.

Taking into account what was revealed in the perception studies; and considering that some people expressed concern in relation to the project, stating, among other issues; "That is sustainable", the "possible contamination/affectation of natural resources and the environment", that has "social responsibility", as well as issues related to the use of chemical products. The dissemination of information to the populations near the forest

fields must contain data on the afforestation process and related activities, such as the use of chemical products and fertilizers, “controlled burning” activities, among others.

All these actions meet and will comply with the provisions of IFC Performance Standard 1, in its item 29-Disclosure of information; in which it is highlighted that all relevant information about the project; the risks, impacts and opportunities must be issued, ensuring that the affected communities and other social actors dimension these aspects; for which *“The client will provide affected communities with access to pertinent information on: (i) the purpose, nature and scale of the project; (ii) the duration of the proposed project activities; (iii) the possible risks and impacts on these communities and the pertinent mitigation measures; (iv) the planned stakeholder participation process; and (v) the complaints mechanism ”*¹⁵³.

To date, as part of this program, there have been (6) virtual and (7) face-to-face meetings called: “Let’s talk”; in order to deliver information about the project to the general population and to the resident communities in the project’s areas of influence, seeking to maintain and guarantee constant and timely communication.

The content presented in all the talks was taken from the Environmental Impact Report (RIMA); trigger tool for queries, comments and suggestions to come up.

Paracel’s communication channels were presented in all the talks and the participants were invited to form part of the company’s Communication and Monitoring Committee. Committee created in order to involve the population in each stage of the project, achieve a collaborative development of socio-environmental programs and, above all, establish a direct communication channel between Paracel and its different stakeholders.

Communication to the population at the construction stage

The communication to the population in stage of works must foresee communication actions both in the previous phase and during the works. This will involve the dissemination of specific and relevant information; such as the planned schedule of works, activities related to the industrial mill and forest fields, seeking to prevent temporary annoyances, risks of accidents, in addition to noise, dust, etc., including recommendations and safety measures to be taken into account by the population affected, ensuring their well-being.

Recommendations and measures will be disseminated through mass communication media, social networks, printed materials such as newsletters, leaflets, pamphlets, among others; so that the population takes the necessary precautions based on this information. Likewise, informational spaces will be generated with the community, especially with the families residing in the ADA and AID, attending to their expectations, doubts, queries, etc. regarding said stage.

Another aspect to consider, in order to provide timely information to the population of the project’s areas of influence, is the preparation and placement of all kinds of posters and signs necessary in the works area and/or in other areas with information related to these.

Delivery of timely information to the community and relevant stakeholders

Through this measure, it is proposed to generate a relationship of trust with the population (social actors, interest groups) in the project’s areas of influence. By providing accurate and timely information on issues concerning the

153 IFC- Performance standards on environmental and social sustainability. Page 14.

impacts and the compensation and/or mitigation measures associated with them; as well as with the delivery of answers in time and form to the concerns that arise from the community.

For this, direct communication spaces will be generated with the population involved; participatory meetings by sectors, house-to-house visits, among others. So that people can take ownership of the process by expressing their needs, points of view, and through this an adequate management of project/community relations is given. In addition, there will be specific spaces for communication with local actors (Municipalities); as well as key messages to be communicated, according to a business communication strategy, with NGOs and other organizations (association of small producers, among others).

It will be ensured that the teams (social, communication, etc.) that are formed for the different jobs and Stages, handle the same information related to each program.

Based on the social work carried out in the territory, coordination with key local actors will be important; with whom permanent communication was initiated and maintained (referents from the public and private sectors, civil society, merchants, community leaders, among others). Within this framework, the company began the process of contact with said actors for the socialization of RIMA in each of the municipalities involved.

Finally, in addition to communicating specific issues to the project, Paracel will promote the communication of awareness of the surrounding populations, in order to disseminate specific measures and protocols in the face of the pandemic declared in the initial stage of the project (COVID-19); as well as promoting actions related to the rational use of water, the importance of the prior purification of the water provided by the sanitation boards or commissions, water quality monitoring, among others.

Complementary programs/measures

The following complementary measures apply for this Program:

- Community relations and local development program
- Local workforce recruitment and development program
- Program for the reception and management of complaints, claims and concerns
- Road safety program for institutions and communities of the ADA and AID
- Social monitoring program

7.2.10. Complaints, Claims and Concerns Management Program

Stage: *Design, construction and operation*

Objective: To guarantee attention to the complaints, claims and concerns of the population of the project's areas of influence, workers and the general population, establishing permanent communication channels.

Measures/Guidelines

Timely attention to queries, concerns or claims related to the undertaking will be key. From the fieldwork process, as a result of the perception study, potential impacts were identified linked to the generation of fears of the local population, in relation to the care of the environment and the possible impact on the way of life; this in the areas covered by both components of the project.

This program considers the principle No. 6 of Ecuador, Complaints Mechanism, as well as the guidelines of the standards proposed by the World Bank, and the IFC Performance Standard 2, on Work and working conditions. In these it is proposed:

Preparation and definition of the mechanism for receiving and managing complaints, claims and concerns - implementation manual

For the implementation of the program, it is necessary to formalize an action mechanism that "must be adapted to the risks and impacts of the project, and the affected communities must be its main users". For this, it must contain lines of action that guide the resolution of queries, doubts and concerns promptly, using an understandable and transparent consultation process that is culturally appropriate and easily accessible, without costs, and without any retaliation for those who raised the matter or worry¹⁵⁴. For them, the following steps are proposed:

- Preparation of a procedures' manual, considering the different actors who will be served (general population, affected population and workers), as well as a scale of the type of claims and response time to these.
- Socialization and validation of the tool with all the teams involved.
- Training for its use.
- Activation and dissemination of the mechanism in spaces for participation generated, within the framework of this or other PGS programs, will inform the affected communities about the mechanism during the process of stakeholder participation.
- Monitoring the resolution and closure of claims.

Currently, the company has an elaborate procedure that describes the system for the effective attention, treatment and closure of complaints, suggestions and queries; and the channels enabled (website, email, specific number for attention, mailbox for complaints, suggestions and queries) located in the Paracel establishment.

Enabling spaces to offer the affected population and workers answers to their doubts and concerns

Generate a direct and continuous channel of communication between the project and the population; in order to receive and facilitate the resolution of the concerns and complaints received, also detecting their expectations and discomfort regarding the execution of the works; and the expected benefits. Guidance posts/offices will be installed for citizens and/or workers¹⁵⁵ who come to express concerns/claims. The installation should be planned in the areas of influence of the work, with the presence of qualified professionals for this purpose, they will treat the demands from the request to their resolution, response and registration within a period stipulated in advance by the company and the responsible team.

154 Ecuador Principle No. 6, Complaints Mechanism.

155 The company must establish a complaint handling mechanism so that "workers (and their organizations, where they exist) can raise their concerns regarding the workplace". The client will inform the workers about the complaint handling mechanism at the time of being hired and will give them easy access to it. IFC. Performance standards on environmental and social sustainability, Performance Standard 2 Work and working conditions. Item 20. Complaints handling mechanism.

Complementary programs/measures

The following complementary measures apply for this Program:

- Community relations and local development program
- Dissemination and communication program
- Local workforce recruitment and development program
- Social monitoring programs

7.2.11. Internal Management Protocols for Land Affection (easement)

Stage: *Design, construction and operation*

Objective: To prevent conflicts with third parties (owners of properties used as easements) and outline internal protocols to guarantee the safety of Paracel personnel.

Measures/Guidelines

The LBS has confirmed the use of private property, such as easement for access/exit to the industrial mill, as well as from the forest fields. Paracel will make specific agreements with the owners of said properties; in order to guarantee the permanent use of these roads at all times, explicitly agreeing on their maintenance responsibilities and/or possible compensation. Likewise, the non-involvement of roads in the area of indigenous communities or on lands under their control will be guaranteed, in order to safeguard the principles established in section 2.1. Project synthesis and related regulatory framework.

In addition, in relation to the security strip linked to the construction of the transmission line (LT), the possible compensations that should be given to the properties will be addressed, in coordination with ANDE. The provisions of IFC Performance Standard 5 will be taken into account.

Likewise, in relation to the security of the lands, both for easement and for the security in general of the enterprise, there will be permanent security professionals both in the industrial mill and in the forest fields. Paracel will ensure that they do not exercise "abuse of power" as an extortion measure or pressure on operators and/or the community, conducting specific training, similar to those provided for in the Program of awareness and monitoring of contractors and workers on compliance with regulations.

Complementary programs/measures

The following complementary measures apply for this Program:

- Awareness program to monitor contractors and workers on compliance with regulations.
- Social contingency program.

7.2.12. Social Monitoring Program

Stage: *Design, construction and operation*

Objective: To monitor the implementation of the measures and programs established in the PGS through the definition and follow-up of performance indicators, so that inconveniences in the fulfillment of the established Objectives can be identified in time, and allow corrective actions to be taken timely. This program also contains a sub-component for monitoring social perception through which it will be possible to have updated information regarding opinions and expectations of the local population on aspects related to the project in its different stages.

Measures/Guidelines

Taking into account both the baseline drawn up for each component, as well as the possible impacts identified, the programs and measures were generated with a range of activities to be developed during the different stages of the project, these will have compliance indicators that will be defined taking into account each one of them counts. For the definition of the indicators, lines established in the Equator Principles, IFC and FSC Standards will be taken into account.

The company has developed verifiable measurement instruments for the implementation of constant socio-environmental monitoring and control activities of the process. Minutes of meetings, report of specific activities of each program, field visit reports, among others.

Spaces will be established for the review of the indicators by Paracel (Social Team/Management of Communication and Social Sustainability) to ensure the correct execution and implementation of corrective actions as necessary. Each of these spaces will be formally registered, which may be in meetings and/or visits to the territory on a regular basis, keeping a systematic record of the actions. Likewise, interviews, focus groups, workshops, etc. may be carried out with the affected persons to obtain complementary information based on each mentioned indicator.

The monitoring tools may contain the following lines:

- Detailed information on the progress in the implementation of the programmed activities.
- Quantitative data on the results obtained.
- Qualitative information at the results level.
- If any, information on challenges/problems encountered during implementation, which delayed or could delay implementation.
- Proposals to solve problems/challenges.
- Sources of verification.

The information will be processed based on the following aspects:

- Detailed information on the progress in the implementation of the programmed activities
- Quantitative data on the results obtained
- Qualitative information at the results level
- If any, information on challenges/problems encountered during implementation, which delayed or could delay implementation
- Proposals to solve problems/challenges

- Sources of verification

Information will be processed according to the following aspects:

Mitigation measure /Indicator	Goal	Means of Verification	Made in the period	Accumulated
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Example of indicators to be defined by each program (Period: semester)

- Construction of a database with identification of interest groups and the number of biannual updates.
- Number of people in the community who have received some type of information about the project and the total population in the community.
- Number of people summoned to the activities compared to the number of people attending the activities.
- Number of concerns, complaints and/or claims received (define period) given the number of responses granted and number of cases resolved.
- Number of activities programmed in the communication project for participation/number of activities actually carried out.

Sub component

Monitoring the social perception

- For the development of the monitoring, the baseline studies carried out will be taken into account, both with regard to the socioeconomic characteristics of the project's areas of influence (secondary and primary sources); as well as the results of the work to survey the social perception in the territory, districts and communities, and the changes perceived by the population with the implementation of the project; for which the same techniques of the first approach to the population may be used.
- Regarding methodological aspects, participatory spaces can be generated with key institutional actors (government, municipal, business associations, NGOs); as community members who share their perception already in a stage of progress of the project, this both individually and in groups. The results of these studies may anticipate possible negative perceptions, and thus promote mitigation and/or contingency measures.
- All the resulting information will also serve as input for dissemination and communication programs, prevention and management of social contingencies, consequently; as well as eventual updates to these, in order to adapt them as the project progresses.
- All the resulting information will also serve as input for the dissemination and communication programs, for the prevention and management of social contingencies accordingly.

Complementary programs/measures

The following complementary measures apply for this Program:

- Community relations and local development program
- Dissemination and communication program
- Program for the reception and management of complaints, claims and concerns

- Awareness program to monitor contractors and workers on compliance with regulations

7.2.13. Social Contingency Prevention and Management Program

Stage: *Construction and Operation*

Objective: To prevent and give a prompt response to social contingencies in the constructive and operational stage of the undertaking.

Measures/Guidelines

In the face of an environmental or social contingency, the communication route to be used by Paracel personnel, contractors or a person outside the company, must follow the procedures described in the environmental contingency program in order to unify the procedure and the communication.

As the guidelines were presented in item 6.5 of risk analysis, the relevant ones are listed below, to be considered:

- Effects on communication programs and permanent community support are minimized.
- In the event of demonstrations by the community and/or third parties, Paracel spokespersons authorized to mediate must also be established.
- Risks related to road safety or increased discomfort and uneasiness could lead to “VERY HIGH RISK”. In the event of a fatality, specific protocols must be provided for that situation. Paracel foresees high safety standards, and these will be extrapolated to all activities that generate HIGH risk to the surrounding community.
- Through specific protocols with suppliers and/or carriers, which, in the event of accidents, must be communicated immediately to Paracel; and through the company, direct contacts with the families of those affected.

Paracel must establish specific spokespersons in the event that prompt communication with those affected is required, in the event of any social contingencies that may arise. These must be registered in the Complaints and Claims Attention Program, and monitored until their resolution.

Complementary programs/measures

The following complementary measures apply for this Program:

- Community relations and local development program
- Dissemination and communication program
- Program for the reception and management of complaints, claims and concerns
- Awareness program to monitor contractors and workers on compliance with regulations

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