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PARAGUAY

MODERNIZATION PROJECT OF THE WATER AND SANITATION SECTOR

Ministry of Public Works and Communications	Secretariat of the Environment	National Environmental Sanitation Service	Sanitary Services Company of Paraguay	Regulator of Sanitary Services of Paraguay

TECHNICAL AND FINANCIAL SUPPORT

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT (IBRD)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

Version to January 5, 2009

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A. INTRODUCTION

Environmental and Social Management Framework (ESMF)

1. It is a set of measures and procedures to manage risks and possible impacts of environmental and social issues generated by the works of the Program. It has been prepared to have an instrument to ensure adequate environmental and social management during the implementation of the Project. This instrument is designed to comply with three essential objectives: (i) ensure the socio-environmental sustainability of the subprojects financed with Project resources; (ii) comply with national environmental legislation; and (iii) comply with the Environmental and Social Safeguard Policies of the World Bank.

2. Basically the ESMF presents a legal and institutional diagnosis related to the socio-environmental issue and, based on it, proposes management methodologies, instruments and procedures to ensure the environmental and social sustainability of the subprojects to be financed with MPWSS resources.

3. This instrument has been designed for use and application by the institutions in charge of investment subprojects (SENASA and ESSAP), whereby this instrument has been formally adopted by said institutions for the entire project cycle. In this regard, it will be necessary for this instrument to be made known by means of a training process for the employees of these institutions so that it will be taken into account during the preparation of the specific subprojects.

4. The ESMF has been developed by ESSAP and SENASA during the preparation stage of the Project with the support and technical assistance of the World Bank. In compliance with the Bank's communication and dissemination policy, as of June 2007 the draft document was presented in several arenas to the main actors involved in the Project. Likewise, as of April 2008 the instrument has been published on the web pages of SENASA and ESSAP, as well as on the INFOSHOP of the Bank as of May 2008.

5. The ESMF is made up of the Terms of Reference of the Integral Environmental Impact Assessment (TORs of the IEIA), and its Annexes, the Annex of the Involuntary Resettlement and Acquisition of Property Policy Framework (IRAPPF), and Annex of the Indigenous Peoples Management Framework (IPMF).

ESMF Objective

6. The general objective of the Environmental and Social Management Framework is to have a management instrument which defines, based on a legal and institutional diagnosis, methodologies, instruments and procedures enabling assurance of adequate socio-environmental management during the implementation of the Project. The specific objectives of the ESMF are as follows:

i. Perform a diagnosis of the rules, laws and regulations that need to be taken into account within the socio-environmental issue, and identify the institutions that will be involved in the Project;

ii. Develop an easy and efficient methodology for the categorization of the subprojects in terms of the level of socio-environmental risk, in order to identify the studies required to comply with national environmental legislation and with the Bank's Safeguard Policies;

iii. Design a series of internal use instruments that must be developed in each stage of the project cycle, in order to ensure the incorporation of environmental-social variables along the project cycle;

iv. Identify responsibilities and define socio-environmental procedures that must be applied along the project cycle, in order to ensure an adequate management during execution of the works; and

v. Develop a Plan to Strengthen Environmental Management which identifies a series enabling improvement of activities contributing to the improvement of the environmental and social technical capacity to benefit the sector and improve the quality of the subprojects.

vi. This instrument was prepared with the principle of flexibility to enable the adoption of new needs that arise from the consultations and the subprojects that the Project will finance.

Scope of the ESMF

7. The ESMF has been designed for use and application of the institutions responsible for the execution of the works (ESSAP and SENASA). The development of a series of activities for the promotion and dissemination of this instrument has been envisaged in order to ensure its use and application along the project cycle.

8. The document is divided into 8 chapters, 37 sections and 13 Annexes.

B. PROGRAM (PROJECT) DESCRIPTION

9. The Modernization Program of the Water and Sanitation Sector (MPWSS) is an initiative of the Government of Paraguay, that continues to be prepared with the technical support of the Sanitary Services Company of Paraguay (ESSAP), the state-owned company providing water and sanitation; the National Environmental Health Service (SENASA), the technical assistance agency for provision of water and sanitation in rural areas; the Sanitary Services Regulator (ERSSAN), the National Secretariat of the Environment (SEAM), and the Ministry of Public Works (MOPC) that assist the Service Holder in the compliance of its functions. The Project's financial resources will be provided by the International Bank for Reconstruction and Development (IBRD) and the Government of the Republic of Paraguay (GoRP).

Objectives of the Project

10. The general objective of the Project is to contribute to the improvement of health and the quality of life of the population through the expansion of the coverage of drinking water and sanitation services, the consolidation of the legal and institutional framework, and the improvement of institutional efficiency.

11. Specific objectives are: a) substantially increase access to water and sanitation services; b) improve the quality and efficiency of water and sanitation services; c) improve the population's practice of hygiene; and d) increase transparency, governance and sustainability in the provision of water and sanitation services.

Components of the Project

12. The proposed operation is being structured with the Adaptable Program Loan (APL)[1] modality as the framework for Bank support to the Government's reform program for the sector. The Project intends to develop the following main components and activities:

13. **Component 1: Support to the Modernization of the Sector.** This component aims at supporting the following actions: Design and creation of several Service Units within ESSAP; Strengthening of ERSSAN; Modernization of SENASA; Development of a Financial Policy for the sector, including social considerations to promote services among the poorest populations; Implementation of a Corporate Governance strategy to improve the sector's governance and transparency; and Implementation of the recommendations of the Integral or Strategic Environmental Impact Assessment, to be financed with Project resources, in order to improve environmental regulations affecting the sector. The financing of additional communication campaigns, social and strategic communication activities, technical assistance and capacity-building activities have been envisaged in this component.

14. **Component 2: Water Supply and Sanitation in the Urban Area.** This component will finance urgent investments for the expansion of the water supply and sewer systems; rehabilitation of the existing infrastructure; and strengthening of operational and commercial

[1] Adaptable Loan Program

management through the creation of ESSAP Service Units, including equipment. A significant investment is planned in these areas given the poor coverage of the existing sewer system in Asunción and its Metropolitan area, directly affecting the poorest population. Specific objectives are:

- Improve the drinking water service in the Metropolitan Area of Asunción and cities in the interior of the country
- Expand sewer system coverage in the Metropolitan Area of Asunción
- Increase proper disposal of the sewage collected by the network
- Improve the commercial management of ESSAP.

15. **Component 3: Sustainable water and sanitation services; and education in hygiene for rural areas [2].** This component plans to enhance the experience gained in the Fourth Rural Water and Sanitation Project with support of the Bank. This component expects to increase coverage, improve the quality of the water and sanitation services in rural areas and contribute to the improvement of health in rural areas, including indigenous communities. The following activities have been planned:

- Promotion, design, construction and inspection of drinking water systems in rural villages, including scattered populations; and indigenous populations;
- Promotion, design, construction and inspection of Basic Sanitation Units, including ventilated latrines in indigenous communities; and
- Support to the Program "Clean Hands".

[2] Bear in mind the differences in the definition of "rural and urban areas": The National Statistics Agency (National Directorate of Statistics, Surveys and Censuses - DGEEC), defines urban areas as the cities, the heads of official districts, that have streets, electricity, public facilities and others; and rural areas are those that are not urban. As to the provision of water services, urban centers in Paraguay are defined as those with a population of over 10,000 inhabitants. Rural areas are small cities with a population of less than 10,000 inhabitants. Due to this difference in the definition of urban and rural, some works of the Rural Component will be developed in urban areas, solely for purposes of the definition of the DGEEC; in all cases the population to serve under this Component will be up to 10,000 inhabitants.

C. PROJECT WORKS AND ENVIRONMENTAL AND SOCIAL SAFEGUARD POLICIES OF THE WORLD BANK

16. **The general diagnosis of the situation of the sector, included in the survey of the environmental and social situation in relation to the necessary investments, indicates the following results:**

17. **The Project was defined as sectoral and programmatic, encompassing investments in urban and rural works for the provision of drinking water and sanitation.** The types of works will include new construction, expansion and maintenance. Urban works are mostly on large scale and with major environmental and social impacts, both positive and negative. Rural works for Indigenous Peoples are mostly minor with more positive than negative environmental and social impacts.

18. **The gamut of urban and rural subprojects that were revised, initially include:**

Drinking Water Provision

a) Exploitation of surface sources (more than 500m3/h)
b) Adductors in non-intervened areas (more than 300 mm)
c) Adductors and primary network (more than 500 mm)
d) Exploitation of surface sources (less than 500 m3/h)
e) Water Purification Plant
f) Adductors and primary network (less than 500 mm)
g) Exploitation of underground sources
h) Exploitation of rainwater
i) Storage tanks
j) Secondary Network
k) Connections

Sanitation

a) Subaqueous outfall without treatment
b) Treatment plant (more than 20,000 m3/day)
c) Treatment plant (less than 20.000 m3/day)
d) Pump Station
e) Primary Network
f) Secondary Network
g) Connections

Environmental and Social Safeguard Policies of the World Bank Initially Activated for the Project

19. **The Project Preparation Team of the Bank performed a rapid analysis to determine the nature and magnitude of the possible environmental and social impacts of the works that the Project would finance, and agreed with the GoRP on the application of the Bank's Safeguard Policies.** In the agreement: i) emphasis was given to convey that these safeguard policies aim at fostering sustainable development in environmental and social terms, while ensuring that the activities and the works of the Project do not harm persons or the environment; ii) the GoRP was informed that the Project has been categorized as "A" due to the nature and magnitude of the potential impact of the sanitation works on the environment and persons; iii) agreement was reached between the GoRP and the Bank on their responsibilities. Project Executors are in charge of performing the assessments established in the Safeguard Policies with the guidance of the Bank's team; and the Bank is in charge of fully enforcing these Policies.

20. **Summary of the application of the Environmental and Social Safeguard Policies initially identified for the Project, including the public dissemination policy which is crosscutting, is as follows**:

Table 1. World Bank Safeguard Policies Activated for the Project

World Bank Policies	Scenarios Activated by the Policies and the Requirements	Modernization Project of the Water and Sanitation Sector
Environmental Assessment: OP 4.01	Projects in which temporal or permanent affectation on the natural or social environment, whether rural or urban, with direct, indirect or cumulative impacts, is envisaged. The depth of the analysis depends on the degree of environmental risk. The following types of studies may be requested, among others: **Environmental Impact Assessment (EIA), Regional or Sectoral Environmental Assessments (REA or SEA), Environmental Assessment of Alternatives (EAA)**, among others.	**Activated.** The execution of urban sanitary sewerage works can generate environmental-social impacts that will be prevented, mitigated and/or compensated by means of adequate management. To comply with this Policy the following were drafted: i) this Environmental and Social Management Framework (ESMF), and the Terms of Reference of the Environmental Impact Assessment (EIA) and other specific ones stemming from it for the areas of influence of major urban works.
Natural Habitats: OP 4.04	When an environmental protection area, i.e. an area that is considered fragile or critical from the environmental perspective, is located in the direct or indirect area of influence of a project, complementary assessments in accordance with the needs of each area to be affected will be required, as for example a **Protected or Sensitive Area Management Plan (PMAP), Carrying Capacity Assessments (CCA)**, among others.	**Improbable Activation.** Situation to be defined with the IEIA of the area of influence of major urban works.

World Bank Policies	Scenarios Activated by the Policies and the Requirements	Modernization Project of the Water and Sanitation Sector
Involuntary Resettlement: OP 4.12	Those cases in which a plot of land from which a family earns its livelihood or a house where a family lives and which might partially or totally lose said plot of land or house due to the execution of the works,. An **Involuntary Resettlement Plan (IRP)** will be required following the Bank's guidelines and its extent depends on the number of affected persons. In cases in which less than 200 families are affected, an **Abbreviated Involuntary Resettlement Plan (AIRP)** may be implemented following the Bank's guidelines.	**Activated.** The execution of the sanitation works, especially in urban areas, although it is unlikely that they would generate involuntary deprivation of lands that implies their loss, the loss of assets or other situations of the like, it is probable that the lands of at least one of the effluent treatment systems requires temporary use, acquisition or another arrangement of property for the localization. Hence, an Involuntary Resettlement Policy Framework (IRPF) was prepared as integral part of the ESMF, taking different situations into consideration, including property acquisition policies.
Indigenous Peoples: OP/BP 4.10	When works are executed in an area recognized as an indigenous area, whether these vulnerable groups are affected positively or negatively. In these cases usually an **Indigenous Peoples Plan (IPP)** is required, following the Bank's guidelines.	**Activated.** In the component of Rural Works, Indigenous Peoples will be assisted following the cumulative experience of the two Projects supported by the Bank in the country for this segment. Therefore, as part of this ESMF, an Indigenous Peoples Management Framework (IPMF) was drafted in order to have an instrument enabling adequate and respectful treatment to the culture of these communities.
Projects Relating to International Waterways OP/BP 7.50	Riverside states of the sanitation works to be carried out in the Great Asunción will be notified.	**Activated.** The execution of the works of effluent treatment systems involves the River Paraguay, part of the Basin of the River Plate. Therefore, actions as a result of this Policy are already underway. The concept of the Project and its main components were notified to riverside countries: Argentina, Uruguay, Brazil and Bolivia; as well as to the Committee of the River Plate Basin. The notification will continue to the extent in which the Project continues to advance, including the immediate delivery of this ESMF.
Cultural Heritage: OPN 11.03	This policy is triggered in those projects which involve movement of earth in areas of known potential archaeological and/or cultural or physical wealth. Research, salvage and procedures for chance findings are the most common requirements. A **Cultural and Physical Heritage Protection Plan (CPHPP)** needs to be included in the respective Program for the Environment.	**Improbable Activation.** Situation that will be defined with the IEIA of the area of influence of the major urban works.
Public	The development of an adequate communication	This ESMF, the TORs of the IEIA, the

World Bank Policies	Scenarios Activated by the Policies and the Requirements	Modernization Project of the Water and Sanitation Sector
Disclosure: BP 17.50	and public disclosure strategy will be required, especially for those high risk environmental and social projects required an EIA, IRP or IPP.	IRPF and the IPMF have a Communication and Consultation Strategy, the execution of which began in April 2008 and will continue along the entire project cycle.

D. GENERAL ASSESSMENT OF THE ENVIRONMENTAL AND SOCIAL SITUATION

Methodology and Sources of the General Environmental and Social Assessment

21. **The analysis was based on the revision of the materials of secondary sources, interviews, meetings with stakeholders, field visits, and ex post evaluations in the case of indigenous and non-indigenous rural interventions.** The Bank's Project Team, together with civil servants of the government, carried out several field visits in the different possible areas of the works: i) covering the navigation along the River Paraguay for on-site observation of the conditions of the existing sewage discharges and their environmental impact on the receiving body of water, and confirmation of the environmental management approach of the possible urban works; ii) meetings with different communities in relation to rural works, including indigenous ones, and the Implementation Completion Report (ICR)[3]. Additionally, Ex Post Assessments are among the main sources of the Environmental and Social Assessment of the rural works. This assessment will be complemented with specific studies in the framework of the Integral Environmental Impact Assessment and the Subprojects.

Summary of the Results of the General Environmental and Social Assessment

22. **These results are strengthened per areas of influence of the major urban works, and will be complemented with the specific studies required, as envisaged in the TORs of the IEIA. The most salient aspects are:**

i. The Paraguayan territory is divided into two great well-differentiated regions, the Eastern and the Western, and this difference has water supply implications.
ii. Contamination of waters in Paraguay is almost entirely anthropogenic, and in two areas of the country, the contamination of waterways is important: i) the sub-basin of Asunción, and ii) Lake Ypacarai.
iii. To a great extent underground water is used for public water supply, especially in rural populations.
iv. Regarding diversity and gender, there is a multiplicity of excluded groups in Paraguay with scarce access to basic services, in particular water and health, and which add to the poor health indicators. This is a common need for in urban and rural areas of the Chaco and the Eastern Region; however, areas and social groups need to be

[3] *ICR: Information Completion Report*

prioritized given the limited resources. This is also justified an urban works component and a rural works component, including indigenous communities, in the Project.

v. In the water and sanitation coverage of almost 36 % in rural areas, SENASA ha has assisted communities of less than 10,000 inhabitants since 1978 with 4 Projects supported by the World Bank, of which 496 rural water systems were in the framework of IBRD IV, benefiting 264,179 persons. The ex post evaluation provided positive lessons learnt and aspects to be improved.

vi. In the total water coverage of the country's 412 indigenous communities, 125 have been assisted by SENASA as of 1998[4], benefiting about 27,600 persons, in this way contributing to a coverage of 24% of this population; their ex post evaluation also provided positive lessons learnt and aspects to be improved.

vii. The level of participation of the approximately 3000 Sanitation Boards that have been set up over the last 30 years and which are on the rise, is an example of social capital for basic water and sanitation provision in rural communities and a very relevant asset for the Project.

viii. The preparation of the Project, as it is sectoral and involves many more actors, is being carried out participatively among the sectoral actors that contributed to the preparation of the Communication and Social Participation Framework of the Project (CSPF)

ix. Of the gamut of risks at the country level that might deteriorate the Project, those that acquire special importance are a) political, the Project must be approved by several bodies of the Executive to conclude with its approval by the Legislature; and b) the budding culture of transparency, accountability and the persistence of public corruption are issues that have an impact on public opinion that is still not in favor of government initiatives. The Project prepared a Good Governance Plan for the sector that includes these aspects.

x. The Project's main institutional risks are divided into three groups that include paying attention to probable interagency lack of coordination of the 5 executor agencies as well as with the other public actors, including local governments. The Project addressed this issue in the Component of Institutional Strengthening and the Good Governance Plan of the Project.

xi. The scarce enforcement of environmental and social legislation (in relation to social safeguards), although solid in general, poses important challenges vis-à-vis the country's reality and institutional capacity, for example unreachable standards such as the uniform categorization of waterways, the uniform licensing process without consideration for the scale of the project. The Project envisages supporting the strengthening of the environmental sector, including legislation and its enforcement.

xii. Important gaps in the legislation on involuntary resettlement and expropriation; however, there are solid regulations for the purchase of property and rights on land use. These points are addressed in the Involuntary Resettlement and Acquisition of Property Policy Framework of the Project.

xiii. Regarding specific legal provisions for the indigenous communities, although they are solid, they are scarcely complied with due to the limited institutional capacity of the agency in charge of their enforcement. For example, the national legislation envisages concrete procedures to recognize, assign and register - free of charge,

[4] This assistance took place in the framework of IBRD Project III and IV (104) and IDB (11).

undivided and tax-free - all lands traditionally occupied by indigenous communities with legal personality; however, almost 50 % of the total indigenous population has no land of its own.

See the extended version of the General Environmental and Social Assessment in the* Annex*, and also the more specific environmental and social assessments per area of influence and scale of the works of the Project in sections 89 and 90.

General Environmental Assessment

23. **The Paraguayan territory is 406,752 km^2 belonging entirely to the great basin formed by the River Paraguay and Paraná. The River Paraguay divides the country into two natural well-differentiated regions: the Eastern that comprises 40% of the country's total surface area, and the Western, also called the Chaco, covers the remaining 60%** The Eastern Region differs from the Western Region in terms of the quality of its soil, vegetation, amount of rainfall, possibilities of obtaining surface water, climate and orography, among others.

24. **The Chaco** is made up of plains covered with pastureland, swamps and scrubland; its source of water is mostly rainfall as the rivers and underground waters have a high salt content. There are isolated hills that do not belong to any system in this region. In this region the deficit of rainfall and high temperatures are very serious, leading to the drying-up of ponds and *tajamares* (artificially built ponds), and pasturelands.

25. **The Eastern Region** presents two kinds of soil and drainage that have implications for agriculture and livestock; the terrain of the River Paraguay has many drainage complications and relatively poor soil, and is used mostly for mixed cattle rearing. The terrain of the River Paraná is undulated and has red soil (lateritc-nitrosols) which is well-suited for agricultural production, but very exposed to the degradation of its ecosystem. Well-drilling for use as a drinking water source is a widespread practice in the country's Eastern Region. Likewise, this region presents mountain ranges that belong structurally to the Brazilian massif, for example to the east of the River Paraguay there is a main mountainous system to which the mountains of Amambay, Mbaracayú, Caaguazú e Ibytyruzú and Villarrica belong. Deficit of rainfall and the subsequent reduction in the levels and volumes of flow of the rivers and streams, as well as the scarce humidity of the soil and high temperatures, take place regularly from July to October in this region.

26. **The country is landlocked, but communicates with the Atlantic Ocean through its two main rivers: the River Paraguay and the River Paraná**. Geographically the national territory is at the center of the Plata Basin**.** The River Paraguay is the most important river for the country extending over 2600 kilometers and allows navigation almost along its entire course, its mean width is 500 meters and its depth is 5 meters. The River Paraná is 4500 kilometers long and shares only 830 kilometers with Brazil and Argentina. Its width is variable between 1500 meters and 4000 meters. Its depth is also very variable, depending on the area it can fluctuate between 5 and 150 meters, therefore is navigable almost along its entire course.

27. **The origin of contamination of the waters of Paraguay is almost entirely anthropogenic, and in two areas of the country, the contamination of the waterways is significant:** i) the sub-basin of Asunción, and ii) Lake Ypacarai. These sub-basins receive great quantities of organic matter and nutrients mostly stemming from agro-industrial and household activities. There are studies on the quality of water of the River Paraguay; the last was carried out between 2004 and 2006.[5]

28. **To a great extent underground water is used for public water supply, whether as a supplement for the great urban centers or to help meet total need in rural populations.** In general, regarding drinking water, Asunción extracts water from the River Paraguay and to a lesser extent from the Patiño Aquifer. The Metropolitan Area, outside Asunción, is served by the Patiño Aquifer, and the rural sector obtains its drinking water mainly from the aquifers and secondarily from the rivers. It is estimated that 50% of the water from the Patiño aquifer is drinking water and the remaining 50% has industrial and urban contamination[6].

29. **In general springs, wetlands and territories associated with water production are not well protected in Paraguay. However, Paraguay has Ecologically Fragile Areas (EFA) that will require a special environmental impact assessment if included in the areas of influence of the Project.** Paraguay has about 14 types of sensitive or fragile areas which include national parks, national wildlife reserves, rainforests, biological and forest reserves, among others, with archaeological, architectonic, scientific or cultural resources considered as official heritage by the State[7]. Among the Protected Areas, Paraguay has a National System of Wildlife Areas (SINASIP, acronyms in Spanish). Most of ones that are already protected (about 24) are in the Eastern Region, in ten departments with surface areas ranging from 30 (Natural Forest Reserve, Central Department) to 78,000 km (National San Rafael Park in Caazapá)[8]

30. **Floods in Paraguay have acquired more importance in urban areas since 1970.** As of that year soil occupation processes have intensified because of the floodable plains of rivers and banks.

31. **Droughts. The low water levels at riverside cities and interior water courses bring waste to the banks of the rivers and streams, leaving an extensive layer of garbage in the open which, under the sun, release fetid odors resulting from their decomposition.** The waters of these coasts, as well as producing a reduction in the movement of goods and persons and the rise in freight costs, are not suited for recreation due to their high proportion of fecal coliforms. The prolonged drought, the heat and the burning of pasture, in conjunction with strong winds that spread the flames, cause forest fires in reserves and commercial facilities. As the swamps, ponds and rivers are almost dry, wildlife is forced to migrate or perish. Fish (*tarey'i, doradillos*), *capybaras* (great South American rodents), *yacarés* (alligators) and herons are among the species that are most affected by the lack of water.

[5] Conclusions of the studies performed between 2004 and 2006, under the coordination of Dr. Hideo Kuwait, JICA expert.
[6] SENASA
[7] Law 946 on Historical and Cultural Heritage.
[8] Source: Secretariat of the Environment

General Social Assessment

32. **Diversity and Gender. There is a multiplicity of excluded groups in Paraguay who have scarce access to basic services, among which is infrastructure, and especially of water and health, which contributes to the poor health indicators.** Paraguay is a relatively homogenous country in terms of its ethnic and religious makeup, but the exclusion of people living in rural areas is evident, for example of those who speak *jopará* (a combination of Spanish and Guaraní) which is a criterion attached to a social class, although it is not a source of conflict, lifts barriers to the access to basic services and social mobility.

33. **This situation is consistent with the analysis of the socioeconomic indicators of the country's general population that make it one of the poorest of Latin America, with great income inequality[9], scarce access to basic infrastructure services and poor health indicators.** Water and sanitation are a constant and growing demand in Paraguay due to the high population growth rate (2.4 % per year), which is all the more pressing due to the accelerated rural exodus to the areas surrounding urban centers. As in most countries, there is an increasing proportion of poor who lack access to water and sanitation services. Therefore, in spite of its recent economic growth, it is unlikely that Paraguay will reach most of the Millennium Development Goals (MDGs) by 2015 unless it accelerates the pace of social development, for example improving the child morbidity and mortality associated to water-transmitted diseases that is above the regional mean[10]. Also, 78.3% of the country's total population (4,571,415 persons) does not have health insurance. In the urban area 69.1% of the population (2,339,538 persons) does not have health insurance while in the rural area this percentage rises to 91% (2,231,877 persons).

34. **The main social groups deserving special attention are:**

i. **Rural Poor. Paraguay has one of the highest indices of people living in rural areas of the region, slightly more than 48%, which suffers the highest incidence of poverty**. There are approximately 300,000 landless peasants[11] among the rural poor (2) and small producers with less than 5 has. represent 40% of landowners[12].

ii. **Precarious Urban Settlements (the *Sin Techo*)**. It is estimated that in the Metropolitan Area of Asunción alone there are 150,000 persons without a roof over their heads, grouped into 78 settlements. The average of persons per household is 4.7 at the national level.

[9] The Gini Coefficient of income distribution is 0.506 at the country level, and the department with the highest index is Itapúa with 0.587 and the one with the lowest is Cordillera with 0.441.

[10] Rates of child morbidity and mortality associated with water-transmitted diseases are X and Y, and the regional means are X and Y, respectively.

[11] Paraguay has one of the most biased land ownership pattern in the world – 2% of agricultural establishments (about 6,400 farms) occupying 82% of the agriculturally-exploited land. Nevertheless, the inequality in land ownership is obvious and has become one of the most important causes of rural social unrest. The Gini index of land concentration was calculated by FAO at 0.93 for Paraguay, the highest in the world.

[12] In the economic structure of the country, the tertiary sector, is the most important one representing in 2005 56.1% of the GDP, followed by the primary sector (25.5%) and lastly the secondary sector (18.5%). The sector that employs most people in the country is the tertiary sector in which 50.8% works (1,280,307 persons), followed by the primary sector with 33.6% (847,161 persons) and the secondary sector with 15.6% (394,618 persons).

iii. **Women. There are almost as many women as men in the country, and although the law envisages individual and family equal rights, their compliance still presents challenges, specially for the women of poorer homes and of rural areas and women with low income and low educational levels.** Violence against women, especially domestic abuse and labor and political discrimination are still important challenges for the country. The participation of women in the economy of Paraguay (0.63) is under the average of the countries of low-medium income (0.65) and the world average (0.70). 1 of every 5 women employed in urban areas works in domestic service (totaling about 122,000) (7). Even though 72% of the country has male heads of household, the capital city of Asunción has the greatest percentage of homes with women heads, i.e. 37.3% (48,179 homes). In the rural areas homes with women heads of homes represent 20.5% (110,168 homes)

iv. **Marginalized Youth and Childhood. Two of every three Paraguayans that are under 30 years of ages do not find formal employment and 36% of the population is under 15 years of age, of which many might be exploited by adults.** The Paraguayan young who do not find employment represent 22.5% of the economically active population (EAP). Young persons between 15 and 29 years of age do not receive adequate training to get a job. Informal work or underemployment, a resource to which many are forced to turn to, especially Paraguayan minors, is 30% of the EAP[13]. There are minor works detached from their families, possible exploited by other adults and many of them do not have documents. Simultaneously in the radius of Asunción and its metropolitan area there were 11,000 "*criadas*" (young maids) under the age of 14 who received only lodging and food. 7 of every 10 children between 5 and 9 years of age do not have a *cédula* (identity card) (6 of every 10 in the urban area and 9 of every 10 in rural areas).

v. **Indigenous Populations. Of slightly more than 87,000 persons who identify themselves as indigenous, 73% is under 29, and 5 of every 10 children are under 15[14], with a growth rate of 3,9%, only 2.5 % have access to water.** 18% of the indigenous peoples living in urban areas access water, while only 1.3% of indigenous peoples living in rural areas have access to water[15].

35. **In the total coverage of water, of 412 indigenous communities, 125 have been assisted by SENASA since 1998[16], benefiting about 27,600 persons, contributing in this way to a coverage of 24% of the country's total indigenous population, and 50 communities, reaching a sanitation coverage of 9%.** The main lessons learned from the assistance provided by IBRD IV are provided by the assessment made by the indigenous communities, with positive aspects and others that need to be improved.

[13] Source: Extracted from Social and Economic Development Options for the 2008-2013 Period, Policy Note No. 14, Gacitúa and Sánchez Martínez: (1) DGEEC, 2003; (2) Riquelme, 2003; (3) Alderete, 2006, World Bank, 2007, Molinas, 2000; (4) Housing Council (CONAVI, acronyms in Spanish), 2006; (5) (6) ILO; (7) Tribunal of Electoral Justice; (8) DGEEC, 2002, (9) Integrated Home Survey 2000/1, (10) UNDP, 2007, (11) Technical Planning Secretariat

[14] HR Report, UNDP 2007.

15 2002 Second National Indigenous Census of Population and Houses, Indigenous Peoples of Paraguay. Final Results, DGEEC, 2003:30.

[16] This assistance was provided in the framework of IBRD Projects III and IV (104) and IDB (11).

36. **The positive aspects include: i)** indigenous interlocutors were open and cooperative to the possibility of having water in their settlements; **ii)** el access to water, its availability all year round, in a sufficient volume, contributed to the wellbeing, especially of women, children and older persons. Other than its use for food, it freed them of the chore of carrying water, often times from distant places, it made washing of clothes easier without too much displacement, it favored school activity, especially in the Western Region, it generated some changes in hygiene habits, and the perception that water provided by the systems is less turbid and of higher quality; **iii)** numerous families showed interest in latrines; **iv)** broad institutional will to serve the benefited communities adequately, initiating an organizational improvement at the internal level (with technical experts near the communities) and seeking articulation with other entities of the region to provide the best service.

37. **Aspects to be improved are mainly**: i) insufficient knowledge on the selection criteria of the communities to be assisted; ii) insufficient consideration of the geospatial location of the communities and their different expectations as to water, those living near water value it differently to those who do not; iii) ownership of land, also as a criterion of attention for indigenous communities; iv) insufficient human resources trained in the cultural management of indigenous peoples; v) scarce intervention time for adequate buy-in, not only technical but cultural too, of the diligences according to the type of system installed; vi) inadequate training on the content as well as on the time opportunity; vii) prolonged "silences or pauses" in some stages of Project execution that were attributed to SENASA, often times due to lack of knowledge of its relationship with the organizations contracted for the service; viii) insufficient strengthening of alliances with indigenous interlocutors with greater capabilities and skills. ***See more on the indigenous communities in Paraguay, and on the lessons learned from the assistance provided to them by SENASA in the Indigenous Peoples Management Framework,*** Annex 3**.**

38. **Lack of access to water and sanitation is a common need both in the Chaco and the Eastern Region, in urban and rural areas; however, given limited resources, there are areas and social groups that need to be prioritized.** As well as the demographic and social indicators of vulnerable groups, in terms of water and sanitation, other variables need to be considered as well, such as the region in which these persons live, as there as great differences between the two regions of the country. The Chaco has slightly more than 2% of the population although it represents two thirds of the country's territory, among which almost 50% of the country's indigenous population (about 50,000). Average density is 14.5 persons per km2; while in the Eastern Region there are 705.5 persons per km2 in the Central Department, and only 0.2% lives in Alto Paraguay but it represents 20.2% of the surface area.

39. **Among the Unmet Basic Needs (UBNs), the main one is access to sanitary infrastructure.** Of the national total of homes, 51.8% (574,116 homes) register at least one UBN. Coverage in the urban area is 80.6% and 35.15% in rural areas. 87.9% of houses have access to an improved source[17] of drinking water.

[17] Population with access to improved water source, expressed as the percentage of the respective total population. It is defined as access to a source of improved water due to water supply through ESSAP/SENASA, private network, public tap, artesian well, well with pump and well without pump (50%) for rural communities, and through ESSAP/SENASA and Private Network for urban communities. The criterion is based on the "WHO/UNICEF Joint Monitoring Program for Water Supply and Sanitation Policies and Procedures. Version 4 April 2004", pages 9-10 (extension of 3.2).

40. **With almost 36 % water and sanitation coverage in rural areas, SENASA has assisted communities with a population under 10,000 persons since 1978 with 4 Projects supported by the World Bank totaling 3 condominial sewer systems, 23,250 latrines and 874 water systems, of which 496 in the framework of IBRD IV, benefiting 264,179 persons[18].** Upon completion of this Project, an ex post assessment was performed that provided positive lessons and aspects to be improved.

41. **Positive lessons include:** i) substantial improvement of access to water with equity perspective rising from 31.8% in 1999 to 55.9% en el 2005; ii) social capital to improve living conditions is notable in communities with relatively mature organizations, in which the operation of water systems has reinforced their social capital; iii) 496 Sanitation Boards have been established in the meetings of which slightly more than 66% of the users participate; iv) high participation of the Boards of Sanitation Boards (61% of Associations of Sanitation Boards indicated they participate in the meetings of Departmental Associations); v) participation of women on the Boards contributed to the improvement of their quality of life as well as many of them engaging in successful leadership on the Steering Committees. To a great extent relieving women of the chore of carrying water contributed to greater equity, with women taking on more important roles within the community. At least two women are on the Steering Committees of 45 % of the Boards, and in some cases leadership is completely in the hands of women; they accomplish great efficacy in the management of the organizations; iv) users are mostly satisfied and feel owners of the system. They feel responsible for maintenance, although they admit to financial sustainability issues due to groups of members living in extreme poverty; v) payment of rates is high and regular. 97% of users stated they paid regularly for their drinking water consumption. Nevertheless, the payment collection capacity of the Boards diminishes to the extent in which the number of users increases; vi) child morbidity indicators, more linked to basic sanitation, reflect a positive impact on the drinking water supply systems. Cases of diarrhea attributable to SENASA dropped between 2000/2001 and in 2005 by 2.8 %[19]; vii) water treatment is carried out in almost 70% of the systems (basically the use of chlorine for disinfection and purification) [20]; viii) the habits of hygiene and management of excreta in small children has slightly improved; ix) water systems with private participation showed efficacy in three locations of the Lower Chaco, as users who accept the service terms are connected without problems; however, in these cases there is no

[18] Water and Sanitation Systems in IBRD IV

Number	Unit	Benefited Population
496	Water Systems in Rural Communities	264,179
7	Expansions of Existing Water Systems (rural)	7,600
71	Water Systems in Indigenous Communities.	18,180
6	Integrated Water Systems with Private Participation 8 communities.	27,625
3	Sanitary Sewer Systems (Villeta, San Pedro, Hohenau)	25,200
23.250	Sanitary Tiles 23.250 x 5	116,250
33	Expansions and Rehabilitations of Existing Water Systems in indigenous communities.	7,750
21	Improvement of Sources of Water Provision in indigenous communities of the Eastern Region, consisting of the construction of new wells and improvement of existing ones.	4,070
	Creation of 8 Associations of Sanitation Boards in 7 departments of the country; with their respective equipments.	

Source: SENASA. 2008

[19] 3.6% with greater impact in urban areas (4%), in comparison to rural areas (2.8%); part of the impact in urban areas is attributable to ESSAP, since SENASA covers locations, including urban ones, with less than 10,000 inhabitants.

[20] 11% of the systems, rejection to chlorine responds to the perception of users who do not consider that said disinfection is necessary, or because they do not like the taste of water with chlorine.

participation of users in the management. Service production costs vary from location to location; x) in Villeta the condominial sewer system showed good conflict management due to the discharge of effluents[21].

42. **Main aspects to be improved:** i) the selection of communities to be served has not been well-known, in some cases enabling the intervention of external agents; ii) the outsourced management of social promotion and community organization has not been adequate enough. The TORs envisaged little time for promotion (30 minutes per house and location), Social Promotion on isolated topics, training to the Board and other bodies with very limited time (1 day), and the application of what was learnt was not uniform, the contracted firm had an excessive number of locations to serve, insufficient control of SENASA, socioeconomic surveys with imprecise data such as morbidity indicators; iii) engineering designs were not appropriately calculated so in some cases, apparently the hydro-geological freshwater indicators, with adequate volume of flow and quality, were not reached; iv) users do not have complete information on the functioning of the Steering Committees, on the legal framework, mostly of the rules of water consumption and management; v) lack of vision of integrated management of water resources, the water program was not articulated with the Health and Education programs; vi) more than two thirds of users do not have containers to keep water, and during interruption due to disconnection or due to service interruption they drink water from non-controlled sources such as common wells and springs that often times are contaminated; vii) inappropriate waste disposal systems: 65.5% burn their garbage and the other 34.5 % combines waste disposal with dumping their garbage in some nearby place; viii) little preventative maintenance practice leading to service interruption, 40 % of the Boards do not carry it out.

43. **The decreasing levels of social participation in politics and the conditions of the country that continues to experience a transition process that began almost 20 years ago has not impeded the creation of about 3000 Sanitation Boards over the last 30 years in the water and sanitation sector[22], these are an example of social capital as a way to address basic needs, in this case water and sanitation.** These Boards are also examples of community organization, enabling the participation of different actors with scarce economic assets in decisions of public concern, including women (in 45% of the cases one or two women are on the Steering Committee).

44. **Selecting the intervention, classifying intermediary and direct beneficiaries of the Project, and envisaging a transparent participation plan with criteria of equity has been essential given the fact that water and sanitation needs exceed the Project's financial resources and that the Project will intervene in both urban and rural areas.** While five of the public institutions that will execute the Project and other decision-making public bodies and their civil servants are the intermediaries, the actual and potential users were classified into urban, rural and rural poor, poor people served and poor people without service to be defined. In the urban case, the criteria of concentrated population, contamination of sources and status of public health prevailed. The variables that were considered for the geographical and community, indigenous and non-indigenous, included: i) poverty level measured by their

[21] This point must be used only as reference because the system had not been completed when the assessment was performed.

[22] Ex Post Assessment IBRD IV.

income; ii) number of unmet basic needs; iii) health levels related to water and sanitation, iv) access to the service, v) closer distance to access, vi) level of vulnerability (population of mothers heads of household, young persons, indigenous persons, among others). The Operational Manual of the Project will complete the intervention maps with these criteria.

45. **The preparation of the Project is being carried out in a participatory framework that prioritized the intermediate beneficiaries in the urban case and included permanent consultations to the Boards and Associations of Boards in the rural case. These participatory arenas contributed to the establishment of the Communication and Social Participation Framework of the Project (CSPF) that will be used as a guide to follow-up on the process along the entire Project cycle.** The CSPF includes internal and external actors of the sector, the participation modalities and the guiding principles for the Project's development. Hence, the different stakeholders of the Project, in accordance with their levels of involvement, may be i) informed, ii) consulted, iii) make decisions on all or certain aspects, or iv) co-manage activities or the Project. The CSPF includes the analysis of equity of social benefits of the Project, each actor's participation needs along the Project cycle, the strategies and Budget. The opportunities for sustenance (production), wellbeing (consumption) and voice (influence) of the direct beneficiaries will be considered in the participation plan. Physical and financial assets will be identified, as well as the capacities and skills (skills and experiences) and horizontal organizational relationship (between peers, associations or social capital) of human resources in order to classify them.

46. **The principles of participation that will rule the Project and which will be reflected in the Communication Plans, including the Social Safeguard Frameworks of the Project, are:** i) establishment of feasible mechanisms for participation, ii) establishment of participatory mechanisms prepared with basic objectives of transparency, responsibility of delivery of the public service and with anti-corruption approach; iii) promotion of arenas of dialogue based on realistic and objective data, avoiding the creation of expectations that cannot be fulfilled; iv) positive discrimination to the most vulnerable groups such as women, youth, children, older persons and indigenous communities.

Social Risk

Country Risks that Could Deteriorate the Project

47. **Of the gamut of risks at the country level, such as conflict and violence, tension and/or ethnic, religious or political instability, the one that acquires special importance for the Project is political risk.** This is due to the Project needing the approval of several bodies of the Executive to conclude with approval by the Legislature.

48. **The absence of transparency, accountability and corruption are issues in which the country has made advances, but at a slow pace, and public opinion is not yet favorable in several national and international reports on the country's governability which, albeit with slight improvements, have frequently placed it among the last places.** The position of the country in relation to others, albeit with slight improvements over recent years, has been among the last places. This is the case of the reports of Transparency International, the Latinobarometer and Aggregate Governance Indicators, at the macro level or relative positions

between countries of the World Bank. Risks to Political Economics. Capture of benefits, opposition or distortion of the Project by influential actors. The fight against corruption is one of the challenges of the water and sanitation sector of Paraguay. Abuse of power for one's own benefit or the benefit of third parties, in its different forms: administrative or capture of the state, is not exclusive of one sector or another in Paraguay or other countries. However, the sector presents certain characteristics that increase the probabilities of corruption, among which: large scale construction and monopolies, strong participation of the public sector, technical complexity that reduces public transparency and causes the asymmetry of information, high demand for water services that reinforces the position of power of providers and encourages bribery, high frequency of interrelations between providers and consumer fostering discretionary actions. The corruption in the water and sanitation sector adopts different forms, and its scope varies substantially according to the different departments of the sector, the structures of governance, and the perceptions and rules governing participant actors. Typical examples of corruption are: manipulation of meter readings, distorted selection of drilling or water extraction sites, conspiracy and favoritism in public procurement contracts and nepotism in the assignment of public positions. The Project addressed these issues with a Good Governance Strategy of the Sector, Annex 11 of the PAD.

Institutional Risks that Could Obstruct the Good Development of the Project

49. **The main risks at this level are divided into four groups:** i) the existence of environmental and social legislations (regarding social safeguards), in general solid, inspired on laws at the international level, but with little chance of enforcement due to the establishment of uniform categorization of waterways, the process of environmental licensing without consideration of the scale of the Project, such as limited institutional capacity, and in the case of involuntary resettlement, important gaps in the legislation on expropriation; however, there are solid regulations for the acquisition of property and rights on land use; ii) the complexity of the articulation, both at the level of the five executor agencies of the Project as well as of these with other bodies that have a more direct relationship with the Project, among which the subnational governments; iii) the behavior of the sector's institutions, among which the providers, has been incompliance of the legal framework in effect, mainly due to the lack of implementation of the body that is the service holder, has not been strict compliance of its provisions, and iv) the possible trade union tension that may arise in ESSAP due to the transformations that would be taking place.

Environmental Legislation

50. **The diagnosis of legal and institutional aspects related to environmental and social issues of the water and sanitation sector of Paraguay, relevant for the Project, as the basis for the analysis and generation of adequate management methodologies, tools and procedures to ensure the environmental and social sustainability of the Project, encompasses national and international legislation on:** i) the environment, ii) water and sanitation sector, iii) indigenous populations, and iv) lands in general and for indigenous communities in particular. These three aspects have regulations since the 1992 National Constitution was drafted, as well as several laws, in some prior cases prior to said Constitution, Executive Decrees and Resolutions of Sectoral Ministries. Likewise, Paraguay

has ratified several international and regional conventions on environmental and social issues and these have become part of its legal order, taking precedence over the laws.

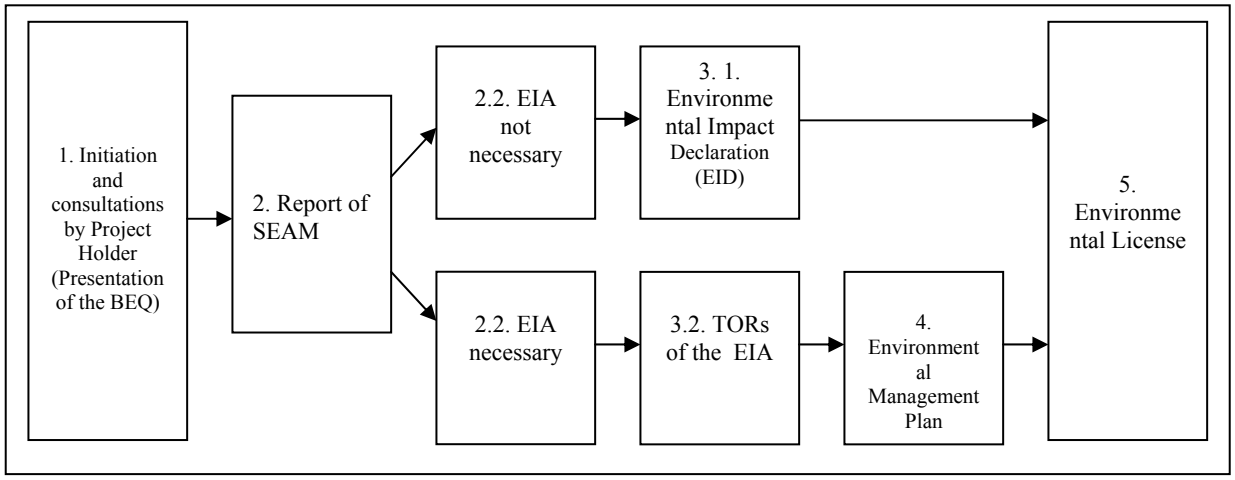
51. **The National Constitution establishes the right of all persons to live in a healthy and ecologically balanced environment.** It mentions that priority objectives of social interest are the preservation, conservation, re-composition and improvement of the environment, as well as its reconciliation with integral human development; and states that these objectives will guide legislation and government policy on natural resources, among which is water.

52. In 1993 a law was enacted establishing the obligation of performing an environmental impact assessment. This generic law addresses all human activities or investment projects altering or destroying elements of the environment or generating waste, toxic or hazardous materials[23]. This law was strengthened with the creation of the National System of the Environment (SISNAM, acronyms in Spanish), the National Environmental Board (CONAM, acronyms in Spanish) and the Secretariat for the Environment (SEAM, acronyms in Spanish) and regulates the Procedures of Environmental Impact Assessments to obtain an Environmental License as of the year 2000.[24]

Environmental Licensing in Accordance with Paraguayan Legislation

53. **In accordance with national legislation, the works of the Project, as well as most of the works, regardless of size or scope, require an Environmental Impact Assessment (EIA) that concludes with the issuance of the environmental license.** The works of the Project are covered by the points on construction and operation of water, sewage and industrial effluent pipelines; hydraulic works, and collection, treatment and final disposal of urban and industrial waste, which according to the law require an EIA. The process is as follows:

Figure 1. Process of the Environmental Impact Assessment (EIA)



[23] Law 294/93
[24] Law 1561/00

54. **The revision of the environmental licensing process for the provision of water and basic sanitation of the works supported by SENASA indicate that the works need to be reviewed in terms of the scale of the projects, especially in the case of rural drinking water works, which have been the same for indigenous and non-indigenous communities. SENASA has been the proponent of the works on behalf of the Sanitation Board which owns the systems.** The 440 drinking water systems built under IBRD IV, jointly with others of SENASA, did not require the EIA and obtained their environmental impact declaration for the works. The water systems have envisaged the following most frequent positive and negative environmental impacts, in conjunction with the following mitigation measures:

55. **Environmental – social impacts of the rural water systems are mostly positive, temporary negative and easily typifiable.** Among the positive: improvement of the health and living conditions of locals, increase of employment, in particular local (temporary until the construction works are completed); improvement of the knowledge on environmental management: solid waste and excreta disposal, and protection of water basins. The negative impacts are mainly temporary and in the construction stage: excess of excavated material and exporting to other areas; increase of traffic along roads by trucks transporting materials, opening of ditches in the streets, dust, noise, etc.

56. **The mitigation measures are mostly in the construction and operation stages and have been included in the technical specifications of the contracts for the construction of the works during the excavation of wells and, after their completion, measures such as samples to ensure the quality of water.**

Environmental Legislation of the Water and Sanitation Sector

57. **Water and sanitation provisions in the Sanitary Code[25] and Civil Code[26] are strengthened with the constitutional provision establishing the principles of the right to access to drinking water, defense of the environment, ecological diversity, public health and quality of life.** A Regulatory and Pricing Framework of the Drinking Water and Sanitary Sewerage Public Service of the Republic of Paraguay[27] has been implemented as of 2000 and regulated as of 2002[28].

58. **One of the most recent laws of the sector is the Law on the Protection of Water Resources[29].** The object of this Law is to regulate the sustainable and comprehensive management of all waters and the territories that produce them, regardless of their location, physical status or natural occurrence within the Paraguayan territory, in order to make said management more socially, economically and environmentally sustainable; it also establishes the Secretariat of the Environment as the enforcement authority. The different resolutions on the issue envisage the compulsoriness of presenting environmental studies per basin and micro-basin, technical specifications for the construction of tubular wells for underground

[25] Law 836/80
[26] Law 1135/87
[27] Law 1614/00
[28] Decree 18880/02
[29] Law 31239/07

water collection, the National Registry of Water Resources. Furthermore, it has a resolution of the SEAM[30] on the Quality of Water, Rules for Discharges and Option for Sewage, which is enforced in the entire national territory for sewage, discharged or reused regardless of its origin. This Resolution defines the maximum average limits for sewage discharges, which are compulsory for all generating entities. It also establishes the physical-chemical and bacteriological parameters that need to be analyzed of sewage discharged into a receiving body of water or the sanitary sewer system.

59. **Regarding International Agreements and Treaties in the environmental sphere, one of the most relevant ones for the Project is the one of the River Plate Basin.** The contracting countries (Paraguay, Argentina, Uruguay and Brazil) committed to identifying areas of common interest, to performing studies, programs and works, and to formulating operational and juridical agreements in relation to certain projects, one of which is the rational use of water, specially through the regulation of waterways and their multiple and equitable utilization; another is the preservation and development of animal and plant life; and mutual cooperation on education, sanitation and the fight against diseases[31].

60. **Legal provisions for indigenous communities, although solid, are scarcely complied with due to the limited institutional capacity of the agency in charge of their enforcement, among others.**

General Legal Framework Related to Indigenous Populations

61. **The purpose of the collection and analysis of the body of laws related to indigenous populations is to identify and analyze said laws at the level of their enforcement, especially in the Indigenous Peoples Management Framework developed for this Project. The National Constitution recognizes the existence of indigenous peoples**. It defines them as cultural groups existing before the creation and organization of the Paraguayan State (Art. 62). Indigenous peoples are entitled to communal property of the land, of sufficient size and quality for the conservation and development of their specific way of life. The State will provide the land for free, and said land shall be inalienable, indivisible, non-transferable, with no statute of limitation, nor susceptible for use as collateral for contractual obligations or for leasing Furthermore, this land is tax-exempt. Their removal or transfer from their habitat without their explicit consent is forbidden.

62. **The Statute of Indigenous Communities[32] is the main law on the matter.** Its purpose is the social and cultural preservation of indigenous communities, the defense of their heritage and traditions, the improvement of their economic conditions, their effective participation in the national development process and their access to a legal regime that ensures ownership of their land and of other productive resources on equal standing to the other citizens.

63. **The State grants legal personality to indigenous communities through petition submitted to the INDI by the leaders of the community.** The INDI will request the

[30] Resolution 255//06
[31] Law 177/69
[32] Law 904 and Law 919 that modifies and expands several of its articles

Executive, through the Ministry of Education and Culture[33], the recognition of their legal personality. The INDI will file the Decree recognizing the legal personality of an indigenous community at the National Registry of Indigenous Communities and will issue a true copy to the interested parties.

64. **The main international conventions ratified by the Paraguayan State on the indigenous issue are**: United Nations Charter; Inter-American Indigenist Institute; i) American Human Rights Convention (Pact of San José de Costa Rica), approved by law in 1989; ii) Convention 169 on Indigenous and Tribal Peoples in Independent Countries, approved by Law 234 in 1993; iii) Constituent Convention of the Indigenous Peoples Development Fund of Latin America and the Caribbean, approved by Law 370 in 1994 iv) Convention on the Elimination of All Forms of Racial Discrimination which came into force in Paraguay in 2003.

Legislation Related to Involuntary Resettlement: Expropriation, Acquisition of Property and Rights on Land Use

See the enforcement of these rules and regulations in the Involuntary Resettlement and Acquisition of Property Policy Framework, Annex 2***.***

65. **In Paraguay there is no framework law on expropriations as the National Constitution indicates that expropriation is admitted in cases of public utility or social interest, which will be determined in each case by law".** Expropriation does not come into effect until the respective compensation is paid.

66. **At the municipal level.** Although the law envisages the different aspects that make up the acquisition of land by expropriation in greater detail, expropriation also takes place for each case by law prior approval of the Municipal Board upon the request of the Mayor.

67. **The Paraguayan Civil Code envisages a legal regime of easements, distinguishing between the property easement, transit easement and Aqueduct easement**. The real right of easement allows exercise of certain acts of disposal or of use of a property belonging to others, and may prevent the owner from exercising certain powers normally inherent to the status of owner.

68. **Transit easements – also known as throughway**. They establish if a property has no exit to a public road or if said exit is insufficient for the owner's utilization, the owner may impose the transit easement, but must duly compensate the owner of the affected property. Such compensation may be established in a coerced or voluntary way.

69. **Aqueduct easement**. It is the real right of entrance into a property of the waters from properties belonging to others: Except for houses, yards and gardens and orchards of less than a hectare depending on such property, all properties are subject to aqueduct easements, in the following cases: i) when it benefits a property that lacks the water required for sowing fields, plantations or grasslands; ii) if it favors a population that demands it for the domestic service of

[33] Derogated by Art. 1 of Law 919/96.

its inhabitants; and iii) when it is needed by an industrial establishment. This easement is always continuous and apparent. The aqueduct easement can apply: a) in relation to running water, in accordance with concession of the competent authority; b) to water that surface naturally or by mechanical means; and c) water that is collected in dams or channels of private ownership, as long as the owners grant its utilization. Although the aqueduct easement may be imposed coercively, except in certain circumstances, it is not a free real right and must be paid for or compensated.

70. **The free utilization of assets of the public domain is established by law[34].** Providers are entitled to the free use of the soil, subsoil of streets, roads, bridges, rivers and other assets of the state or municipal public domain, to extend the networks and other facilities related to the provision of the service. This right will be exercised in such a way that does preclude or harm the main utilization of these goods and which complies with national or municipal regulations in place in relation to said use.

71. **On the Regime of Easements in the Municipal Sphere.** The Municipalities, according to urban development, can decide on restrictive measures of the private domain and establish easements complying with constitutional and legal provisions.

72. **Regarding indigenous populations and the land, the national legislation contemplates the procedures for the free, indivisible and tax-free recognition, transfer and registry of the land traditionally occupied by indigenous communities with legal personality, however almost 50 % of the total indigenous population does not have its own land.** ***See enforcement of these regulations in the Indigenous Peoples Management Framework,*** Annex 3**.**

73. **To the extent possible the settlement of indigenous communities will see to the ownership of the present or traditional lands.** Free and explicit consent of the indigenous community will be essential for its settlement in places other than its habitual territories, except for reasons of national security. In the event of the transfer of one or more indigenous communities were to be indispensable, suitable land will be provided and at least of the same quality as those previously occupied and they will be accordingly compensated for the damages suffered as a result of their transfer to another place and for the value of the improvements.

74. **Indigenous groups severed from their communities or scattered, whether already in groups or grouped for compliance with the object of this Law, made up of at least twenty families, must be located on land suited to their living conditions.** The adjudication of fiscal land to indigenous communities shall be free of charge and indivisible. The plot may not be seized, alienated, leased to third parties, have statute of limitation or be committed, totally or partially, as guarantee of any credit. The surface area of the land assigned to indigenous communities, whether fiscal, expropriated or acquired through private purchase, shall be determined according to the number of persons settled there or to be settled in such a way as to ensure economic and cultural viability and the community's expansion. A surface area of at least twenty hectares shall be estimated per

[34] Law 1614/00

family in the Eastern Region, and one hundred hectares in the Western Region. The community may grant the use of the plots of land to its members for their needs. If these lands are abandoned by the community, said concession will be null and void (Art. 19). When the legal personality of an indigenous community has been recognized, the lands will be transferred undivided and free of charge, and the title needs to be filed at the Land Registry, the General Property Registry and the National Registry of Indigenous Communities. The transfer of property title will follow the provisions under Article 17 of Law 984/81 (Art. 19).

75. **On Settlement on Fiscal Lands.** The request of fiscal lands for settlement of indigenous communities will be made by the community itself or by any other indigenous or indigenist entity with legal personality directly to the INDERT or through the Institute. On its own initiative the INDERT, in coordination with the Institute, may grant lands for this purpose. For the settlement of indigenous communities on fiscal land, the procedure will be : a) Denunciation by the Institute to the INDERT on the existence of an indigenous community, indicating the number of members, its location, its time of permanence, crops and improvements made, the plot of land actually occupied and the land claimed additionally to meet their economic and expansion needs; b) Location of the plot of land in the cadastre of INDERT within twenty days of submittal of request, c) Eye inspection by INDERT within thirty days of the location in the cadastre, including the submittal of the report in this period of time; d) Measurement and demarcation of the plot of land in charge of INDERT within sixty days of the submittal of the report to the public servant commissioned for the eye inspection; e) Approval of the measurement within thirty days of date of its submittal; and f) Resolution of the INDERT, prior favorable opinion of the Institute, authorizing the settlement of the indigenous community within thirty days.

76. **On Settlement of indigenous communities on private lands**. The request for privately owned lands for settlement of indigenous communities will be made by the community itself or by any indigenous or indigenist entity with legal personality directly to the INDERT or through the Institute. The INDERT may do so on its own initiative, in coordination with the Institute.

Sectoral Institutional Legal Framework

77. **The Project has five executor institutions which, although of the same sector, present differences in terms of their capacities, which involves the challenge of achieving concrete articulation measures.** The institutions that will be in charge of the execution of the Project include two of the three providers/facilitators of water supply and sanitation services in Paraguay that manage approximately 730,000 drinking water connections representing about 3.6 million persons. They are: a) ESSAP; b) SENASA (Ministry of Public Health and Social Welfare), it also includes the authorities, c) sectoral, directly assisting the Executive as heads of the service on behalf of the Paraguayan State, the MOPC, and environmental d) SEAM; and e) the sector's regulator ERSSAN. During most of the preparation of the Project, the challenge of interagency articulation was addressed with the creation of a Working Committee both for technical issues and decision-making. ***More information on these institutions in the General Environmental and Social Survey of the Project,*** Annex 4**.**

78. **Relations of these 5 institutions with other actors may also generate coordination difficulties. The institutions that are more directly related are i) the Paraguayan Indigenous Institute (INDI)[35] which, even though it has the mandate of overseeing the development of the indigenous population, presents great limitations in terms of its institutional capacity** ***(More information in the Indigenous Peoples Management Framework of the Project,*** Annex 3***)***. This same situation could occur with the subnational governments created by the 1992 National Constitution, but which are still very focused on minor projects and lack many regulatory tools, among which a Law on Decentralization and a resource transference policy vis-à-vis their jurisdictions, as well as institutional capacity to adequately address those issues ***(More information on this topic in the General Environmental and Social Survey of the Project,*** Annex 4 ***)***

79. **There is a sectoral institutional legal framework (service holder, regulation and granting of concessions and agents[36]) based on experiences learned from the regulations in effect in other countries, with the philosophy of general laws that are structured into regulations which have not been adequately implemented mostly due to the lack of definition of the Service Holder, among other reasons.** The absence of the planning body for sectoral policies generated problems: **i**) overlapping of exclusive functions of some institutions, and transfer of their exclusive duties to others; ii) the same treatment for service providers and concessionaires in urban and rural areas with no consideration of the deep structural differences existing between them; iii) lack of adequate discrimination between the different operators of the sector: a neighborhood commission of 60 users is not the same as a Sanitation Board with over 5,000 users; pricing schemes with complex calculations, not very suited to small-scale providers, and subsequent insecurity in terms of their application.

80. **Service providers do not comply with the regulatory framework because they ignore or pretend to ignore it.** For example, lack of respect for the areas defined by law for the

[35] Law 904/81

[36] **Main Institutional Laws**

Law/Decree	Content
Decree Nº 18.880/02	Which regulates Law Nº 1.614/2000
Law 1.615/00 (suspended by Law 1932/02)	"General Reorganization and Transformation of Decentralized Public Entities and Entities of Reform and Modernization of Bodies of the Central Administration"
Decree 16.636/02	CORPOSANA became the Sanitary Services Company of Paraguay, S.A. (ESSAP S.A.), in accordance with Law 1.615/00
Decree Nº 14.568/01	"By which the Registry of Drinking Water and Sanitary Sewerage Service Providers is created in the Republic of Paraguay"
Law Nº 1.614/00	"General Law of the Regulatory and Pricing Framework of the Public Service of Provision of Drinking Water and Sanitary Sewerage of the Republic of Paraguay" includes the creation of ERSSAN. (5 regulations: quality for concessionaires (ESSAP) and for agents (private water providers, others); pricing regulations for concessionaires and agents; user regulations; regulations for infringements and disciplinary measures; regulations of the governing entity (ERSSAN))
Decree N° 8.910/74	"Which regulates the Creation and Functions of the Sanitation Boards"
Law Nº 369/72 (partially modified by Law Nº 1.614/00)	Creates the National Environmental Sanitation Service (SENASA). Object: (a) to plan, promote, execute, administrate and supervise the activities of environmental sanitation established in this law; (b) to plan, promote, execute and supervise the activities of environmental sanitation of the Ministry; (c) participate in the study, planning, programming and execution of the National Environmental Sanitation Plan.

service; no registry to implement or extend the services; limited effort on the part of providers to adapt their infrastructures to the provisions of the law, which affects the service.

81. **Lack of organization of users to defend their rights.** This is probably due to scarce knowledge of their rights and obligations in relation to the service.

82. **Possible trade union tension that may occur in ESSAP due to the transformations it would be undergoing .** Any discussion of private participation in the company is perceived as a threat. This behavior is not only exclusive to the trade unions of ESSAP but in general of all civil servants of the country, as observed in a report[37] which needs to be updated but clearly states that most reform measures would be supported by the majority, except for the privatization of state-owned companies (agreement is less than 50% in this case).

Decisions on the Approach to Environmental-Social Issues of the Project based on the Conclusions of the Environmental and Social Survey of the Project

83. **The general assessments carried out determined that the Project would address the environmental issue from the sectoral perspective as well as from the perspective of the individual works.** For this purpose, its contribution will be two sets of actions: a) strengthening the most relevant sectoral issues for the Project through support with technical assistance to the Environment Authority Institution (in which social aspects are included) of the country, and b) enforcement of the environmental and social management instruments of Paraguayan legislation, and the environmental and social Safeguard Policies of the World Bank, with concrete plans for the enhancement and mitigation of positive and negative environmental impacts, respectively.

84. **The most relevant environmental aspects (that include social issues) of the sector for the Project that will be strengthened through the support to SEAM include**: i) classification of waterways; definition of quality standards of surface, underground and atmospheric waters; ii) technological strengthening of the SEAM; iii) training of employees; iv) training on the integrated management of water resources (for service providers); v) definition of vulnerable areas and aquifer recharge areas; improvement of procedures to obtain environmental permits and licenses in the sector.

85. **The most relevant environmental and social aspects for the Project will be strengthened through the application of specific plans for the enhancement and mitigation of impacts according to the provisions in:** i. the national legislation; and ii) the Environmental and Social Safeguard Policies of the World Bank.

E. POSSIBLE WORKS OF THE PROJECT, MANAGEMENT OF THEIR DEFINITION, AREAS OF INFLUENCE AND POPULATION INVOLVED

86. **Due to its sectoral character the Project encompasses works of provision of urban and rural drinking water and sanitation that involve new construction, expansion, rehabilitation and maintenance. Urban works are mostly large scale and rural works are mainly minor**. The technology and/or location and sequence of the execution of the works

[37] Patterns of Institutional Behavior (…).CISNI-DGEEC.2005

will only be determined during the implementation of the first stage of the Project, in accordance with the results of the more precise environmental and social assessment, at the sectoral level and at the level of the subprojects.

87. **Major urban works will be defined based on the updating of the Master Plan for Provision of Water and Sanitation (PMAS, acronyms in Spanish) of ESSAP**. Although this Plan was prepared over fifteen years ago, it allows identification of the priorities of the works in the preparation stage of the Project. Consequently, there is a list of necessary investments, in particular in large-scale works. However, the scope, adequate technological alternative and the exact sequence of execution of the works will only be known based on the results of the environmental and social impact assessment at the strategic level, and other viability studies, such as the economic-financial one.

88. **Rural works are estimated in numbers and include construction, expansion and rehabilitation of water and sanitation systems in rural communities, including indigenous communities.** The estimation of these numbers is based on the experience gained in this type of works, their environmental and social implications, and their cost in prior Rural Water and Sanitation Projects developed by SENASA, and particularly those supported by IBRD IV. However, due the programmatic nature of the Project, the location and sequence of the execution of the subprojects will only be known during the implementation of the Project.

89. **The Environmental and Social Management Framework (ESMF) of the Project, prepared with specific guidelines and instruments to guide the execution of the Project on these issues is the result of the approach to the definition of urban and rural works, which will take place only during the implementation of the Project.** The ESMF offers an analysis of the configuration of the Project and the base conditions, as well as a set of technical guidelines that describe the institutional procedures and responsibilities to evaluate and manage the possible environmental and social risks that might be faced along the entire Project cycle. This instrument is designed to comply with three basic objectives: (i) ensure the environmental-social sustainability of the subprojects financed with resources of the Project; (ii) comply with national environmental legislation; and (iii) comply with the Bank's Environmental and Social Safeguard Policies. The ESMF envisages the Terms of Reference of the Environmental Impact Assessment both at the sectoral level and at the level of the subprojects of the possible works of greatest impact, and other Management Frameworks, such as the one for Involuntary Resettlement and Acquisition of Property Policy Framework, and the Indigenous Peoples Management Framework.

90. **The Project will have two main areas of study/influence relating the scale of the works and their site area**. With this criterion, the three main areas of influence are: i) mostly major urban works for the construction and expansion of the sewer system; and minor urban works for the expansion and rehabilitation of drinking water; ii) minor rural works for drinking water and basic sanitation.

Major Urban Works –Sanitary Sewer System, Main Areas of Study//Influence and Beneficiary Population

91. **The general environmental and social assessment and the review of the Master Urban Water and Sanitation Plan indicate a first level of priority of major works, as described in section 90; therefore, one of the two main areas of influence of the Project will be Asunción and its metropolitan area, henceforth the Great Asunción, see Map in Annex 5. This area encompasses part of Asunción and the districts of Fernando de la Mora, Luque, San Lorenzo, Lambaré and Mariano Roque Alonso, totaling a surface area of about 10,691 has.,** in which sewer systems will be constructed and/or rehabilitated[38], as well as a strip including a segment of the River Paraguay and its banks extending from the area of Puente Remanso in Mariano Roque Alonso to the juncture of Lambaré and Villa Elisa, totaling a length of about 40 km where collected effluents are discharged and where the possible effluent treatment plants would be located.

92. **Complementarily to section 39, water and sanitation show constant and growing demand due to the high population growth rate (2.4 % per annum) which, in conjunction with an accelerated rural exodus to the areas surrounding the urban centers, leads to an urgent situation.** This acquires special importance in the Metropolitan Area of Asunción. However, both surface water and underground water present high levels of contamination that endanger the health of the population. Surface water is contaminated by industrial effluents, solid waste and sewage; while underground water is contaminated by recharge processes with contaminated water.

93. **According to ESSAP, drinking water coverage is almost 100% in the city of Asunción, while about 75% of sanitary sewers of the city of Asunción are being collected by collector networks and discharged directly and untreated through 12 outfalls into the River Paraguay, causing contamination, specially of fecal coliforms on the shores of the River Paraguay**. This places the inhabitants of the riverbanks and the fishermen who are always in contact with the water at great risk, also in detriment of this region's touristic activities.[39]

94. **In the case of the Metropolitan Area of Asunción with about 1,430,000 inhabitants, drinking water coverage is 70%, while only 40% are connected to a sanitary sewer system that also discharges its untreated effluents into the River Paraguay or in some cases into urban streams.** An excessive amount of coliforms has been observed in the beaches of the River Paraguay in the Great Asunción area due to the lack of treatment. Only 6% of sewage is treated, which leads to the presence of several thousands of coliforms per 100ml; while the World Health Organization (WHO) recommends less than 500 UFC/100ml (coliforms/100ml) as the maximum for beaches.

95. **Underground water is also affected by contamination and overexploitation. The presence of fecal coliforms is observed in the Metropolitan Area in shallow wells and**

[38] The municipalities of the metropolitan area of Asunción include (sewerage coverage in parenthesis): Asunción (67%), Lambaré (16%), Fernando de la Mora (6%), San Lorenzo (9%), Luque (7%), Mariano Roque Alonso (12%), Limpio (14%) and Villa Elisa (0 %). There are 14 towns with sewer systems with very low coverage. Of these, 4 have adjusted the sewage treatment (Encarnación, San Pedro de Ycuamandyyú, Villeta and Hohenau), and the rest practice insufficient treatment and/or discharges with no treatment whatsoever. Source: ESSAP data.

[39] Preliminary Plan for the Disposal of Sanitary Sewers of Asunción into the River Paraguay (Complementary Study of the Project for the Control and Improvement of the quality of waters of the basin of Lake Ypacarai and the River Paraguay, JICA, SEAM and DIGESA Cooperation). Kawai, Hideo. JICA. March, 2007

intrusion of salt water due to overexploitation of the Patiño Aquifer[40]. The recharge area of the Guaraní Aquifer in the Eastern Region of the country is becoming contaminated. Especially in urban areas the level of contamination is high due to: i) the very low degree of house connections to the sanitary sewer system; ii) insufficient solid waste collection services; iii) industries that lack technologies to reduce environmental impacts; iv) the service sector (car washing, service stations and garages) working without adequate control. Furthermore, there might be contamination of underground waters due to agrochemical substances used in extensive crop areas.

96. **The Master Sewerage Plan of Asunción and its Metropolitan Area points to the need and possibility of defining the types of technology to be used in accordance with the results of the specific environmental, social and economic-financial studies to be performed in the first stage of the Project.** Initially the Master Plan proposed the objective of preparing the development of the future sanitary sewer system, treatment of waste liquids and disposal of effluents in stages as per the needs of the city and its surrounding area by the year 2010, and of alleviating certain areas of the existing sanitary sewer system that were causing concern.

97. **The needs identified in the Master Plan were**: i) immediate improvements and recommendations for the provision of new relief collectors serving the drainage areas of the neighborhoods of Villa Victoria, Vista Alegre and Luis Alberto de Herrera of the district of Asunción; ii) improvements in the sanitary sewer system of the existing basins of Varadero (downtown area), Sajonia and Bella Vista; iii) construction of sanitary sewer system in new basins, such as a) Itay (covering the basins of the neighborhoods of Trinidad, Botánico, Las Mercedes, Villa Victoria and Luís Alberto de Herrera); a) Lambaré (including the basin of the Vista Alegre neighborhood); b) San Lorenzo, c) Luque, d) Villa Elisa, and e) Mariano Roque Alonso.

98. **The methods for the disposal of solid waste have been considered in the Master Plan.** Given the proximity of the above-mentioned sewerage basins to the River Paraguay, with a mean flow above 1000 m^3/s, there was no need for complete treatment due to satisfactory dissolution and dispersion. It was recommended that, wherever possible, effluents continue to be disposed of into the River Paraguay. For the basins furthest away from the river or for those discharging upstream of the treatment plant, the Master Plan proposed sewage stabilization lagoons; while other sanitation systems were recommended for areas where a sewage system was not technically or financially viable,.

99. **In the same way, in respect of the subprojects in new basins, the Master Plan had considered the works of the Itay Basin as priority.** For this purpose, the construction was concluded of a pipeline located in Avenida Madame Lynch of Asunción to conduct the effluents from the Basin to the River Paraguay, with an IBRD credit in 1995. The original project of the relief collectors was modified so as to allow effluents of the Villa Victoria Basin

[40] Study of Policies and Environmental Management of Underground Waters in the Metropolitan Area of Asunción – Paraguay (Patiño Aquifer). CKC – JNS Consortium; Hydrocontrol S.A.; Schlumberger Company. Technical Cooperation ATN/JC – 8228 – PR – SENASA – IDB. May, 2007.

to be conducted to the head of the Tunnel, component of the Itay Basin; and effluents of the Vista Alegre Basin to be conducted to the Bella Vista Basin.

100. **Due to its contamination and number of inhabitants, the major urban works that will be prioritized in the MPWSS are those of the Great Asunción area.** A series of investments will be analyzed based on the updating of the ESSAP Master Sanitary Sewerage Plan and the Integral Environmental Impact Assessment (including social aspects), of which the Terms of Reference are part of this Framework (Annex 1). The construction, expansion and/or improvement of the sewer systems and/or sanitation network of some of the cities of the metropolitan area, involving subaqueous outfalls flowing into the River Paraguay, effluent treatment plants and sewage collectors will be prioritized. With the same criterion, rehabilitation works of the existing infrastructure, such as the replacement of sewage collectors and the improvement of the present discharges of Asunción into the River Paraguay, would be carried out through the installation of subaqueous outfalls at each discharge point to obtain the best dilution of discharged sewage.

101. **The sewer system of downtown Asuncion needs rehabilitation**, it is old and in poor condition due to the small size of pipeline diameters and the overload of the present flows. The EIA is expected to determine the most appropriate solutions for the case.

102. **Of about 1,430,000 inhabitants of the total of Asunción and its Metropolitan Area, the population directly benefited with the new sewer systems would be about 622,185 inhabitants of the downtown area, with rehabilitation works to be determined through a survey of the most critical segments.** Furthermore, these works would i) decontaminate important streams crossing the area and its respective basins, such as the Mburicao, Ferreira, Lambaré, Itay, San Lorenzo, Paso Carreta Streams, among others; ii) improve the living conditions of the population, and iii) allow urban development, at present is restricted by the lack of sewer systems[41].

103. **There are areas of special interest in the area of influence Great Asunción due to their natural/environmental, social and/or recreational features, which could be positively or negatively affected if the works of the projects for Asunción and Great Asunción are carried out.** These areas are the Botanical Garden and the Zoo, the Bañados Norte y Sur, the Asunción Bay Ecological Reserve, the Pyta Lagoon of Asunción, the Cateura Reserve Area, which still have important biodiversity and provide possibilities of recreation, despite great alterations that they have experienced due to informal human settlements in the those areas and/or around them.

104. **Other salient areas, due to their present state of environmental degradation, are the Cateura municipal garbage dump, the Mariano Roque Alonso municipal garbage dump, the clandestine garbage dumps of Tablada Nueva and others disseminated throughout the Great Asunción, which are very important foci of contamination, especially because these sites could coincide with the sites envisaged for the works of the treatment systems and discharge outfalls.** The level of informal human settlements around

[41] Environmental Management Project in Urban Areas – ORDAZUR. II Argentinean Hydrogeological Congress, Río Cuarto, Córdoba – 2005. Schillinger, Ralf – Oporto, Orlando. Secretariat of the Environment of Paraguay

the Bañados Norte and Sur, the Cateura Reserve Area and other neighboring areas is an aspect of great relevance if the works of the projects were executed because of the conflicts that might arise due to the need to locate the works on the same sites where these settlements are set up, generating opposition to the projects and/or the need for involuntary resettlements.

105. **There are also areas of recreational and/or tourist interest**. Areas such as Club Mbiguá, Club Sajonia, Asunción Bay, among others, which, generally relate to the recreational use of water (bathing and aquatic sports).

Environmental characterization of the total area of study/influence of the major urban sewerage works of the Great Asunción[42]**.**

106. **Environmental characterization of the total area of influence of the Great Asunción**[43]**. The main features of the flora, fauna, soil and geology, water resources and climate conditions are presented below:**

i) Land flora and fauna. The area of Asunción and Great Asunción is located within the Eco-region of the Central Rainforest which covers the Central Department and part of the Departments of Cordillera and Paraguarí, and is typically subtropical rainforest. At present its physiognomy is completely modified by human settlements, so there are only 'remains' of the old Central Rainforest there and in other parts of the country. The fauna is associated with vegetation and both have been notably influenced by the modifications experienced. As the vegetation cover is no longer continuous, the area of influence of the works no longer has fauna (in particular herbivores), however there are still some species of reptiles and birds, as well as smaller sized mammals.

142 vegetation species have been recorded, belonging to 52 botanical families, in the area of influence of the Itay Basin. The area with most species is the Botanical Garden and Zoo, with 83 land species and about 19 aquatic-swamp species; about 40 species were recorded in more degraded areas. Regarding the fauna, 50 species were recorded belonging to 33 families distributed among mammals, birds, amphibians and reptiles, with a notable number of birds. All the above species, both of flora and fauna, are components of the old Central Rainforest, the remains of which may be observed in the surrounding areas of Asunción. These species are common in these areas and no species or rare plants or animals in danger of extinction have been detected.

ii) Aquatic fauna: there is a list of fish species prepared on the basis of a study carried out on the Asunción Bay, among which iliophages, planctóphages and herbivores, omnivores, ictiophages and carnivores, insectivores, lepidophage-omnivores, hematophages and smaller sized species.

iii) Topography, geology and soils. The topography of the area comprises elevations higher than 160 meters above sea level, presenting a series of hills mainly in the city of

[42] Sir William Halcrow & Partners. 1995. Sanitary Sewerage Executive Project of the Itay Basin – Environmental Impact Assessment, Final Report, June 1995.
[43] Sir William Halcrow & Partners. 1995. Sanitary Sewerage Executive Project of the Itay Basin – Environmental Impact Assessment, Final Report, June 1995.

Asunción. Regarding soil geology, 4 types of outcrops have been identified: Misiones sandstone soil, Post-Misiones sandstone soil, loose surface sand deposits associated with river deposits, surface deposits with high clay content in the high part of the Itay Basin.

iv) Meteorological conditions: the climate of the area is subtropical, with an annual mean rainfall of about 1,350 mm. The months of most rainfall are January, April and October, while the driest months are May, June, July and August. Extremely intense, but short, storms occur in the summer due to medium-scale convective processes.

v) Surface water resources: in general, the low percentages of sanitary sewerage coverage in the area of influence of the works causes the discharge of effluents into numerous streams that do not have sufficient volumes to receive a constant flow and allow for appropriate effluent dilution; in most cases these surface waterways are completely deteriorated. The situation of the River Paraguay has been described above.

vi) Underground water resources: 3 types of aquifers have been identified; almost surface aquifers; deep, confined and of low pressure aquifers; and small interconnected caverns. The regional aquifer in this area is called the Patiño Aquifer. According to recent studies[44], the volume of water available in this aquifer will experience drops of up to 40 meters in a 30 year period if the present level of extraction continues. It has also been determined that an accelerated increase of saline intrusion could occur and also levels of fecal coliform contamination have been recorded in shallow wells.

107. **The Terms of Reference of the Integral Environmental Impact Assessment (TORs of the IEIA) of the major urban works of the Great Asunción will establish in detail the studies required, including social ones, to have adequate information for decision-making.** These terms of reference relate to the actions required to prevent, mitigate, control, compensate and correct the possible environmental impacts caused during the execution of the works and activities, including follow-up, monitoring and attention to the contingencies which might arise during the operation and functioning of the works and facilities of the Project, in each and every stage of execution and development. The Environmental Impact Assessment will be integral in nature for the scope of the benefits, negative impacts and potential risks of the works to be evaluated in depth. It will also provide the necessary elements for correct planning, siting, design, construction, operation and maintenance of the components and works, so as to obtain the desired benefits from the investment.

108. **The TORs of the IEIA will include** the study of each and every investment that might be required outside the site (for example, exclusive pipelines, access roads, powerhouses, water supply, housing, as well as storage facilities for raw materials and products). A siting map of the Project and its area of influence will also be included. Basic data will allow the assessment of the dimensions of the area of study and will describe the relevant physical, biological and socioeconomic conditions in great detail, including any change envisaged prior

[44] Policy and Environmental Management Study of Underground Waters in the Metropolitan Area of Asunción – Paraguay (Patiño Aquifer). CKC – JNS Consortium; Hydrocontrol S.A.; Schlumberger Company. ATN/JC – 8228 – PR – SENASA – IDB Technical Cooperation. May, 2007.

to the initiation of each subproject. Present and proposed development activities within the area of the Project (that are not directly related to it) will also be taken into account. Data need to be relevant to decision-making on the site, design and operation of the Project or related to mitigation measures with indication of the preciseness, reliability and sources of the data. ***See the TORs of the IEIA in*** Annex 1 **.**

109. **In order to ensure that the major urban works do not cause negative impacts in environmental and/or social terms, the establishment of the level of treatment of the sewage collected prior to discharge of the effluent into the River Paraguay that will not cause damage by means of modeling of the River's water quality has been included among the studies that will be part of the IEIA.** As a preparatory activity of the modeling of the water quality of the River Paraguay, an expert in said technology performed the rapid assessment during the preparation of the Project. Among other activities, this expert made a presentation on the water quality modeling theory in rivers and provided several examples of its utilization in Latin America before a large audience of representatives of the stakeholders of the Project as part of the consultation process with them.

110. **The modeling of the water quality of the River Paraguay would be used to update the Master Sanitation Plan of Asunción through which priority works would be identified.** This study will include: i) samplings and analysis of the water quality in the river for generation of reference data for model calibration; ii) measurement of the volume of flow of the river with the Laser Doppler Velocimeter (simultaneous measurement of volume of flow and batimetry of the cross-section); and iii) development of the simulation model of the water quality and water use to establish the level of treatment required. The Terms of Reference of the above-mentioned modeling would comprise the three aforementioned activities. ESSAP will be in charge of them: a) with the support of its laboratory staff; b) for said activities, ESSAP will hire a professional who has the aforementioned equipment; and c) the activity will be developed by an expert on the matter, who will be hired for said purpose. ESSAP would perform: (i) the modeling study of the water quality of the River Paraguay that is six to eight months long; and (ii) the updating of the Master Sanitation Plan of Asunción, using the results of the modeling study as the base instrument.

Major Urban Sewerage Works Initially Prioritized

a. Itay Basin

111. **Works**: **i)** expansion of the sanitary sewerage system; **ii)** construction of outfalls to the treatment system; **iii)** construction of subaqueous outfall; **iv)** construction of an effluent treatment system.

112. The project would directly benefit about 175,870 persons settled on a surface area of 4,980 has., and would include a treatment and disposal solution not only for the effluents collected by the future sewerage system projected for that area, but also for those generated in other basins included in the Master Plan, such as San Lorenzo, Luque and Bella Vista, the latter encompassing 270,000 inhabitants and the catchment basin of the Mburicao stream, one of the most degraded streams and hence the most important contributor of contaminants to the

River Paraguay in Asunción[45], which would imply benefiting about 391,315 persons more. In this way, important parts would be cleared, the streams crossing the area would be decontaminated, the living conditions of the population would improve and urban development, which is now restricted due to the lack of sewerage systems, would be enabled[46]. Of the initial components of the Itay subproject, a Tunnel with a diameter of 1.6 meters and a length of 3.5 kilometers has already been constructed to conduct sewage to the River Paraguay. Sewage shall be treated before being discharged into the river. The level of treatment required shall be established by the study and modeling of the River Paraguay.

b. San Lorenzo Basin

113. **Works: i)** expansion of the sanitary sewerage system; **ii)** construction of the pump station; **iii)** construction of impulse piping to the main effluent collector of the Itay Basin.

114. **With this expansion of the network a surface area of 677 has. will be covered with a population of about 77,835 persons, which would increase coverage in the entire city to 29%.** At present, the treatment system of San Lorenzo has optional lagoons for reconversion of the collected effluents, however, their capacity is insufficient so they are at a standstill and need to be expanded. Furthermore, effluents of the treatment system are discharged into the San Lorenzo stream which is highly contaminated and therefore, the plan is to improve the stream's condition by collecting the effluents and conducting them to the main collector of the Itay Basin to then pass them on to its treatment system to finally discharge them into the River Paraguay.

c. Luque Basin

115. **Works: i)** expansion of the sanitary sewer network; **ii)** construction of the pump station; **iii)** construction of impulse piping to the main effluent collector of the Itay Basin.

116. **With the expansion of the network system, a surface area of 487 has. would be covered with a total population of 43,480 persons, increasing sewerage coverage to 17%.** Additionally, as the effluents are not treated in the area at present, the plan is to collect, pump and conduct them to the main effluent collector of the Itay Basin, to be treated with all the other effluents of the basins and finally be discharged into the River Paraguay through the mouth of the Itay Basin.

d. Mariano Roque Alonso Basin

117. **Works: i)** construction of the sanitary sewerage system; **ii)** construction of outfalls to the treatment system; **iii)** construction of the subaqueous outfall; **iv)** construction of an effluent treatment system. In the town of Mariano Roque Alonso, an entire sewerage network needs to be built: there is no sewer drainage and cesspits are the most common solution. The viability of the application of the basin's own effluent treatment system and the behavior of effluents once in the water mass once discharged into the River Paraguay need to be analyzed. An

[45] Ibid Halcrow.
[46] Environmental Management Project in Urban Areas – ORDAZUR. II Argentinean Hydrogeological Congress, Río Cuarto, Córdoba – 2005. Schillinger, Ralf – Oporto, Orlando. Secretariat of the Environment of Paraguay.

alternative option for Mariano Roque Alonso would be to direct the sewage collected by its system to the treatment system of the Itay Basin.

118. **A surface area of 686 has. would be covered with the works of sanitary sewerage with an estimated population of 25,000 persons, thus increasing coverage in this municipality to 26%.**

e. Major Urban Works for the Caacupé Basin

119. **Works: i)** construction of an effluent treatment system; **ii)** electromechanical equipment for pump stations of the sanitary sewerage network in existence, but out of service.

120. **The sanitary sewer system is built on a surface area of 283 has.,** but out of service due to the resistance of a social group to the construction of an effluent treatment system, of which the initial solution consists of stabilization lagoons so as to avoid direct discharge into the River Ortega. If the sewerage network were allowed, it would cover a population of about 20,000 persons, which represents 50% of the district's population and 100% of its urban population.

Initially Prioritized Minor Urban Works

Sanitary Sewer System

f. Downtown Asunción

121. **Works:** rehabilitation of sewer effluent collectors. The sewerage system of downtown Asunción is old and undersized due to the small diameter of the pipes and the overload of present flows.

122. The rehabilitation of the sewerage system of Asunción will be carried out via the substitution of parts of the sewage collectors in order to conduct the currents, as per survey of the most critical segments.

g. Discharges into the River Paraguay

123. **Works:** improvement of 7 effluent discharge outfalls into the River Paraguay.

124. **At present these outfalls discharge the effluents collected onto the banks of the River Paraguay**, generating high levels of environmental contamination, health ailments in the nearby population, restrictions to recreational activities and complete deterioration of the landscape. Improvements would be carried out through the installation of subaqueous piping at each discharge point in order to obtain the best dilution of sewage.

Drinking water

h. Viñas Cué

125. **Works: i)** expansion of the raw water intake on the River Paraguay; **ii)** expansion of the water treatment plant for supply purposes. The project consists of expanding the Viñas Cué Treatment Plan in a Module of 110,000 m^3/day in order to meet the demand for drinking water that is envisaged with the expansion of coverage in the Metropolitan Area of Asunción. This increase will provide 50,000 new connections, in this way covering provision to about 250,000 inhabitants.

126. The Executive Project of these works was concluded for the construction of a first Module. Environmental studies are being processed by the country's environmental authority, and issuance of the environmental license is expected within 6 months as of January 2009. Invitation to tenders for the works will be mid-January 2009.

127. The increase envisaged will provide 50,000 new connections, in this way covering the supply for about 250,000 inhabitants.

Bases for the Rapid Social Assessment per Main Areas of Study/Influence

128. **The Rapid Social Assessment** will be complemented with specific studies in the framework of the Integral Environmental Impact Assessment (IEIA).

129. **Major Urban Works.** There are two large areas of study within the framework of the IEIA: i) Great Asunción, and ii) Caacupé

a. Great Asunción

130. **The districts for the survey of demographic data and some social indicators correspond to the area of study called Great Asunción which includes Asunción, Luque, San Lorenzo, Mariano Roque Alonso, Lambaré, Fernando de la Mora and Villa Elisa.** All these districts are in the Central Department, except for Asunción that does not belong to any department. The beneficiary and/or affected population is comprised in the same districts with data recorded in national or municipal statistics, and they have been added to the respective data of the areas of influence of the works.

131. **The total population of the Great Asunción** is 1,430,000 (total of all the aforementioned districts), of which 51 % are women, 18% children, 41% of the population has been classified as poor according to their level of available income.

132. **96.3% of the 496,000 inhabitants of the urban area of Asunción have access to drinking water supply by ESSAP, SENASA or Private Network,** while 3% have a well with or without pump as water source. 99.3% have electricity. 53% of the total population owns their house, 2% are owners still paying for their houses in installments, 27% live in a rented house and for 5% house is an assigned asset[47].

[47] Human Development Data Atlas, UNDP.

133. **The distribution of the economically active population (EAP) per economic sector indicates that the population of the city of Asunción participates mostly in the tertiary sector (commerce and services), which engages 8 of every 10 individuals**. The secondary sector (industry and construction) has 16% of the EAP, while participation in the primary sector (agriculture and livestock) is practically nil as Asunción is strictly an urban area. Therefore, the monthly average income of the population with employment, according to their main employment per sex, in US-dollar-equivalent and per month, ranges from almost USD 935 for men to USD 460 for women (technical experts and professionals) and service workers and business sales from USD 395 for men to USD 255 for women[48].

134. **Average monthly income of the population with employment in the city of Asunción varies according to their employment, and men's are systematically higher than women's.** Operators of instruments, machinery and assemblers receive USD 300.5[49] and non-skilled workers USD 167.6 men and USD 163 women. The population working in agriculture, livestock, hunting and fishing earn an average of USD 130.1 (men) and USD 61 (women)[50].

135. **The population of the other districts that make up the Great Asunción is about 737,000 inhabitants, of whom 79.8% on average has drinking water supplied by ESSAP, SENASA or Private Network.** Only 17.8% have a well with or without pump as their source of water. Electricity coverage is 98.6%. On average 72% of the total housing is inhabited by owners, 16% are rented out, 18% of houses are still being paying for in installments and 7% have been legally assigned.

136. **If we consider that the districts of the Great Asunción, except Asunción, belong to the Central Department and data of this department are taken as preliminary reference for comparative purposes, the Central Department** is the second largest economy of Paraguay, it is in second place as investment attraction, both domestic and foreign, it has the best social levels, infrastructure and it comprises over 56% of the country's industries. The population working in the manufacturing industry earns an average monthly income of USD 275.8 men and USD 159.4 women, and within this classification, machine operators and assemblers earn USD 336.9 men and USD 241.4 women. Scientific professionals and intellectuals earn USD 602.8 men and USD 291.4 women[51].

137. **39% of the urban population of Asunción, and about 45% of the other districts could be classified as follows in terms of employment, education and salary:** informal workers, mostly non-professionals working on their own account and employees of micro-entrepreneurs, engaged in activities such as commerce and services, located in the areas of highest urban concentration, with primary education levels, with salaries equal to or less than

[48] Scientific and intellectual professionals, men 934.8 and women 460.3; medium level professional technical experts, men, 445.2 and women 351.3; office clerks, men, 284.9 and women 311.5; service workers and commercial salespersons, men 393.9 and women 255.7. Civil servants earn between 830 and 735. Members of the Executive, Legislative and direct staff members earn on average per month, men USD 830.5 and women USD 735.6. Source: Permanent Home Survey, 2007. DGEEC.

[49] All income is in guaraníes To change over to US dollars an exchange rate of 4870 guaraníes to the dollar was used (November 2008).

[50] Fishers earn an average monthly income of Guaraníes 861,700 (USD 173.4) for men and Guaraníes 460,000 (USD 92.6) for women. Police agents, machinists and artisans earn USD 26.7 for men and USD 180.1 for women; operators of instruments, machinery and assemblers earn USD 300.5, non-skilled works earn USD 167.6. Source: Permanent Home Survey, 2007. DGEEC.

[51] Office clerks USD 288.2 men and USD 245.6 women; middle cadre technical experts USD 362 men and USD 263.6 women. Source: Permanent Home Survey (2007). DGEEC.

the minimum wage, and with less unequal income distribution than of the income distribution of the population working in the rural sector and the urban formal sector[52].

138. **40% of the total population of the Great Asunción has primary education, 28%, completed secondary education and 11% has university education.** Of the population aged 6 to 14, i.e. about 300,000 persons, 16.8% attend a formal education establishment, 0.7% do not, among others mostly with percentages that do not reach 1 %[53].

In Asunción there are 52 health centers and health posts, 21.6 beds for every 10,000 inhabitants, and on average there are 16 public health staff members per every 1,000 inhabitants[54]. While in the other districts there are about 12 public health staff members for every 1000 inhabitants and about 70 health posts.

139. **There are three garbage dumps in the Central Department located in:** i) Cateura (Lambaré); ii) Capiatá (19 km away from Asunción); and iii) J. Augusto Saldivar (23 km away from Asunción), as well as a considerable number of clandestine garbage dumps. At present a daily average of 250 tons of garbage per day is generated by clandestine garbage dumps created on the central avenues and walkways of Asunción[55]. This volume of garbage adds to the 650 tons per day collected by the solid waste collection service and which are deposited in Cateura[56].

140. **There are about 300 informal settlements, i.e. do not pay property tax, therefore do not have property titles, in the intra-urban area, the built-up area of Asunción[57].** In total there are over 350 informal settlements in the Great Asunción.

141. **Of the 342,185 persons that would be beneficiaries of the Project in the Great Asunción and Caacupé, on average 48% of the population are men and 51% are women, of which 39,1% have one Basic Unmet Need on average. As to houses, 97.8% has electricity, 78.6% has drinking water, 3.8% has sewer system and 62.4% has garbage collection service. Detailed statistics are as follows:**

i. **4.5% correspond to Asunción, with a total of 6,135 houses, with an average of 4 persons per house.** Asunción has a total population of 518,846 inhabitants, of which 47% are men and 53% are women. The EAP represents a total of 257,353 persons and the unemployment rate is 7%.

ii. **12.7% is for San Lorenzo, which has about 16,076 houses with an average of 5 persons per house.** San Lorenzo has 203,150 inhabitants, of which 49% are men. 73.7% of the EAP is made up of men and 46.8% of women. 39.2% of the total population registers at least one UBN. Of 44,580 private houses, 98.9% has electricity, 76% running water, 9% sewer system and 65% has garbage collection service.

[52] *Sector Informal and Cuentapropista en el Paraguay*. Masi, Fernando. 2002.
[53] Data 2002 Census, DGEEC.
[54] Data Human Development Atlas, UNDP.
[55] Statistics of the Directorate of Urban Cleaning of the Municipality of Asunción, 2008.
[56] Data of the Portal of the Municipality of Asunción, http://www.mca.gov.py/noticias/110308_6.htm
[57] Data of the Municipality of Asunción. 2008.

iii. **9% would be for Luque reaching a total of 11,419 houses with 5 persons per house on average.** Luque has a total of 185,600 inhabitants, of which 49.8% is men and 50.2% women. 71.8% of the EAP is men and 44.2% is women. 46.3% of the population has at least one UBN, while of a total of 39,090 private houses 97.7% has electricity, 64.2% has running water, 7% has sewer service and 55.9% has garbage collection service.

iv. **18.1% would be benefited in Fernando de la Mora reaching a total of 23,449 houses with 5 persons per house an average.** Fernando de la Mora has a total population of 113,560[58] inhabitants, of which 48% is men and 53% women. The EAP of 12 years of age or more, in the case of men is 74% and 51% for women. 27.6% of the population has at least one UBN. Of the total of 25,450 private houses, 99.2% have electricity, 87.1% have running water, 7% have sewer service and 94.5% have garbage collection service.

v. **51.4% would be benefited in Lambaré reaching a total of 63,830 houses, with an average of 5 persons per house.** This district has 119,800 inhabitants, of which 47% is men and 53% women. The EAP is 73.4% men and 49.8% women. 31.1% of the population has at least one UBN. Of a total of 25,430 private houses, 98.8% have electricity, 90.1% have running water, 88.7% have garbage collection service and 16% have sewer service.

vi. **4.3% would be benefited in Mariano Roque Alonso reaching a total of 5,814 houses with an average of 4 persons per house.** This district has 64,900 inhabitants, of which 49.4% are men and 50.1% are women. 72.3% of the EAP is made up of men and 44.8% of women. 43% of the population has at least one UBN. Of the 13,970 private houses, 98.3% has electricity, 77.6% has running water, and 48.3% have garbage collection service. There is no record of sewer services.

vii. **The district of Villa Elisa would have the least potentially beneficiaries as part of the territory borders with Lambaré would be part of the area of influence of the sanitary sewer works.** Villa Elisa has 54,420 inhabitants, of which 49% are women. 36.7% of the population has at least one UBN. Of 11,410 private houses, 98.7% has electricity, 85.1% has running water, and 63.4% has garbage collection service. There is no record of sewer services.

b. Caacupé

If the sewer network were habilitated, it would reach about 20.000 persons, i.e. 40% of the population of the municipality. The total population of the district is about 50,000 inhabitants, of which 49.6% are women and 24.3% are children. There are 8,800 houses in total with an average of 5 persons per house: 92.5% have electricity, 71.4% have running water and 19% have garbage collection service. 47.9% of the population has at least one UBN.

[58] Information 2002 Census. DGEEC.

Works in Rural Areas, Environmental and Social Assessment, and Areas of Influence

142. **Section D of this Environmental and Social Management Framework contains general and specific details on environmental and social aspects respectively involving assistance to these communities. Nonetheless, a summary of the key aspects of the process is provided.** All water and sanitation systems begin with social promotion and assistance in the community organization. The community has broad participation in decision-making on the type of solution to be adopted. This document focuses on the works.

143. **The numbers of rural works, including indigenous ones, have been estimated based on the 30 years of experience of SENASA in terms of the type of works and costing.** Given the programmatic nature of this Project, these numbers will be distributed in Lists of Geographical Priority and Lists of Priority Communities to be Assisted, when possible per Types of Works.

a. Works in Rural Non-Indigenous Communities

144. All water and sanitation systems begin with social promotion and assistance in the community organization. The community has broad participation in decision-making on the type of solution to be adopted. This document focuses on the works.

Drinking Water Systems

145. **New water systems.** 150 new systems would be built like those conventionally used by SENASA in cases of concentrated rural communities (at least 3 houses per 100 m. of network, although the relevance of this figure is being assessed). The conventional systems are based on water collection as the water source consisting of a drilled well from which water is pumped to an elevated tank with an electro-pumping system. From there the water is channeled to the house by a distribution network system. Whenever possible, lined wells will be built with a simple chlorine disinfection procedure and, depending on the size of the system, glass fiber or concrete tanks will be set up. Each house has a home connection (tap). 15 new systems would be built in scattered rural areas with a density of at least 10 houses, for which technologies appropriate to these locations will be designed, such as upgraded wells with manual pump, shallow tubular wells, rainfall collection on the roofs, etc.

146. **Expansion of water systems in rural communities**: 10 previously built water systems, in which one or several components do not allow its appropriate functioning, would be expanded. This would include, depending on the needs, new drilled wells, elevated tanks, expansion of the distribution network, reinforcement of the pipelines.

Sanitation Works

147. **Basic Sanitation Units.** There are two solutions which could be adopted once in the field: one consists of the construction of basic sanitation units, consisting of hygienic services

(WC, shower, hand basin), in 40%[59] of the houses that will provided with drinking water. Later with its monthly rates each location will complete the sanitation units in the remaining houses. Basic units would be constructed in 5 communities with water systems built by previous Projects.

Environmental and Social Assessment, Areas of Study/Influence of Rural Works for Non-Indigenous Rural Communities

148. **The definition of the areas of influence of rural works assisted by SENASA is not possible or necessary. As indicated in point 54, due to their low levels no rural works have required special studies of environmental impact, and they have been managed with a Socio-Environmental Plan in order to comply with the requirements of the country's legislation to obtain the environmental license.** It is unlikely that areas of influence of the subprojects supported by SENASA will be identified because coverage of assistance is at the national level, which is consistent with the level of water and sanitation need which is also at the national level. However, environmental impacts are predictable and typifiable and have been described in the Manual of Technical Specifications of the Sector. See Annex 9. In this Project, SENASA will manage a community selection methodology which will enable greater efficiency, transparency and accountability of its assistance.

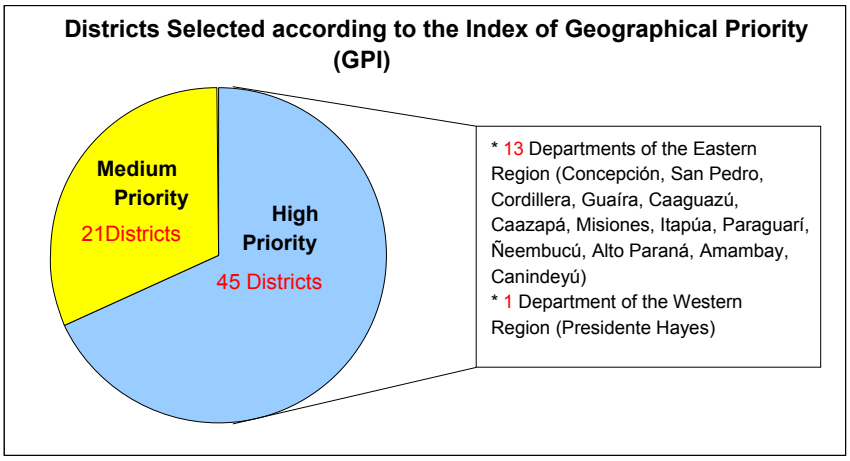
Selection Methodology for Non-Indigenous Rural Communities

149. **For the selection of the communities, SENASA mostly assesses two methodological options, or a third one which combines the first two. A final decision will be made prior to the negotiation of the Loan and will be an integral part of this Framework.** The first alternative is to establish the priority communities according to the Geographical Priority Index[60] that is being developed in the framework of another Project which is financing the studies and designs of works, while the MPWSS would take care of the construction of the works. If this is the selection alternative, SENASA would intervene in 14 of the 17 departments of the country, with the priority levels depicted in Figure 2.

Figure 2. Districts Selected According to the Geographical Priority Index for Assistance of SENASA

[59] 60 % Survey for 66 districts in which there are the communities to be assisted by SENASA in the framework of the Cooperation with the European Commission. The designs would be financed by this cooperation, and the execution would be carried out with the support of this Project.

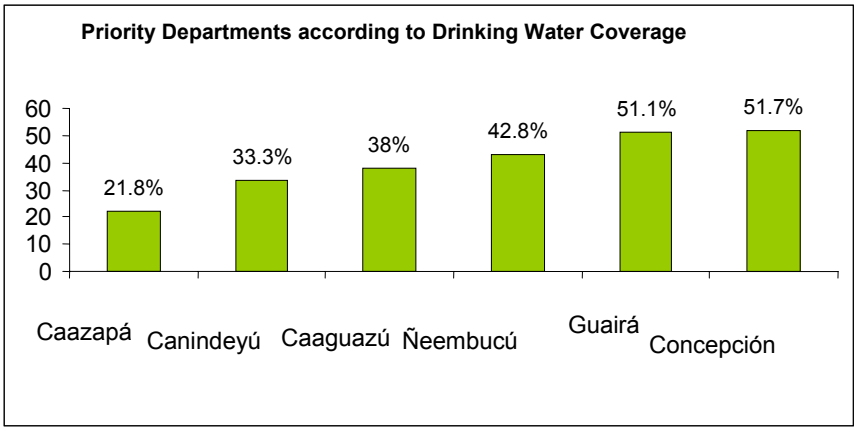
[60] The design of the GPI mainly it needs to prioritize the population that has most chronic poverty, combining methodology of measurement of poverty per income (Extreme Poverty Line EPL) and per UBNs. The GPI identifies the poorest locations (districts and neighborhoods) of the country based on data of the 2002 Census and the 2003 Permanent Home Survey. In this way it is possible to address efforts to the districts where the greatest levels of poverty are concentrated. In the selected districts a Census is carried out with the application of the "Beneficiary Selection File" or "Home File" and the data collected are examined based on the application of a Quality of Life Index, which enables identification of the poorest families of the location. The variables selected through statistics procedures are then used for the design of the Beneficiary Selection File applied to each of the homes of the districts to order families according to their quality of life. A formula was created for each area as reality and theory indicate pronounced differences in the Quality of Life of the home in the urban and rural areas. The Quality of Life measures the capacity of the family to access a set of desirable goods and services during a given period of time. Quality of Life indicators were grouped into: a) individual physical capital measured by the quality of the house and the possession of durable goods; b) collective physical capital measured by access to home public utilities, to health and health insurance; c) individual human capital measured by the education of the head of household, of his spouse and children; d) and collective human capital measured by integration into the labor market.



Source: SENASA. 2008

150. **The second alternative envisages different levels of priority according to the drinking water coverage at the departmental level.** This screening begins by analyzing coverage data and other variables such as the poverty index, distance to a source of water, etc. by department, then the screening is repeated at the district level and finally at the level of locations. In this case, SENASA would be assisting 6 of the 17 departments of the country.

Figure 3. Priority Departments according to Drinking Water Coverage for Assistance of SENASA



Source: SENASA.2008

151. **The third alternative combines the two previous methodologies.** First the departments on which efforts will focus are defined according to their levels of non-access to drinking water, and then the GPI and Family File methodologies are applied so as to reach the poorest of the poor.

b. Works in Indigenous Rural Communities

Environmental and Social Assessment and Areas de Influence of the Subprojects

152. **Point 36 among others of this Environmental and Social Management Framework and the Indigenous Peoples Management Framework, contains general and specific details on the environmental and social issues respectively, involving assistance to indigenous communities, among which the works.** Both Frameworks contain a summary of the main lessons learned in the management of indigenous communities during IBRD IV. The IPMF contains the following main points:

i. Possible Impacts of the Programs and Subprojects on Indigenous Communities
ii. Selection Methodology of Indigenous Communities Beneficiaries of the Program
iii. Bases to perform the Social Assessment of the Programs or Subprojects for Indigenous Communities
iv. Framework to Ensure Prior, Open and Informed Consultations of the Indigenous Communities Affected by the Stages of the Project Cycle
v. Principles to Observe for Adequate Consultation and Participation of the Indigenous Communities and Strategies for Action.
vi. Institutional Mechanisms for the Selection of the Programs or Subprojects to be financed by the Project and guidelines for the Indigenous Peoples Plan: content, institutional responsibilities, management and settlement of claims.

153. Regardless of the above, this part of the ESMF summarizes certain aspects of the intervention and the process.

154. **Regarding numbers, as in the case of rural works for non-indigenous communities, they have been estimated according to the experience of SENASA in relation to the type of works and costing.** Given the programmatic nature of this Project, this number will be distributed in Lists of Geographical Priority and Lists of Priority Communities to be Assisted, whenever possible per Type of Works.

155. **The definition of the areas of influence for rural works assisted by SENASA is not possible or necessary. As indicated in point 54, due to their low levels, no rural works have required special studies of environmental impact and they have been managed with a Socio-Environmental Plan to comply with the requirements of the country's legislation to obtain the environmental license.** It is unlikely that areas of influence of the subprojects supported by SENASA will be identified because its coverage of assistance is at the national level and its Projects are programmatic, which is consistent with the level of water and sanitation need which is also at the national level. However, environmental impacts are predictable and typifiable and described in the Manual of Technical Specifications of the Sector. See Annex 9. In this Project, SENASA will manage a community selection methodology which will enable greater efficiency, transparency and accountability on its assistance.

156. **For the selection of the communities, SENASA will define a methodology based on the two methodological options, or a third one combining both, and said methodology will be an integral part of this Framework.**

Works

157. **All the water and sanitation systems are initiated with social promotion and assistance in the community organization.** The community has broad participation in decision-making on the type of solution to be adopted. This document focuses on the works.

158. **New Water Systems.** 30 new systems would be constructed in communities benefiting 3,000 inhabitants. The systems will be built based on: a) rainwater collection in lagoons or *tajamares*, which are artificially excavated ponds where rainwater is collected and channeled to the surrounding area, and b) rainwater collection in water tanks on the roofs. The pumping system uses wind energy (windmill) which pumps the water to an elevated or Australian tank which by gravity distributes through pipes to public taps or sanitary units (shower, hand basin, reservoir).

159. **Rehabilitation and Expansion of the System.** 30 existing systems, which for different reasons have deteriorated over time, would be rehabilitated and expanded. In many cases this deterioration is due to lack of culture and maintenance capacity of the communities. The components of these systems will be defined in accordance with the needs of each community.

160. **Improvement of Existing Infrastructure.** 30 improvement works would be carried out, both of sources and systems already in place.

Basic Sanitation

161. **Basic Sanitation consists of the provision of materials and technical assistance for the construction of sanitary latrines in each house.** The main objective is to improve the level of health of rural and indigenous populations, and avoid environmental contamination, reducing gastrointestinal and parasitic diseases, especially among children. Locals who do not receive this service defecate on the roads, around their house, in the crops, etc., creating a high health risk for the population, mainly of children who might catch infectious transmissible diseases, parasitosis, among others.

Selection Methodology of the Indigenous Communities Beneficiaries of the Program

162. **The estimated number of works will be distributed in Lists of Priority Assistance, to the extent possible per Type of Works**. In all cases it will be borne in mind that ethnic groups represent political and social units and cannot be divided using the same criterion of political division of the country without creating internal conflicts which could affect them negatively, therefore, the communities will be considered with the criterion established in the List of Priority Communities to be Assisted.

163. **The communities will be selected based on the Lists of Geographical Priority, by demand according to the criteria** that will be confirmed with the participation of the actors involved in the sector and the institutions involved in the development of indigenous populations **:** i) letter of interest of the community; ii) a minimum of 25 houses; iii) no water system built by another institution and in operation; iv) land of their own or proof indicating the stage of the procedures for ownership of the land endorsed by INDI and INDERT.

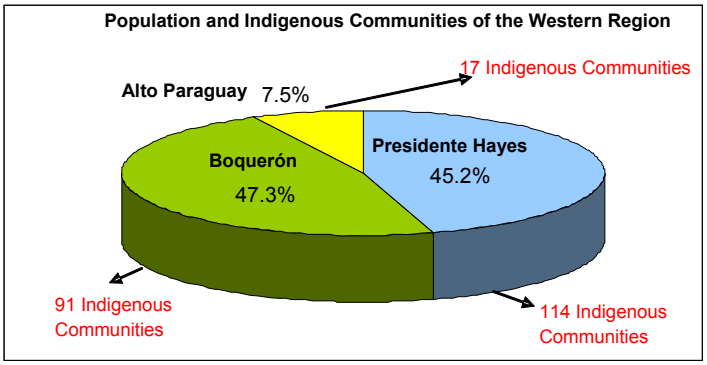
164. **For the selection of the communities, SENASA has beforehand the number of communities per villages that have received its assistance, leaving the remainder as potential beneficiaries.** The latter is due to the fact that only field visits can confirm if assistance is necessary and the type of works required. Hence, the list of 222 communities of the Chaco (Table 2), that has no criterion of priority, indicates that 109 of the 222 communities are potential beneficiaries. This and other scenarios are described from Figure 4 to Figure 8.

Table 2. Population and Number of Indigenous Communities in the Western Region

Departments	Population	%	Number of Communities
Presidente Hayes	19,134	45.2%	114
Boquerón	19,989	47.3%	91
Alto Paraguay	3,166	7.5%	17
Total	**42,289**	**100.0%**	**222**

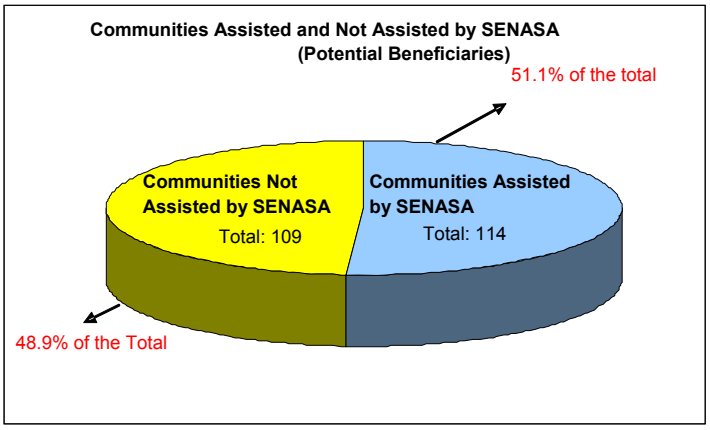
Source: SENASA with 2003 DGEEC data and field survey

Figure 4. Percentage of the Population and Number of Indigenous Communities in the Western Region



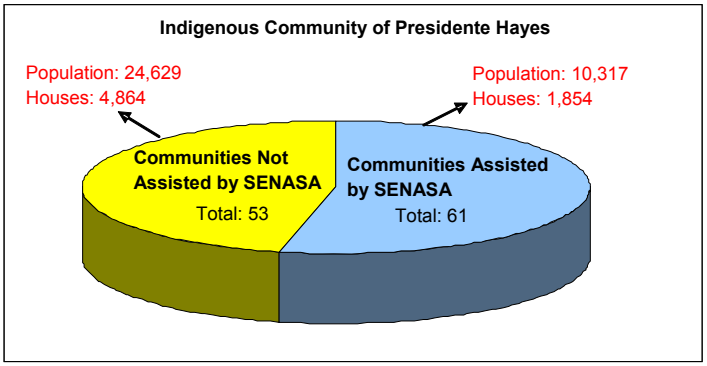
Source: SENASA with DGEEC data, 2003 and field survey

Figure 5. Indigenous Communities of the Chaco, Assisted and Not Assisted by SENASA



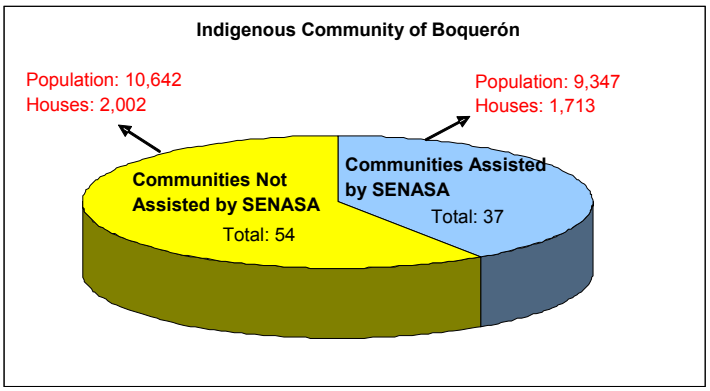
Source: SENASA with DGEEC, 2003 data and field survey

Figure 6. Indigenous Communities of Presidente Hayes, Assisted and Not Assisted by SENASA



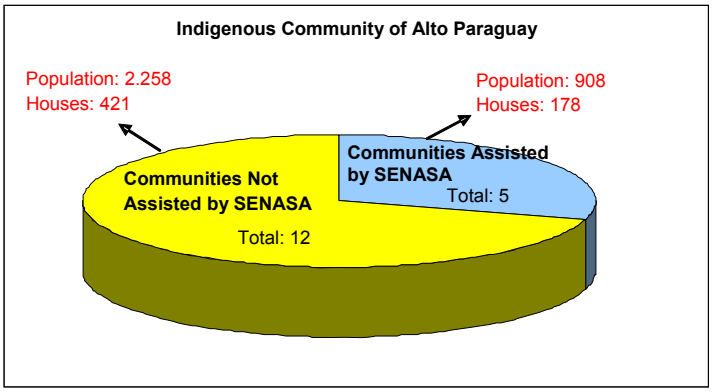
Source: SENASA with DGEEC, 2003 data and field survey

Figure 7. Indigenous Communities of Boquerón, Assisted and Not Assisted by SENASA



Source: SENASA with DGEEC, 2003 data and field survey

Figure 8. Indigenous communities of Alto Paraguay, Assisted and Not Assisted by SENASA



Source: SENASA with DGEEC, 2003 data and field survey

More information in the Indigenous Peoples Management Framework, Annex 3

F. ENVIRONMENTAL AND SOCIAL CLASSIFICATION METHODOLOGY OF THE SUBPROJECTS

165. **The Risk Assessment Methodology** is based on a rapid revision or *screening* of certain environmental and social aspects that are on a *checklist*, which can generate different degrees of risk.

166. **Different levels of environmental – social risks and variables to be considered.** Urban and rural subprojects may have different levels of environmental-social risk. This level of risk will consider i) the "typology" of the Project and ii) the typology of "the environment". The preliminary environmental analysis will consider other variables depending on each subproject, such as the load capacity, presence of environmental liabilities, presence of cumulative impacts, among others.

167. **The first classification differentiates the drinking water subprojects from the sanitation subprojects**

Table 3. Water

	Scope		
Type de Works (1)	**a) New Construction**	**b) Expansion**	**c) Rehabilitation**
A. Exploitation of Surface Sources (> 500m3/h)	New or large expansion works. May require new lands.	Expansion of the present characteristics of a project, as for example the expansion of the generation capacity, increase of reservoirs, expansion of distribution networks, among others. May require new lands.	Take a deteriorated project to its original state. All the works are performed on the existing structure or in the right of way or property. Does not require new lands.
B. Adductors in non-intervened areas (> 300 mm)			
C. Adductors and Primary Network (> 500 mm)			
D. Exploitation of surface sources (< 500 m3/h)			
E. Adductors and Primary Network (< 500 mm)			
F. Purification Plant			
G. Exploitation of underground sources			
H. Exploitation of rainwater			
I. Storage Tanks			
J. Secondary Network			
K. Connections			

(1) The gamut of type of works is for reference purposes and the list may be increased as required.

Table 4. Sanitation

	Scope		
Type de Works (1)	**a) New Construction**	**b) Expansion**	**c) Rehabilitation**
A. Subaqueous outfall without treatment (collectors)	New or large expansion works. May require new lands.	Expansion of the present characteristics of a project, as for example the expansion of the generation capacity, increase of reservoirs, expansion of distribution networks, among others. May require new lands.	Take a deteriorated project to its original state. All the works are performed on the existing structure or in the right of way or property. Does not require new lands.
B. Treatment Plant (> 20,000 m3/day)			
C. Treatment Plant (< 20,000 m3/day)			
D. Pump Station			
E. Primary Network			
F. Secondary Network			
G. Connections			

(1) The gamut of type of works is for reference purposes and the list may be extended as required.

Classification in terms of the Typology of the Subproject: Type I, Type II, Type III and Type IV

168. This classification enables a first approach to the potential environmental and social risks of a project. Projects Type I are those that potentially present greater socio-environmental risks, while Type IV projects present least risks.

Table 5. Water

	Scope		
Type de Works (1)	**a) New Construction**	**b) Expansion**	**c) Rehabilitation**
A. Exploitation of Surface Sources (> 500m3/h)	**Type I**	**Type II**	**Type III**
B. Adductors in non-intervened areas (> 300 mm)			
C. Adductors and Primary Network (> 500 mm)	**Type II**	**Type II**	**Type III**
D. Exploitation of surface sources (< 500 m3/h)			
E. Water Purification Plant			
F. Adductors and Primary Network (< 500 mm)	**Type III**	**Type III**	**Type III**
G. Exploitation of Underground Sources			
H. Exploitation of rainwater			
I. Storage Tanks			
J. Secondary Network	**Type III**	**Type III**	**Type IV**
K. Connections			

(1) This range of type of works is for reference purposes and this list may be expanded if necessary.

Table 6. Sanitation

	Scope		
Type de Works (1)	**a) New Construction**	**b) Expansion**	**c) Rehabilitation**
A. Subaqueous Outfall without Treatment Plan	**Type I**	**Type I**	**Type II**
B. Treatment Plant (> 20.000 m3/day)			
C. Treatment Plant (< 20.000 m3/day)	**Type I**	**Type II**	**Type III**
D. Pump Station	**Type II**	**Type III**	**Type III**
E. Primary Network	**Type II**	**Type III**	**Type III**
F. Secondary Network			
G. Connections	**Type III**	**Type IV**	**Type IV**

(1) This range of type of works is for reference purposes and this list may be extended if necessary.

169. **When a project envisages the execution of several types of works that might fall into more than one of these classifications,** their categorization will be the one with the greatest impact.

Classification of a project according to the "Sensitivity of the Natural Environment"

170. Once the classification of a project according to its typology has been defined, the level of sensitivity of the natural and social environment where the subproject is to be developed is measured in order to define the level of socio-environmental risk more precisely. A checklist has been prepared to determine the degree of sensitivity of the natural and social environment based on secondary information (reports, maps, etc.) and a field visit.

Table 7. **Classification of a subproject according to the Sensitivity of the Natural Environment**

SENSITIVITY OF THE ENVIRONMENT	DESCRIPTION	
HIGH	- Area with Environmental Protection Regime– SEAM	☐
	- High index of biodiversity - SEAM	☐
	- High degree of endemism - CITES	☐
	- Mountainous slopes with rugged terrain (slope > 35%) when expansion or construction of infrastructure has been envisaged	☐
	- Areas vulnerable to natural phenomena (floods, droughts, others)-SEN	☐
	- Presence of ecosystems recognized as of high or critical sensitivity (wetlands, primary or secondary forests, others) – SEAM	☐
MODERATE	- Buffer Areas of Protected Areas – SEAM	☐
	- Moderate-high degree of biodiversity –SEAM	☐
	- Moderate-high degree of endemism – CITES	☐
	- Undulating terrain (slope 15 to 35%) when the expansion or construction of infrastructure works is planned	☐
	- Areas of medium risk to natural phenomena (floods, droughts, others)-SEN	☐
	- Presence of ecosystems recognized as having moderate sensitivity (rivers, lagoons, secondary forests, others)	☐
LOW	Areas anthropically intervened outside areas declared as national parks or as buffer areas of national parks – SEAM	☐
	Low-moderate degree of biodiversity – SEAM	☐
	Low-moderate degree of endemism – CITES	☐
	Flat terrains (slope <15%)	☐
	Areas with low risk to natural phenomena (floods, droughts, others)-SEN	☐

Note: The level of sensitivity of the environment must be estimated for each component or subproject of the Project, assigning the highest level to the entire Project.

Environmental-Social Category of the Subproject

171. Once the degree of sensitivity of the natural environment and the classification of the subproject have been determined in terms of its typology, the Category of the subproject is determined according to its level of environmental risk. This Category presents three levels of risk: High, Moderate and Low. Below there is a matrix to obtain these results:

Matrix 1. Summary of Environmental – Social Risk of the Subproject

Type de Works (1)	**Scope**		
A. Exploitation of Surface Sources (> 500m3/h)	**a) New Construction Type I**	**b) Expansion Type II**	**c) Rehabilitation Type III**
B. Adductors in non-intervened areas (> 300 mm)			
C. Adductors and Primary Network (> 500 mm)	**a) New Construction Type II**	**b) Expansion Type II**	**c) Rehabilitation Type III**
D. Exploitation of surface sources (< 500 m3/h)			
E. Water Purification Plant			
F. Adductors and Primary Network (< 500 mm)	**a) New Construction Type III**	**b) Expansion Type III**	**c) Rehabilitation Type III**
G. Exploitation of Underground Sources			
H. Exploitation of rainwater			
I. Storage Tanks			
J. Secondary Network	**a) New Construction Type III**	**b) Expansion Type III**	**c) Rehabilitation Type IV**
K. Connections			

Matrix 2. Environmental Risk of the Subproject (extended version): Example for Water.

	HIGH	**MODERATE**	**LOW**
PROJECT TYPOLOGY	Area with Environmental Protection Regime High index of biodiversity High degree of endemism Mountainous terrain with geographical features (slope > 35%) when expansion or construction of infrastructure is planned Areas vulnerable to natural phenomena (floods, quakes, others) Presence of ecosystems recognized as of high or critical sensitivity (rainforests, primary or secondary forests, others)	Buffer Areas Protected Areas Moderate-high degree of biodiversity Moderate-high degree of endemism Undulated terrain (slope 15 to 35%) when expansion or construction of infrastructure works is planned Areas of medium risk to natural phenomena (floods, others) Presence of ecosystems recognized as of moderate sensitivity (rivers, lagoons, secondary forests, others)	Anthropically intervened areas beyond the areas declared as national parks or buffer areas Low-Moderate degree of biodiversity Low-Moderate degree of endemism Flat terrains (slope <15%) Areas of low risk to natural phenomena (floods, drought, others)
Type I **a. New Construction** A. Subaqueous Outfall B. Treatment Plant (> 20,000 m3/day) C. Treatment Plant (< 20,000 m3/day) **b. Expansion** A. Subaqueous Outfall B. Treatment Plant (> 20,000 m3/day)	**A**	**A**	**B**

	HIGH	MODERATE	LOW
PROJECT TYPOLOGY	Area with Environmental Protection Regime High index of biodiversity High degree of endemism Mountainous terrain with geographical features (slope > 35%) when expansion or construction of infrastructure is planned Areas vulnerable to natural phenomena (floods, quakes, others) Presence of ecosystems recognized as of high or critical sensitivity (rainforests, primary or secondary forests, others)	Buffer Areas Protected Areas Moderate-high degree of biodiversity Moderate-high degree of endemism Undulated terrain (slope 15 to 35%) when expansion or construction of infrastructure works is planned Areas of medium risk to natural phenomena (floods, others) Presence of ecosystems recognized as of moderate sensitivity (rivers, lagoons, secondary forests, others)	Anthropically intervened areas beyond the areas declared as national parks or buffer areas Low-Moderate degree of biodiversity Low-Moderate degree of endemism Flat terrains (slope <15%) Areas of low risk to natural phenomena (floods, drought, others)
Type II **a. New Construction** E. Primary Network F. Secondary Network **b. Expansion** C. Treatment Plant (< 20,000 m3/day) **c) Rehabilitation** C.Treatment Plant (< 20,000 m3/day) D. Pump Station	**A**	**B**	**B**
Type III **a. New Construction** G. Connections **b. Expansion** E. Primary Network F. Secondary Network **c) Rehabilitation** C. Treatment Plant (< 20,000 m3/day) D. Pump Station **c) Rehabilitation** E. Primary Network F. Secondary Network **d) Maintenance** C. Treatment Plant (< 20,000 m3/day) D. Pump Station	**B**	**B**	**C**
Type IV **b. Expansion, c. Rehabilitation and d. Maintenance** G. Connections **d. Maintenance** E. Primary Network F. Secondary Network	**B**	**C**	**C**

Category A: High level of socio-environmental risk
Category B: Moderate level of socio-environmental risk
Category C: Low level of socio-environmental risk

172. **Completion of the Preliminary Environmental-Social Assessment Form (PESAF).** The Environmental-Social Category of a subproject according to the above-mentioned methodology is included in this form, and generally by means of a secondary information and

field visit, as required. The PESAF must be completed by the entity responsible for environmental management within the Executor Agency of the works or to whoever said responsibility is delegated. With the application of the File, necessary complementary and/or social studies will also be identified to comply with the Bank's Safeguard Policies and national environmental legislation. The format of the Form is included in Annex 13.

Summary of the Environmental Risk

Matrix No. 3
Level of Socio-Environmental Risk

Project Typology	Sensitivity of the Environment		
	High	**Moderate**	**Low**
Type I	A	A	B
Type II	A	B	B
Type III	B	B	C
Type IV	B	C	C

Category A: High level of socio-environmental risk
Category B: Moderate level of socio-environmental risk
Category C: Low level of socio-environmental risk

STUDIES REQUIRED ACCORDING TO THE ENVIRONMENTAL AND SOCIAL CATEGORY OF THE PROJECT

173. **Preliminary Assessment of a Subproject.** During this stage, once the level of socio-environmental risk has been established in the PESAF, the necessary environmental and/or social assessments need to be determined in order to comply with national environmental legislation, as well as the Bank's Safeguard Policies.

174. **Studies of the main areas of influence of the urban works required by the EIA.** Those corresponding to major urban works are initially placed in the TORs of the IEIA, Annex 1.

Studies Required by the National Environmental Legislation

175. In compliance with national environmental legislation, once the subproject Category has been determined, the following documents will be required for the registration of supply sources and the Certificate of Availability (Law No. 3239) and the following studies will be according to the level of environmental risk:

- **Category A**

  If a subproject has been classified as of HIGH socio-environmental risk, the presentation of the respective Environmental Impact Assessment (EIA) is required. This study needs to be performed by the environmental specialist of the Executor Unit of the works and/or with the support of an independent specialized professional duly registered at the SEAM. In case of discrepancy between provisions in the TORs, the terms prepared in accordance with the Bank's Safeguard Policies will be applied.

- **Category B**

  If a subproject has been as of MODERATE environmental-social risk, it will require presentation of the respective Basic Environmental Questionnaire (BEQ). This study needs to be performed by the environmental specialist of the Executor Unit of the works and/or with the support of an independent specialized professional duly registered at the SEAM. Annex 13 presents the minimum content required for this type of study.

- **Category C**

  The projects classified as Category C, i.e. of low socio-environmental impact, do not require environmental assessments. However, the sector's manuals on good environmental practices or environmental technical specifications need to be applied.

  The sector has an Environmental Specifications Manual for the design, construction and operation of sanitation projects, has been included in Annex 7[61].

176. These studies and technical specifications must be part of the technical feasibility studies or be developed in a parallel way, so as to include the necessary measures and actions to minimize socio-environmental risks in the design of the works.

Classification of a Subproject in terms of the "Sensitivity of the Social Environment"

177. Once the classification of a project has been determined according to its typology by determining the level of social risk of the natural environment where the subproject is to be developed, the Involuntary Resettlement and Acquisition of Property Policy Framework and the Indigenous Peoples Management Framework must be applied.

Classification of the Project in terms of Sensitivity to the Social Environment, included in OP 4.10 and 4.12 of the World Bank	
Impacts	**Instruments to Apply**
☐ Involuntary Resettlement Check the existence of direct economic and social facts resulting from the investment projects financed by the Bank and caused by: ☐ a) Involuntary deprivation of land as a result of: i) displacement or loss of housing; ii) loss of assets or of access to assets, or iii) loss of sources of income or of means of subsistence, whether those affected had to go elsewhere or not, or ☐ b) Involuntary restriction of access to areas qualified by law as parks or protected areas, with the subsequent adverse effects on the subsistence of displaced persons.	The Involuntary Resettlement Policy Framework of the Project, Annex 2.
☐ Check the existence of Indigenous Populations	The Indigenous Peoples Management Framework of the Project, Annex 3.
☐ Presence of sites of cultural interest in the direct area of influence	Complementary studies will be prepared according to the TORs, in Annex 11 and their recommendations will be applied.

[61] Sectoral Environmental Assessment, Facetti, Juan Francisco. 1997.

☐ Survey other social impacts resulting from the environmental impacts that do not necessarily generate the Bank's social safeguard policies.	Except in relation to Involuntary Resettlement or Indigenous Populations, depending on the type of impact, complementary studies will be prepared and their recommendations will be applied.

ENVIRONMENTAL-SOCIAL MANAGEMENT INSTRUMENTS FOR INTERNAL USE

178. **The instruments prepared for internal use in the different stages of the project cycle are as follows:** a) Preliminary Environmental-Social Assessment Form (PESAF); b) Environmental Assessment Report (EAR); c) Environmental Follow-up Report (EFR); and d) Final Environmental Report (FER).

Preliminary Environmental-Social Assessment File (PESAF)

179. **In Category C projects no Basic Environmental Questionnaire is presented and the respective environmental information will be kept on the file of the studies and reports of the works.** This instrument must be prepared by the institution responsible for environmental management within the Project Coordination Unit (PCU), in order to categorize a subproject on the basis of secondary and field information**.** By applying this Form it will be possible to determine if an EIA is necessary or if complementary environmental and/or social studies are required to comply with the Bank's Safeguard Policies. The Form format is presented in Annex 13.

Environmental-Social Assessment Report (ESAR)

180. **This document is prepared by the institution responsible for the environmental management of each of the Project Coordination Unit (PCU) which includes a summary of the results of the environmental assessment performed, at the level required, during the socio-environmental assessment process of a specific subproject.** Some of the aspects included in this document are the studies carried out, the environmental and/or social budget required for the implementation of the socio-environmental actions and measures, among others. The format of this instrument is presented in Annex 13.

Environmental-Social Follow-Up Report (ESFR)

181. **This instrument is required for follow-up during the execution of the works in order to ensure the execution of the actions agreed in the respective Environmental Management Plans.** Basically the ESFR contains information on the regular field visits performed during the execution of the works, in order to verify compliance with the Environmental Management Plans and with other complementary Plans identified during the assessment of the subproject. It also includes information on the persons that visited the subproject and concludes with some recommendations. Annex 13 presents a format of this instrument as a guide for its preparation.

Final Environmental-Social Report (FESR)

182. **This document is required once the construction stage of the works has been completed in order to check on compliance with all the actions and measures agreed-on in the respective plans.** Annex 1 presents a format of this instrument as a guide for its preparation.

ENVIRONMENTAL AND SOCIAL MANAGEMENT, PROCESSES AND PROCEDURES

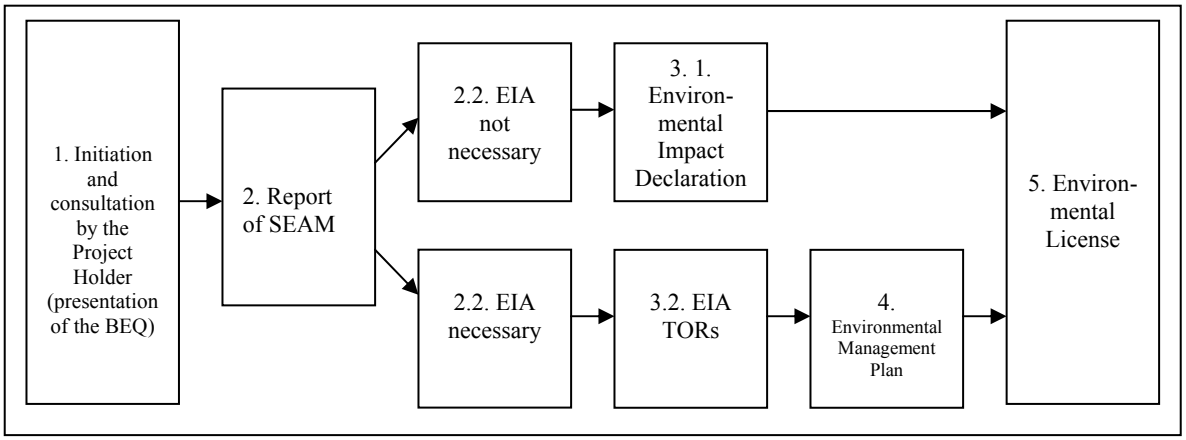
183. **The responsibility for environmental and social management pertains to the institutions responsible for the execution of the works (SENASA and ESSAP)** by means of the respective Environmental Units or the departments responsible for environmental management.

184. **Environmental-social management procedures are differentiated according to the category of the works established in this Framework.** The works categorized as A and B will aim at obtaining the environmental license as envisaged in the national legislation, and for the same purpose Category C will be ruled by the Environmental Technical Specifications of the Sector, which are part of this Framework. See Annex 9.

Environmental Licensing of Subprojects Categories A and B

185. **According to national legislation, the works envisaged in the Project, as almost all works, regardless of their size and scope, must perform an Environmental Impact Assessment that concludes with the issuance of the environmental license.** The works of the Project categorized as A and B will follow the process established in the national legislation.

Figure 1 Environmental Licensing Process – National Legislation



1. Initiation and Consultations by the Project Holder to the SEAM

Communication to the SEAM, accompanied with the Basic Environmental Questionnaire (BEQ)), the certificate of location issued by the Municipality of the jurisdiction and a declaration of interest to the departmental government on the undertaking, and registration forms required by the General Directorate of Protection and Conservation of Water Resources (DGPCRH) of the SEAM[62]; or, failing that, the records of notes accompanied with basic information on the Project, remitted to the municipality and the local government, with the request for said documents.

2. Report of the SEAM on:

2.1. the need to perform or not perform

2.2. an Environmental Impact Assessment (EIA) and issuance of Terms of Reference (TORs). This decision must be communicated within 30 (thirty) business days as of compliance of all the requirements for the study of the BEQ. If the SEAM does not provide this decision within said period of time, it may be assumed that there is no need for an EIA.

3.1. Environmental Impact Declaration (EID): approval or rejection of the Project, simple or conditioned to a two-year time-span.

3.2. Definition of the TORs to carry out the EIA, which will be informed by SEAM to the Project Holder.

4. The obligation of compliance with the EMP is issued in conjunction with the EID, which will constitute the document that will grant

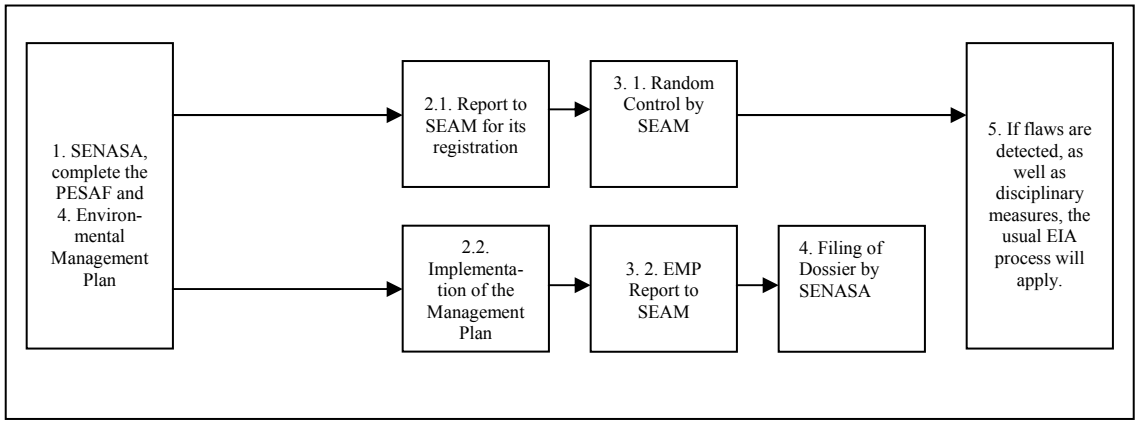
5. the license to initiate or carry on with the works or activity to the applicant.

[62] In order to implement the National Registry of Water Resources and apply Law Nº 3239/07 on Water Resources of Paraguay

Environmental Licensing of Category C Subprojects

186. **The works categorized as C envisaged in the Project** will follow this procedure:

Figure *2.* Process of Environmental Licensing for Subprojects Category C



Procedures to be followed once the works have been completed and institutions responsible

187. In the case of ESSAP, ESSAP will be responsible for the procedures of the respective permits before the DGPCRH of the SEAM for usufruct of waters of surface or underground sources for the drinking water service and for the discharge of treated effluents.

188. As to the works addressed by SENASA, the Sanitation Boards or another kind of organization in charge of running the system will be responsible before the DGPCRH of the SEAM for obtaining the respective permits to use water sources for human supply and environmental sanitation.

Environmental Control and Follow-up

189. As part of the process of environmental control and follow-up, the SEAM has authority to perform environmental inspections to check on the validity of the information submitted on the Project in execution. In there is no consistency between what is being executed and the information submitted, the SEAM must apply the respective disciplinary measures. If the developer wishes to continue the activity, works or project, the developer must be allowed to do so provided the modified EIA is submitted within ten business days.

Procedures for the preparation of the internal environmental-social management instruments in terms of the Project cycle

190. The procedures and responsibilities relating to environmental management are described below. They must be carried out by the institutions responsible for execution of the works (SENASA and ESSAP) in each stage of the project cycle in order to ensure compliance with this Management Framework:

a. Identification Stage

i. During the identification stage of the subprojects, the Project Coordination Unit (PCU) and the institution responsible for environmental management participate as of the early stages of the Project, in order to advise on potential environmental-social risks in the potential investments;

ii. The PCU checks to ensure that the subprojects coincide with the objectives and scopes of the Project;

iii. The institution responsible for the execution of the works requests "no objection" to the Bank, if applicable, to incorporate the Project into the portfolio of subprojects to be financed with Bank resources; and

iv. If "no objection" is required, once it has been granted the process of preparation of the subprojects is initiated.

Note: "no objection" means the Bank's conformity which is required in key instants of the project cycle in order to continue.

b. Assessment Stage

The assessment stage is made up of the following stages in terms of analysis of the studies: profile, prefeasibility, feasibility and design. In the case of minor works, such as the rural component, several cases will not require all these sub-stages and the subproject may leap from the profile stage to feasibility or final design.

c. Profile

a. **The PCU initiates this stage with the preparation of the Project Profile.** All projects, regardless of the type of works envisaged, must have this document;

b. In this first stage of the assessment and preparation of studies, the Environmental-Social Unit of the institution responsible for the execution of the subproject (UASA-SENASA or UASA-ESSAP), must fill in the **Preliminary Environmental – Social Assessment Form (PESAF)**, in order to categorize the subproject in terms of the level of environmental-social risk and identify the environmental and social studies that will be required during the assessment stage;

c. **For Categories A and B, the Municipal Location Certificate (MLC) and the Declaration of Departmental Interest (DDI)** are requested to the respective

authorities as part of the procedures that need to be included in the documentation required by the SEAM, prior to the approval of the agreed environmental studies;

d. In the case of projects Category A and B HIGH and MODERATE environmental-social risk, the Form is sent to the IBRD for the respective "no objection".

d. Prefeasibility

a. In the case of projects Category A, an **Environmental Impact Assessment (EIA)**, needs to be prepared in this stage, including the respective analysis of alternatives;

b. The projects classified as Category B and C, i.e. MODERATE and LOW RISK will not require studies in this stage;

c. The PCU requests the TORs to the SEAM for contracting the EIA and other studies required as per the application of this document: Involuntary Resettlement Plan to be prepared in accordance with the Resettlement Policy Framework; the Indigenous Peoples Plan as applicable and based on provisions in the Indigenous Peoples Management Framework; the Archaeological Salvage Plan; among others. The respective public consultations will also be required, as provided for this type of projects; and

d. The PCU contracts the EIA and once completed it revises it and then sends it to the SEAM for its revision. The respective "Public Hearing" is carried out;

e. If there are observations both from the SEAM and from the Public Hearing process, these are included in the EIA and then it is sent once again to the SEAM for its approval and the issuance of the respective Environmental License; and

f. Evidence of the Environmental License is sent to the Bank for the respective "no objection" that will be required depending on the category of the works.

e. Feasibility

a. For projects Category B (moderate socio-environmental risk), this stage will require the respective **Basic Environmental Questionnaire (BEQ)** in accordance with the guidelines established by the SEAM.

b. If necessary, the complementary studies indicated in this document will be required: the Action Plan for resettlement in cases of less than 10 houses; the national cultural and/or physical heritage protection plan; among others. The respective public consultations will also be required during the preparation of the Feasibility Study; and

c. In the case of projects Category C (low socio-environmental risk), the Application of Environmental Measures will be required and commitment to apply the respective Environmental Manuals and Environmental Technical Specifications of the Sector;

d. Once the assessment stage of a subproject has been completed, the respective **Environmental Assessment Report (ESAR)** must be prepared, as well as the summary of all the activities and studies (especially the environmental and social ones) that were developed during the assessment stage of the subproject.

The following table summarizes the requirements of studies during the assessment stage:

Table 8. Studies required in the Assessment Stage according to Stages of Analysis.

Stage of Analysis	Level of Environmental – Social Risk		
	Category A	**Category B**	**Category C**
Profile	Preliminary Environmental and Social Assessment File	Preliminary Environmental and Social Assessment File	Preliminary Environmental and Social Assessment File
Prefeasibility	Study of alternatives; planimetric design; consultations)		
Feasibility	EIA (Resettlement Plan; Archaeological Salvage Plan; public consultations; publication of the EIA)	BEQ (Resettlement Plan; Archaeological Salvage Plan; public consultations; publication of the EIA)	Application of Technical Environmental Specifications and Sworn Declaration of Application of Environmental Measures
Internal Environmental Management Instrument	Prepare ESAR	Prepare ESAR	Prepare ESAR

G. COMMUNICATION AND CONSULTATION ON THE ENVIRONMENTAL-SOCIAL FRAMEWORK AND ON THE SUBPROJECTS

191. **The ESMF is consistent with the Communication and Participation Plan of the Project, the purpose of which is to keep the public in general informed, and develop a fluid and bidirectional, objective, clear, transparent and timely interaction with relevant governmental and non-governmental actors, the families and/or persons benefited and/or affected by the Project.** The levels of information and consultation depend on the communication needs through hearings and per stages of the Project cycle. Details on the consultations performed to date are included in Annex 14.

192. **The Communication Plan of the ESMF is made up of 3 plans and the two other Frameworks of the Project in the following way:** i) the ESMF Plan is the responsibility of all the executor institutions of the Project ii) the Involuntary Resettlement and Acquisition of Property Plan is the responsibility of all the executor institutions of the Project, particularly ESSAP and SENASA, and iii) the Indigenous Peoples Plan is the responsibility of SENASA as the institution in charge of promoting and executing the works and providing organizational, administrative and technical assistance to urban or rural populations with 10,000 inhabitants or less. In this context, SENASA is the agency that has been providing assistance to indigenous populations of barely 100,000 inhabitants in the country. SENASA also prepared a participatory Indigenous Peoples Management Framework in accordance with

the requirements of Safeguard Policy OP 4.10, the extended version of which is provided separately.

193. **The ESMF Communication Plan will be developed with specific guidelines and protocols consistent with the principles of participation that will govern Project and which will be reflected in the Communication Plans, including the Communication Plans of the Social Safeguard Frameworks of the Project. They are:** i) establishment of feasible participation mechanisms , ii) establishment of participation mechanisms prepared with the basic objectives of transparency, responsibility of delivery of public service and an anti-corruption approach; iii) promotion of arenas of dialogue based on realistic and objective data avoiding the creation of expectations that cannot be met; iv) positive discrimination for the most vulnerable groups, such as women, young persons, children, older persons and indigenous communities. Once approved, these instruments will become part of the ESMF Communication Plan.

194. **The ESMF and its Communication Plans will be developed based on provisions in** Table 9**:**

Table 9. ESMF Communication Plan in the Project Cycle

Stage	Objectives	Actors	Content	Media
Preparation of the MPWSS	– Allow citizens in general and public and non-governmental actors to be informed on the purpose, objectives, components, activities, possible works, expected results during the process and final stages of the Project. – Inform and collect inputs on the ESMF, TORs of the EIA, the IRPF and IPMF. – Establish formal channels of communication, consultation that enable dialogue and the clearing of concerns at this level and generate a favorable environment towards the Project.	Public: – Relevant public institutions at the central level – Relevant local governments – Non-governmental: – Relevant associations and organizations	ESMF Project and in the cases which are relevant: TORs of the EIA IRPF IPMF	– Scheduled meetings with specific groups. – Publication in the local media of the populations involved.
Definition of the subprojects	– Inform and gather opinions, suggestions and others during the assessment, execution and operation of a subproject, in terms of environmental-social risk of the subprojects. – Confirm the formal	Local governments Population involved with special attention to negatively affected ones	i) the place, date and guests to the dialogue with sufficient time in advance to have informed participation; ii) basic information on the subproject;	– Scheduled meetings with specific groups. – Publication in the local media of the populations involved. – Application of the specific

Stage	Objectives	Actors	Content	Media
	channels of communication, consultation that facilitates dialogue and the clearing of concerns at this level to reduce anxiety of the potentially affected population and avoid the rumors or actions of external agents with economic or political interests, and generate a favorable atmosphere to carry out the studies and have active participation of interested parties.		ii) timeline of activities; iii) level of environmental-social risk; iv) TORs and if not specific environmental studies of urban works; v) socio-environmental studies developed; vi) when applicable, the specificities of the Environmental and Social Management Plans: IPMF, IRPF, any other relevant study on the subproject; vii) progress reports	requirements of the IPMF and the IRPF, as appropriate.
Execution	– Allow citizens in general and public and non-governmental actors to be informed on the advances of the Project.	Local governments	i) progress reports	– Publication on web page of the executor institutions of the Project, and others directly related. – Meetings scheduled with specific groups. – Publication in the local media of the populations involved.
Finalization	– Allow citizens in general and public and non-governmental actors to be informed on the final results of the Project.	Public: – Relevant public institutions at the central level – Relevant local governments – Non-governmental: Relevant associations and organizations	i) Final Report	– Publication on web page of the executor institutions of the Project, and others directly related. – Meetings scheduled with specific groups – Publication in the local media of the populations involved.

Table 10. Communication and Participation Guide according to Environmental and Social Risk of the Subprojects, except for subprojects which activate the Social Safeguard Policies (resettlement and/or indigenous), in which case they will be governed by their own Plans in coordination with this Guide.

ENVIRONMENTAL AND SOCIAL CATEGORY	PROJECT STAGE	ACTORS	COMMUNICATION AND PARTICIPATION	INFORMATION TO BE DISSEMINATED AND MEDIA
Level 1: HIGH RISK Area of influence presents high levels of risk Civil works envisaged are of such magnitude that they could alter the natural setting, its biodiversity, social fabric, economic organization and cultural wealth	Assessment	Relevant local actors, including local governments and community	At least 3 dialogues: First dialogue: inform on the purposes of the subproject, TORs of the EIA or Environmental and Social Study, and gather inputs from the population on potential impacts • Final Environmental Impact Assessment • Apply Guide for Open and Informed Consultation on the Indigenous Peoples Plan and the IRPF Second dialogue: on results of the environmental and social assessments Third dialogue: inform on the final decisions, including the way in which the opinions of participants were revised	Publish on the web or mass media 2 days after approval of resolution: Basic information on the subproject Timeline of activities Publish on the web or mass media, announce in local media and reach participants at least 2 weeks prior to the first dialogue: Level of socio-environmental categorization Notification of dialogue: venue, date and guests Terms of reference of environmental studies Publish on the web or mass media, announce in local media and reach participants at least 2 weeks prior to the second dialogue: Notification of dialogue: venue, date and guests Draft Environmental Impact Assessment Draft of Resettlement Plan Publish on the web or mass media prior to the invitation for tenders: • Summary and results of the dialogue with the community • Final Environmental Impact Assessment • Resettlement Plan (after the official census) • If applicable, physical and cultural heritage protection plan • If applicable, plan for the development of indigenous peoples • Any other important study performed on the project
	Approval			Publish on the web or mass media prior to the invitation for tenders: • Contracts with social and environmental commitments
	Monitoring			Publish on the web or mass media during implementation: • Annual progress reports (poverty impacts, resettlement plan (every 6 months), social and environmental commitments
Level 2: MODERATE RISK The area of influence presents moderate	Assessment		At least dialogues with local actors, including the community, on: • Purposes of the Project • Results of the environmental	Publish on the web or mass media 2 days after approval of resolution: • Basic information on the Project • Timeline of preparatory

ENVIRONMENTAL AND SOCIAL CATEGORY	PROJECT STAGE	ACTORS	COMMUNICATION AND PARTICIPATION	INFORMATION TO BE DISSEMINATED AND MEDIA
levels of risk Civil works are not of great magnitude Easily identifiable effects			assessment • Assessment of social risk • Abbreviated Resettlement Plan • Any other important study performed on the project	activities for the bidding process Publish on the web and announce in local media at least 2 weeks prior to the dialogue: • Level of environmental categorization • Notification of dialogue: venue, date and guests • Draft of environmental assessment Publish on the web or mass media prior to invitation to tenders: • Final environmental assessment • Social risk assessment • Abbreviated Resettlement Plan • Any other important study on the project
	Approval			Publish on the web after bidding process: • Announcement of awarded company • Contracts with social and environmental commitments
	Monitoring			Publish on the web during implementation: • Annual progress reports (on poverty impacts, abbreviated resettlement plan and social and environmental commitments)
<u>Level 3:</u> LOW RISK Does not endanger the natural setting, biodiversity, social fabric, economic organization, nor cultural wealth	Assessment		At least l dissemination dialogue with local actors, including the community, on the purposes of the Project	Publish on the web or mass media 2 days after approval of resolution: • Basic information on the Project Timeline of preparatory activities for the bidding process At least 2 weeks prior to dialogue: • Level of environmental categorization Publish on the web prior to invitation to tenders: • Summary and results of the dialogue • Possible important studies on the project
	Approval			Publish on the web after the bid: • Contracts with social and environmental commitments
	Monitoring			Publish on the web during implementation: • Annual progress reports (on poverty impacts and commitments with the community)

H. PLAN TO STRENGTHEN ENVIRONMENTAL AND SOCIAL MANAGEMENT

I. PLAN TO STRENGTHEN INSTITUTIONAL CAPACITY-BUILDING FOR THE ENVIRONMENTAL AND SOCIAL MANAGEMENT OF THE PROJECT

195. **The diagnosis and analysis of the institutional capacities of the executor agencies of the Project point to the need of creating and/or strengthening certain aspects of environmental-social management.** This part of the ESMF will focus on the executor agencies of the works: ESSAP, SENASA, the environmental authority the SEAM, and the regulator ERSSAN.

196. **ESSAP has included a Unit of Planning and Management of Investment Projects (UP&MIP) in its organizational chart, reporting to the Technical Management.** Within said Unit the Environmental Management Department has been established which will be in charge of all procedures and documentation in relation to environmental and social issues relating to this Framework. At present the UP&MIP includes professionals with environmental training (Engineer and Environmental Specialist), as well as the support of the Technical Management in terms of advice through its own specialist. In relation to social and economic aspects, the UP&MIP is now selecting professionals to look into these issues. Recently the ESSAP adopted the policy of prioritizing the environmental management of its systems and works in order to comply with the legal framework in effect on the matter and, to the extent possible, prevent the potential negative consequences of the execution of future projects.

197. **On the other hand, SENASA does not an environmental management department at present.** It expects to implement a Unit in charge of environmental and social issues with this Program. It is important to underscore that it does have environmental and social specialists, who would become part of said Unit.

198. **SEAM has two General Directorates directly related to the Program: one for Environmental Quality Control and Natural Resources, and the other for Protection and Conservation of Water Resources.**

199. **ERSSAN has no Environmental Management Department.**

200. **According to the above description, it is necessary to increase specialized knowledge on environmental-social issues of the water and sanitation sector for adequate management of the Environmental and Social Management Framework of the Project and the Involuntary Resettlement and Indigenous Peoples Frameworks, as well as concrete instruments for their application, such as the Indigenous Peoples Plan, the Resettlement Plan, the Communication Plans of said plans, among other environmental-social management tools of the Project.** Capacity-building in specific issues of these instruments will be carried out with the perspective of setting up capacities on these issues within the executor agencies of the Project. Environmental-social management tools will be created, formalized and/or systematized, such as technical specifications manuals, management protocols, among others; the provision of adequate technological equipment for these units will be supported.

201. **The project will support the creation of an Environmental-Social Unit in ESSAP and in SENASA.** Capacity-building of human resources for compliance of the functions expected of the Environmental Unit, as well as the management of the Frameworks described in the previous point, include: i) supervision of compliance with the laws, decrees, instructions, and procedures and manuals on the responsibility for the function of Environmental Sanitation; ii) preparation of terms and budgets for the execution of the environmental studies and works, iii) support to the Acquisition Committee in the pre-contract stages of the contracts of the Unit, and supervision of their compliance (and of any other contract entered into as part of the Environmental Sanitation Program); iv) coordination of the dissemination of informative publications of the Environmental Sanitation Program, and their integration into the institutional information system; v) measurement of the results of the activities of the Environmental Sanitation Program, calculating the results indicators for each activity to compare with pre-established standards, and if necessary, vi) the proposal of corrective measures.

202. **The Environmental-Social Unit will coordinate the issues relating to the Communication and Participation Plans of the ESMFs, including the Plans arising from them, with the Social Communication Unit,.**

203. **Other aspects to be strengthened, in the case of ESSAP, include:** i) Preparation and Implementation of an Environmental Capacity-Building Program based on ISO 14000. This System will enable systematization of actions and activities relating to environmental and social management. The system will use computing for more efficient use of the information; ii) Training through courses or seminars. The staff in charge of socio-environmental management within the institution responsible for the execution of the Project may participate in the courses and seminars offered by the external market on specific issues relating to the socio-environmental aspects; iii) Equipment which includes: a) Acquisition of hardware and software for the implementation of the Environmental and Social Management System. The activities that need to be developed by the above-mentioned computing consultant include: a) determination of the necessary minimum requirements to implement the Environmental and Social Management System; and b) Acquisition of equipment and instruments for environmental and social follow-up, among others. The purchase of a series of basic instruments for follow-up and monitoring will be required, as well as calculators, photo camera, GPS, among others.

204. **Other aspects to be strengthened, in the case of SENASA, include**: i) Environmental and Social Management Manual for Infrastructure Projects. A set of socio-environmental technical specifications and best practices on the environmental and social management of works will be created to ensure the incorporation of environmental and social variables in the stages of design, construction and operation of a project; ii) Geographical Information System for environmental and social technical management. A specialized consulting firm will be contracted to determine the requirements of the Geographical Information Systems (GIS) that most coincide with the requirements of the institution responsible for the execution of the Project. In the event of the institution already having a system of its own, the consultant must identify the requirements to incorporate environmental and social aspects into said system; iii) Incorporation of the socio-environmental issue on the web page of the Project. The web page will include information on the environmental and

social management of the Project, especially in relation to the ESMF of the Project and the studies and instruments developed during its preparation stage; iv) Training on Environmental and Social Management issues. A General Seminar, a series of specific Seminars, will be held. The General Seminar is to be held annually, with the support of national and/or international experts, to train on socio-environmental issues linked to the projects of the sector. These seminars will be of the responsibility of the PCU as the host of these events aiming at the public in general of the institutions responsible for the implementation of the Project. Other institutions involved are Municipalities and Sanitation Boards, among others. Regarding the Specific Seminars, at least one course, seminar or workshop would be held every year, aiming at specific personnel, for example personnel of environmental supervision of works, environmental audits, recovery of environmental liabilities, among others; training at external courses or seminars. The personnel in charge of socio-environmental management within the institution responsible for the execution of the Project may participate in external courses and seminars on specific issues relating to environmental-social matters (they must be short); iv) Equipment will include: a) Acquisition of hardware and software for implementation of the GIS. The above-mentioned computing consultant must determine the necessary minimum requirements to implement the GIS including social and environmental issues; b) Acquisition of equipment and instruments for environmental and social follow-up. It will be necessary to purchase a series of basic instruments for follow-up and monitoring of the subprojects, such as computers, photo camera, printer, GPS, among others.

205. **The SEAM will receive assistance of the Project for:** i) Improvement of scientific technical knowledge on the water systems to be intervened; ii) Classification of waterways; iii) Definition of quality standards of surface, underground and atmospheric waters; iv) Strengthening at the Technological, organizational and procedural levels so that the DGPCRH of the SEAM may improve the enforcement of Law Nº 3239/07 on waterways of Paraguay, which will include, among others, the acquisition of equipment (software, hardware, photo cameras, portable instruments to measure water quality, etc.) applicable to the supervision, control and establishment of hydrodynamic models of underground and surface waters, and which enable the management approach per water basin; iv) Training for integrated management of water resources (for service providers), especially in relation to utilization of GIS software; v) Definition of vulnerable areas and aquifer recharge areas; vi) Environmental licensing process and procedure for works of the sector. The following are also required to coordinate environmental management with the other participant institutions: vii) Reactivation and updated maintenance of the web page of the SEAM; viii) Arrangement of the procedures manuals, organization and function and characteristics required for the technical staff of the DGPCRH in order to comply with institutional commitments established in environmental laws, in particular Law Nº 3239/07; ix) Coordinated planning of the environmental management agreed between the five institutions participating in the Program.

206. **The following will be supported in the case of ERSSAN:** i) Generation of technical regulations for drinking water and sanitary sewerage infrastructure for regulatory environmental and social management. This will be achieved by means of two specialized consultancies to define the technical requirements for the design, construction, operation and maintenance of the different components of the drinking water and sanitary sewerage systems, in order to ensure their sustainability, and the conservation, preservation and improvement of the environment; ii) Computer processing of statistical data for environmental and social

management. This will be accomplished by means of the acquisition and implementation of software for specific statistical calculations connecting the GIS with data of drinking water and sanitary sewerage providers for the best control of the systems, rational utilization of water resources, among others, for environmental and social management; iii) Training with external courses and seminars on issues of Technical Regulation with an environmental and social management approach; iv) Equipment will include: a) Acquisition of Micrometer and Standardized Macrometer for the environmental management of water resources. Both for best control of drinking water utilization so as to contribute to the environmental management of water resources; and b) Acquisition of equipment and instruments for environmental and social follow-up which will include basic equipment such as laptops, handheld PCs, portable printer, among others.

207. **Other aspects relating to the capacity to plan, execute, supervise and/or monitor to be strengthened per institution, include the points described in Table X.**

Table X.

	ESSAP	**SENASA**	**ERSSAN**	**SEAM**	**MOPC**
Planning (P)/Execution (E)/Supervision (S)/Monitoring (M)					
Environmental strategies of the Water and Sanitation Programs	X (P, E, S & M)	X (P, E, S & M)	X (P, S & M)	X (P, S & M)	X (P, E, S & M)
Environmental Management	X (P, E, S & M)	X (P, E, S & M)	X (S & M)	X (P, S & M)	X (P, S & M)
Analysis of waters and the environment	X (P, E, S & M)	X (P, E, S & M)	X (P, S & M)	X (P, S & M)	X (P, S & M)
Water Resource Management. Underground and Surface Waters	X (P, E, S & M)	X (P, E, S & M)	X (P, S & M)	X (P, E, S & M)	X (P, S & M)
Water treatment for supply	X (P, E, S & M)	X (P, E, S & M)	X (S & M)	X (S & M)	X (S & M)
Supply systems of water and the environment	X (P, E, S & M)	X (P, E, S & M)	X (S & M)	X (S & M)	X (P, S & M)
Sanitation Management Projects	X (P, E, S & M)	X (P, E, S & M)	X (S & M)	X (S & M)	X (P, S & M)
Disposal of excreta	X (P, E, S & M)	X (P, E, S & M)	X (S & M)	X (S & M)	X (P, S & M)
Sewage Treatment	X (P, E, S & M)	X (P, E, S & M)	X (S & M)	X (S & M)	X (P, S & M)
Sanitary and environmental education	X (P, E, S & M)	X (P, E, S & M)	X (P & M)	X (P & M)	X (P & M)
SOCIAL					
Articulation with local institutions	X (P, E, S & M)	X (P, E, S & M)	X (P, E, S & M)	X (P, E, S & M)	X (P, E, S & M)
Discussion, Information and Dissemination of the Program	X (P, E, S & M)	X (P, E, S & M)	X (P, E, S & M)	X (P, E, S & M)	X (P, E, S & M)
Communication with approach of management of diversity, continuity and quality in the different stages of the intervention process with		X (P, E, S & M)			

	ESSAP	SENASA	ERSSAN	SEAM	MOPC
Planning (P)/Execution (E)/Supervision (S)/Monitoring (M)					
Utilization of symbols and moments proper of the indigenous peoples to achieve buy-in		X (P, E, S & M)			
Training with perspective of cultural respect		X (P, E, S & M)			
Production of dissemination materials according to the diversity of indigenous peoples		X (P, E, S & M)			

208. **The estimated total amount for the implementation of the Plan to Strengthen Environmental Management (PSEM) is about US$ 500.000**. This amount is part of the total budget assigned to the component Institutional Strengthening of the Project. The breakdown of the activities that make up the Plan is described below.

209. The following table is a summary of the activities envisaged to strengthen environmental and social management in the institutions responsible for the implementation of the Project, as well as related activities.

Table 11. Summary of Activities and Budget of the Plan to Strengthen Environmental Management

ACTIVITIES	AMOUNT US$	TIME
SENASA		
Management		
– Environmental and Social Management Manuals	15,000	2 months
– Geographical Information System for technical, environmental and social management	5,000	2 months
– Incorporation of the environmental and social issue on the web page of the Project.	0	Not applicable
Training		
– Environmental Management at the institutional level	27,000	During execution of the Project
– In external courses and seminars	18,000	During execution of the Project
Equipment		
– Acquisition of hardware and software for GIS implementation	10,000	Not applicable
– Acquisition of equipment and instruments for environmental and social follow-up	5,000	Not applicable
Subtotal	**80,000**	
ESSAP		
Management		
– Preparation and Implementation of a Plan to Strengthen Environmental Capacity based on ISO 14000.	38,000	1 year
Training		
– Participation in General Seminars	10,000	During execution of the Project
Equipment		
– Acquisition of hardware and software for implementation of the Environmental and Social Management System	10,000	Not applicable
– Acquisition of equipment and instruments for environmental and social follow-up	10,000	Not applicable
Subtotal	**68,000**	
DGPCRH/SEAM		

ACTIVITIES	AMOUNT US$	TIME
Management	100,000	
– Reactivate and maintain the web page of SEAM updated		
– Arrangements to the procedures manuals, organization and function and characteristics required for the technical staff of the DGPCRH in order to comply with institutional commitments established by environmental laws and in particular Law Nº 3239/07.		
– Procedures for coordinated Annual Operational Planning in relation to environmental management agreed between the four institutions participating in the program		
Training	100,000	
– Training in utilization of GIS software for the Integrated Management of Water Resources (HIDRISI) and others		
– Utilization of technical software applied to the preparation and maintenance of hydrodynamic models useful to manage water basins for underground and surface waters		
Equipment	100,000	
– Acquisition of PCs and laptops with regular software and other specific software for the establishment of hydrodynamic models of underground and surface waters and which enable management of water basins		
– Digital cameras and portable equipment of the multi-parametric type for on-site measurement of water quality		
Subtotal	**300,000**	
ERSSAN		
Management		
– Technical Regulations for systems of drinking water and sanitary sewerage infrastructure for regulatory environmental and social management	20,000	3 months
– Computer processing of statistical data for environmental and social management	5,000	2 months
Training		
– Training through external seminars or courses on issues of Technical Regulations for Environmental and Social Management	30,000	2 months
Equipment		
– Acquisition of Micrometer and Standardized Macrometer for environmental management of water resources	3,000	Not applicable
– Acquisition of equipment and instruments for environmental and social follow-up	5,000	Not applicable
Subtotal	**63,000**	
TOTAL	**511,000**	

Operational Plan

ACTIVITIES	Year 1	Year 2	Year 3	Year 4	Year 5
SENASA					
Management					
- Environmental and Social Management Manuals	15000	5000			
- Geographical Information System for technical, environmental and social management	5000				
- Incorporation of the environmental and social issue on the web page of the Project.					
Training					
- Environmental Management at the institutional level	5400	5400	5400	5400	5400
- In external courses and seminars	3600	3600	3600	3600	3600
Equipment					
- Acquisition of hardware and software for GIS implementation	5000	5000			
- Acquisition of equipment and instruments for environmental and social follow-up	5000				
Sub-total	**34000**	**19000**	**9000**	**9000**	**9000**
ESSAP					
Management					
- Preparation and Implementation of a Plan to Strengthen Environmental Capacity based on ISO 14000.		9500	9500	9500	9500
Training					
- Participation in General Seminars	3000	2000	2000	1500	1500

ACTIVITIES	Year 1	Year 2	Year 3	Year 4	Year 5
Equipment					
- Acquisition of hardware and software for implementation of the Environmental and Social Management System	5000	1500	1500	1000	1000
- Acquisition of equipment and instruments for environmental and social follow-up	6000	1000	1000	1000	1000
Sub-Total	**14000**	**14000**	**14000**	**13000**	**13000**
DGPCRH/SEAM					
Management					
- Reactivate and maintain the web page of SEAM updated	4000	4000	4000	4000	4000
- Arrangements to the procedures manuals, organization and function and characteristics required for the technical staff of the DGPCRH in order to comply with institutional commitments established by environmental laws and in particular Law Nº 3239/07.	12000	12000	12000	12000	12000
- Procedures for coordinated Annual Operational Planning	8000	8000	6000	6000	4000
Training					
- Training in utilization of GIS software for the Integrated Management of Water Resources (HIDRISI) and others	8000	8000	8000	8000	8000
- Utilization of technical software applied to the preparation and maintenance of hydrodynamic models useful to manage water basins for underground and surface waters	12000	12000	12000	12000	12000
Equipment					
- Acquisition of PCs and laptops with regular software and other specific software for the establishment of hydrodynamic models of underground and surface waters and which enable management of water basins	14000	4000	4000	4000	4000
- Digital cameras and portable equipment of the multi-parametric type for on-site measurement of water quality	60000	2500	2500	2500	2500
Sub-Total	**106000**	**50500**	**48500**	**48500**	**46500**
ERSSAN					
Management					
- Technical Regulations for systems of drinking water and sanitary sewerage infrastructure for regulatory environmental and social management	10000	4000	4000	1000	1000
- Computer processing of statistical data for environmental and social management	1000	1000	1000	1000	1000
Training					
- Training through external seminars or courses on issues of Technical Regulations for Environmental and Social Management	15000	5000	5000	2500	2500
Equipment					
Acquisition of Micrometer and Standardized Macrometer for environmental management of water resources		3000			
Acquisition of equipment and instruments for environmental and social follow-up	1000	1000	1000	1000	1000
Sub-Total	1000	1000	1000	1000	1000
TOTAL	**187000**	**88000**	**78000**	**75500**	**74500**

ANNEXES

Annex 1. TERMS OF REFERENCE OF THE ENVIRONMENTAL AND SOCIAL ASSESSMENT

Separate document

Annex 2. RESETTLEMENT POLICY FRAMEWORK (IRAPPF)

Separate document

Annex 3. INDIGENOUS PEOPLES MANAGEMENT FRAMEWORK (IPMF)

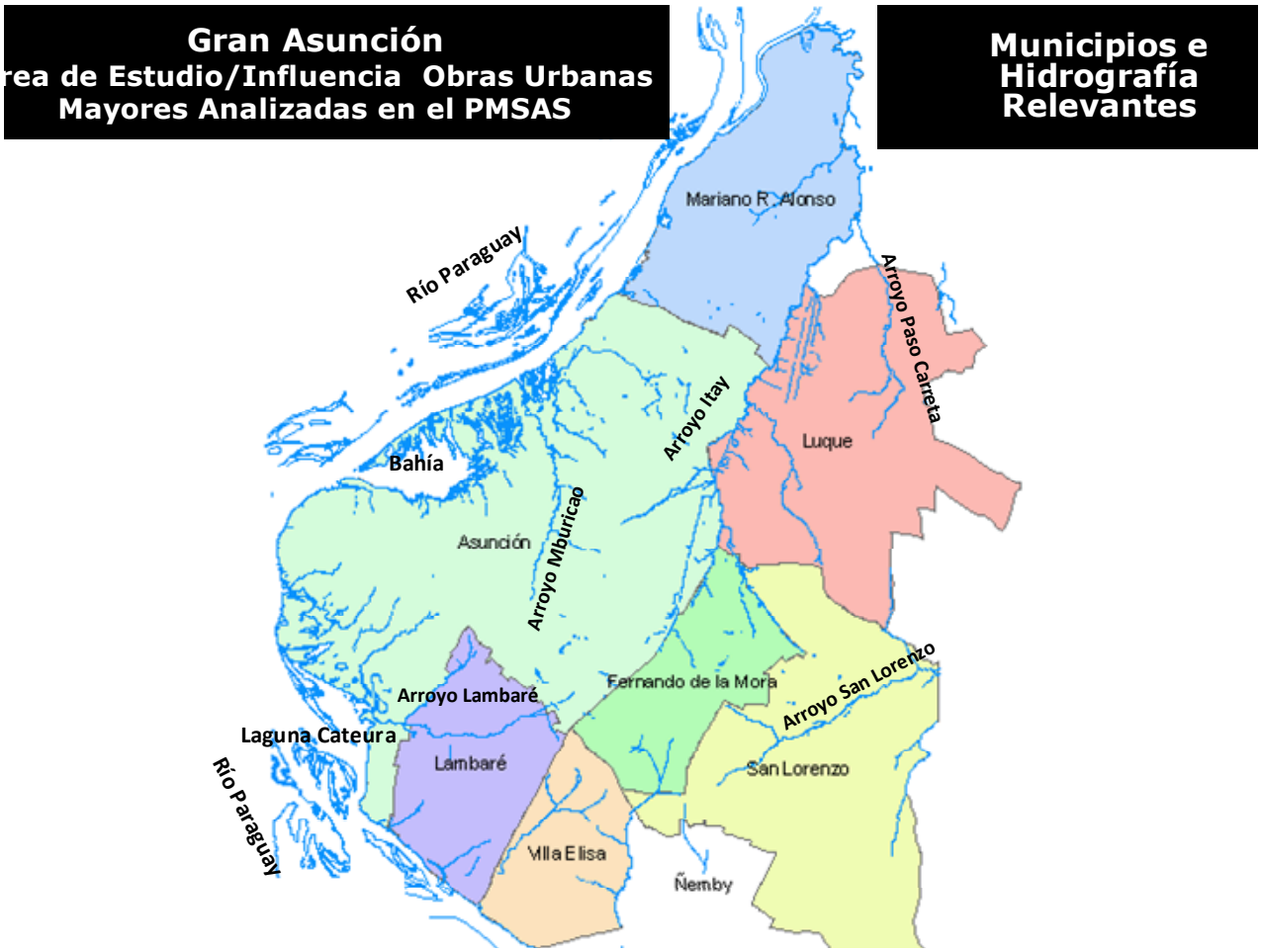
Separate document

Annex 4: GENERAL ENVIRONMENTAL AND SOCIAL SURVEY

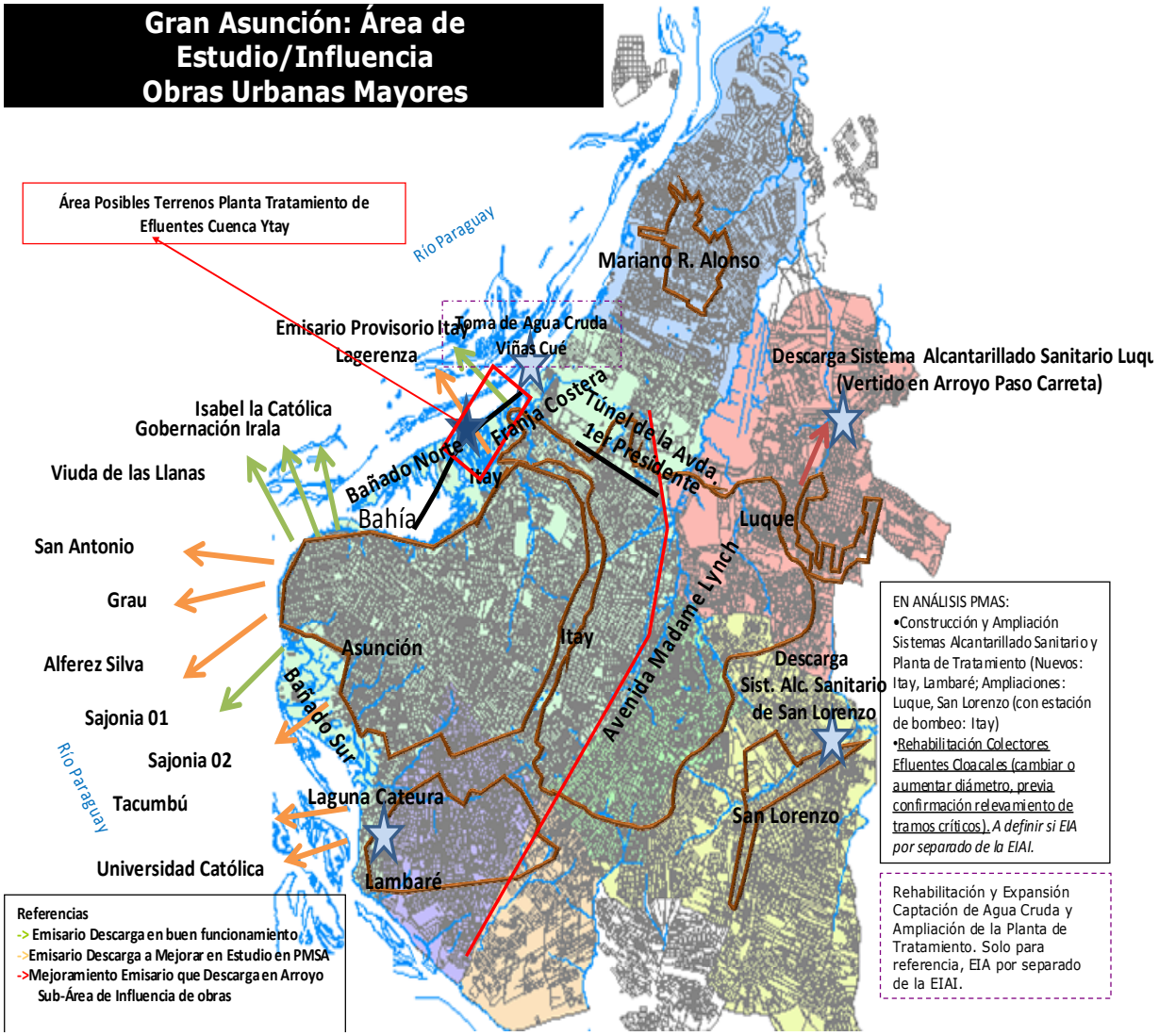
Separate document

Annex 5: List of Major and Minor Prioritized Urban Works

Annex 6: Municipalities of the Major Urban Works of the Area of Study/Influence Great Asunción



Annex 7: Major Urban Works of the Area of Study/Influence Great Asunción



Annex 8. Form of the National Registry of Water Resources

FORMULARIO 001

SEAM
Secretaría del Ambiente

Dirección General de Protección y Conservación de los Recursos Hídricos
REGISTRO NACIONAL DE RECURSOS HÍDRICOS
FORMULARIO DE REGISTRO
Asunción, de de

1. DATOS DEL SOLICITANTE			
NOMBRE Y APELLIDO:			
C.I. N°	R.U.C. N°:	email:	
DOMICILIO	CALLE:		N°:
COMPAÑIA/BARRIO:		DISTRITO:	
DEPARTAMENTO		TELEFONO:	
(En caso de proyectos existentes) CUENTA CON LICENCIA DE LA SEAM *Según Ley 294/93*	☐	Indicar N° de Documento y fecha de vencimiento de la Licencia	
Proyecto:		Exp. SEAM N°	

2. UBICACIÓN DE LA EXPLOTACIÓN				
LUGAR:			COORDENADAS UTM (GPS)	
DISTRITO			X	Y
DEPARTAMENTO				
TIPO DE FUENTE:	SUPERFICIAL ☐	SUBTERRANEA ☐		
CUENCA HIDRICA:		ACUIFERO:		

3. CONDICIONES DE TENENCIA DE LA PROPIEDAD					
PROPIA ☐	ARRENDADA ☐	OTROS ☐			
PADRÓN N°:		FINCA N°:			
Cta. Cte. Catastral N°:		SUPERFICIE TOTAL			
		SUPERFICIE A INTERVENIR			

4. USO DESTINADO AL AGUA									
Doméstico ☐	Sistema de agua potable ☐	Agropecuario ☐	Agrícola ☐	Industrial ☐					
Ganadería ☐	Vertido ☐	Recreación ☐	Generación de energía ☐	Otros ☐					
Uso Industrial especificar tipo de industria:									
En caso de Otros especificar uso:									
Caudal de uso		Lts/hora	Total Tiempo		Horas/año				
Sistema de medición del caudal utilizado:									
EL EXCEDENTE Y LOS EFLUENTES DESEMBOCAN EN:									
Realiza análisis de efluentes? SI ☐ NO ☐	Indicar Norma Técnica Utilizada *(Adjuntar Informe de calidad de efluentes)*								
Mencione usos en áreas vecinas o adyacentes									

Se adjunta fotocopia legalizada de C.I.C o el R.U.C del Proponente - En caso de contar con Licencia de la SEAM fotocopia legalizada del documento

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Firma del Proponente

FORMULARIO 002

SEAM
Secretaría del Ambiente

Dirección General de Protección y Conservación de los Recursos Hídricos

REGISTRO NACIONAL DE RECURSOS HÍDRICOS

FORMULARIO DE SOLICITUD DE CERTIFICADO DE DISPONIBILIDAD DE RECURSOS HÍDRICOS

Asunción, de de

1. DATOS DE LA FUENTE DE AGUA SUPERFICIAL

FUENTE	NACIENTE			
	ARROYO/RIO			
	AFLUENTE DE:			
	SUB CUENCA:			
	CUENCA:			
DATOS DEL PUNTO DE TOMA DE AGUA COORDENADAS	SECCIÓN		m	1.
	Nivel Mínimo(*)		m	2.
	Nivel Medio		m	
	(*) El nivel menor luego de 7 días de la última lluvia			
	CAUDAL EXTRAÍDO:			m^3/seg.
	CUENTA CON:			
X:	PERFIL TOPOBATIMETRICO ☐			(En caso de contar con estos informes adjuntar)
Y:	CURVA CLAVE ☐			
	LECTURAS HIDROMÉTRICAS ☐			

CARACTERISTICAS DEL CURSO DE AGUA	PERMANENTE		INTERMITENTE		NAVEGABLE		ORIGEN SOLO FLUVIAL		MARGENES PROTEGIDAS	
	☐ SI	☐ No	☐ SI	☐ No	☐ SI	☐ No	☐ SI	☐ NO	☐ SI	☐ No

Descripción del sistema de conducción del agua	AGUA CRUDA:	AGUA TRATADA:
Tratamiento realizado para el uso solicitado		

Adjuntar resultados de los análisis de los parámetros establecidos de calidad de aguas crudas de uno de los laboratorios habilitados para el efecto

2. FUENTE DE AGUA SUBTERRÁNEA

CARACTERISTICAS DE LA FUENTE	ACUIFERO:					
	CUENCA SUPERFICIAL:					
	TIPO DE CAPTACIÓN	POZO EXCAVADO ☐	POZO TUBULAR PROFUNDO ☐	RECARGA ARTIFICIAL ☐	GALERIAS ☐	
		DRENES ☐	POZO EXCAVAD. C/DRENES RAD. ☐	ZANJAS DE DRENAJE ☐	OTROS ☐	
	CAUDAL DE EXTRACCIÓN			m³/año		

.....
Firma del Proponente

.....
Firma del responsable técnico

Annex 9. Manual of Technical Specifications for the Design, Construction and Operation of Sanitation Projects (now being revised)

All water and sanitation projects need to follow certain criteria for the implementation of their infrastructure works to as to optimize their operation and produce the minimum impact on the environment and persons. For each particular case it is necessary to analyze the appropriate location of the works taking into consideration all the technical, economic, social and environmental aspects so as to find the best solution.

When the works need to affect human settlements it is important to carry out consultations in advance with the community through surveys or their natural leaders so as to achieve the community's acceptance of the Project right from the start. It is important for SENASA to involve the Local Governments, Municipalities and Sanitation Boards in this stage. The analysis will be per sector and per works involved, hence the division into two large groups:

1. Infrastructure works for water supply.
2. Infrastructure works for the disposal of excreta and sewage.

1. Drinking Water Supply.

This includes all the works of collection, treatment, reserve and storage units, pump stations and distribution networks.

1.1- Collection Works.

Definition: these are works projected in rivers, lakes, streams or in sites with underground aquifers in order to extract from them the necessary volume of water to supply a community.

Factors that need to be taken into account for the site of the works:

Underground Collection:
If underground water is collected, the following factor needs to be taken into account for the site:

-If the aquifers feed rainforests downstream, the volumes of flow for said rainforests need to be foreseen.

-Interference with other wells excavated in the area must be avoided, as this could affect users and give way to reduction of the volume pumped.

-Preferably higher places in the project area will be sought in order to minimize pumping costs to tanks and reservoirs.

-The site offering easiest electricity and access will be sought.

Surface Collection.

Can be divided into: a) Collection in rivers or streams, and b) Collection in lakes or lagoons.

a.1.) Collection in Rivers or Streams.

In this type of collection there is a current with movement in a preferential direction, therefore, to the extent possible, the location must follow these criteria:

-The works must be projected on straight segments of the river or stream or on the exterior of a curve. Localizing the intake on the interior of the curves causes the following inconveniences:

i) When the water level rises, most of the material dragged by the current is deposited in the interior part of the curves.
ii) Because the riverbed deepens on the exterior side of the curves, when there are minimum levels, the water withdraws from the bank on the interior curves with danger of drying up.

-When there is no alternative but to locate the collection works in the exterior part of the curves and not in the straight segments, it is important for the terrain to be as firm and stable as possible so that erosion does not contribute to the destruction of the works. If the terrain is not sufficiently firm, contention walls must be projected along the entire exterior part of the curve.

-The collection works must be located upstream of the supplied community, to avoid the contamination caused by waste thrown into the river (sewage, industrial effluents and others)

-The existence of upstream discharges of human, industrial or agricultural origin needs to be investigated, as they could affect intake water quality.

-The volumes of flow collected must be less than the minimum volumes of flow of the river or stream and not affect the utilization of water downstream from the intake. Special care will be taken in relation to low areas or rainforests that are being fed by the river or stream so that an excessive use of water does not alter the ecosystem.

- If the volumes of flow can affect the conditions of the river in times of low water level, accumulation reservoirs will be projected so as to accumulate water in times of high water level.

- The size of the basin can be measured, the rainfall regime and the run-off flows can be estimated in humid and dry periods.

a.2.) Collection in Lakes.

In works projected in lakes, whether natural or artificial (produced by a dam on a river or by accumulation of rainwater), the site must be located far from the waterside at a distance such that marginal contamination does not affect the water collected.

To the extent possible:

-Surface and sub-surface currents where the best quality of water will be extracted will be taken into account. In this way, the elevation of water collection depends on the prevalent wind.

-If the prevalent wind is from the waterside to the center of the lake, the intake should be as deep as possible because marginal contamination will be conducted to the surface.

-If the prevalent wind is towards the waterside, the tendency is that the contaminating agents from the waterside will be dragged towards the depth of the lake to its middle area; hence the water intake must be nearer the surface.

-Intake works must not be located near the discharges into streams or waterways.

-Existing discharges into the lake and their impact on the works need to be investigated.

-Intake works must be near the site where the treatment plant is to be located so as to reduce pumping costs.

-The recharge regime of the lake must be studied so as to avoid hazardous reductions in the level of the lake which could affect the humid areas irrigated by the lake.

1.2- Water Treatment Plants and Pump Stations.

To the extent possible the site assigned to Water Treatment Plants and Pump Stations must respond to an urban regulatory plan of the project area, so that they will not contrast with the urban setting.

The main criteria for their placement are as follows:

-In the case of surface collection, the site must be located near the collection sources to avoid high pumping costs; in the case of underground collection, the pump station must be located on the site of the reservoir and/or elevated tank.

-The site to be used for the plant and/or pump station must have easy access and electricity for the equipment to function.

- The site must have lighting to avoid entry of animals or persons.

1.3- Tanks and Reservoirs.

The tanks and reservoirs store and distribute water to the urban area and therefore must be located on the highest points so that distribution takes place directly by gravity avoiding higher pumping costs.

To the extent possible:

-The site where this units will be located will be within the urban perimeter and as close as possible to consumption centers.

- The site may be within a public area (park or square), but must be protected to avoid access of persons or animals.

- If the chemical houses are on the same site as the tanks and reservoirs, same must be at a prudential distance from human activity to avoid accidents.

-The works of tanks will be architecturally appropriate to the surroundings, and the perimeter must have trees and grass for a more pleasant setting. The site must be kept clear and weeded.

-The tanks must be far from high voltage lines and airport perimeters.

-The reservoirs can be buried or semi-buried so as to not contrast with the landscape. Semi-buried reservoirs will be covered with vegetation.

1.4 – Adductors and Distribution Networks

Adductors and Distribution Networks are underground installation works and their location on the public throughway will respond to the criteria adopted by ESSAP and SENASA.

-Water Networks are installed at a depth of 0.80 to 1.00 meters in relation to the gradient of the pavement and the location of the axis of the pipelines is: for streets running north to south, the west side of the road; and for the streets running east to west, the north side of the road. Their location must not affect other public utilities.

-To the extent possible the crossings of rivers and streams will be underground, and in the event of requiring a bridge, existing bridges will be used.

-The lids of valves or meters will be at the same level as the pavement in order to avoid disturbance to the transit of persons or vehicles.

-Meters will be at the same level as the sidewalk and disturbance to pedestrians must be avoided.

2. Excreta and Sewage Disposal Works.

These include works of collectors, treatment units, for single families or communal, pump stations and final disposal of effluents (DISCHARGE WORKS).

2.1. Sewage Collectors

These are underground works and their location in relation to the public throughway depends on the criteria for rural and urban areas of ESSAP y SENASA. The axis of the sewers must

coincide with the axis of the road with exceptions due to a certain peculiarities of the road, such as trees, bridges, promenades, etc. requiring a diversion.

-Sewage manholes will have lids at the same level as the pavement and must not cause disturbance to vehicles and pedestrians.

-In general indications for the placement of the collectors are similar to those of water networks.

2.2 Single-Family Treatment Units

These refer mainly to projects of cesspits and absorbent chambers or infiltration fields.

-The preferential placement of cesspits will be in front of the house envisaging future connection to a sewerage system.

- Latrines, absorbent chambers or infiltration fields may be located in the back yard. The permeability of the soil will be checked to ensure their efficiency.

-Precautions will be taken to avoid contamination of nearby water wells and water tables used for consumption.

2.3 Communal Treatment Units

These refer to treatment plants used prior to the final discharge of effluents. Said plants could be primary sedimentors (Imhoff tanks, decanter digester tanks, anaerobic filters, anaerobic reactors, stabilization lagoons, etc.)

-The site assigned to stabilization lagoons need to be extensive and preferably far from the urban population. Their location will be near the receiving bodies of water but downstream, they must not be floodable and the soil not very permeable to avoid great infiltration.

-It is advisable to maintain a distance of about 100 meters from human settlements in the direction of prevailing winds, and 200 meters with its back to prevailing winds to avoid the discomforts caused by odors and insects.

-The site of lagoons must be kept clean, weeded and fenced with wire to avoid entry of persons or animals.

-In treatment units made up of sedimentors, filters and anaerobic reactors, the areas to be used are minor. It is also valid to locate them near receiving bodies of water, on non-floodable sites.

-The site must be at a prudential distance of at least 50 meters from houses or human settlements to avoid disturbance due to odors and noise (in the case of pump stations).

-The site must be appropriately protected with wire fencing and the access of persons and animals will be restricted; the site will be kept clean and weeded.

-In every case sites of easy access will be sought.

-Units such as tiles, sand traps and channels with surfaces exposed to sewage must be covered to avoid odors.

2.4 Units of Final Discharge of Effluents

These are works for the final discharge of effluents. As same can produce high risks of contamination to the receiving bodies of water, it is advisable for discharge sites to be properly protected and warning signs set up to avoid accidents or infection of the population that is in contact with said receiving body.

-The discharge sites must be downstream of the urban area, and must be protected upstream and downstream at a prudential distance to avoid the use of this water by locals, an intensive education campaign complemented by warning signs will be useful to prevent the use of water near the discharges.

- All discharges will be submerged and areas of dips or high turbulence of the river or stream current will be sought to enable greater dispersion of effluents.

3. DESCRIPTION AND ENVIRONMENTAL GUIDES OF AUXILIARY WORKS OF THE WATER AND SANITATION PROJECTS.

The auxiliary works are important within the development of the projects and often involve tasks that must be managed with extreme care from the environmental point of view so as to prevent damage to the surroundings where they are executed. Therefore, a list is provided below of some auxiliary works of the reference projects, describing the possible impacts they might produce as well as the mitigation measures that need to be adopted for each case.

3.1 Borrowed Fill

3.1.1 Description of the Task

Borrow pits comes from excavations of good quality soil for use of said material in foundations or as fillers in general. In water and sanitation projects the excavated material is used as select material or input material to improve the filling of ditches and the pipeline beds. Generally these materials are used in areas where the soil from excavated ditches does not have good carrier conditions.

3.1.2 Environmental Impact

The land used for borrow pits might be rendered unusable if the works are not carried out adequately since the tasks involved are: a) Clearing the land of the excavation area, which implies deforestation if there are trees), weeding, etc.; b) removal of a layer of 30 to 40 cm. i.e. the vegetation cover, c) excavation of borrow pits, d) extraction of water accumulated in the excavation pits.

As a result the most important damages to the environmental are a) deforestation or removal of the vegetation cover of the site that may cause greater erosion of the soil, b) the formation of mounds of accumulated material which is not used (vegetation cover) would create an irregular surface on the site with weeds, c) the formation of deep wells for the accumulation of water which would produce ponds, i.e. a serious hazard, especially for children, and would foster mosquitoes and other pests.

3.1.3 Mitigation Measures

Mitigation measures are as follows:

a) When the site is selected, it must have a high place (preferably a small hill) that is not a recreational site or a tourist attraction. The area must be protected during its operation to avoid accidents to persons or animals.
b) When deforestation or clearing of the vegetation has been carried out cleared material must not be removed from the site and must be accumulated for later use.
c) To the extent possible excavation of borrow pits must be excavated in successive stages, like lowering the hill, without creating holes.
d) If holes are unavoidable, they must be filled with other materials once the borrow pit will not be excavated any more.
e) Once the borrow pit will not be excavated any more, the site must be leveled out and the layer of vegetation must be restored and finally the site must be reforested, to the extent possible, with the same variety of vegetation that was cleared.

3.2 Disposal of Debris

3.2.1 Description of the Tasks

Involves the removal, transportation and adequate disposal of the debris material of the works. In sanitation works generally debris are remains of scaffolding or plastering of the construction of hatches and building works, remains of pipes and other poor quality soils that are not appropriate as fillers.

3.2.2 Environmental Impact

a) The removal and transportation of these materials can create a) dust problems with the subsequent disturbance to the neighbors of the location, b) incorrect disposal of said materials can generate areas of unhealthy lands with possible production of bad odors, weeds, insects and pests, and which might endanger locals, especially children.

3.2.3 Mitigation Measures

The following are among the above-mentioned impacts: a) The use of the site must be optimized attempting to fell the least number of trees for the housing area; b) adequate sewage disposal systems must be envisaged, such a ventilated latrines, cesspits and absorbent chambers, degreasers for kitchens and eventually some type of appropriate anaerobic

treatment in the event of having to discharge sewage into a waterway; c) garbage disposal must be through excavation of holes in places near the house, and must be covered with a layer of earth of approximately 30 cm every day to avoid odors or failing that, agricultural lime can be used to completely cover the surface of the accumulated garbage; d) interferences must be avoided of latrines with water wells, they must be at least 15 meters away from each other, and to the extent possible water wells must be deep (more than 20 meters); e) sites used for temporary housing must be rehabilitated once the works have been completed, all of the materials must be removed from the site, holes must be filled in with local soil and, to the extent possible, the area used for the temporary housing must be reforested.

3.4 Working Platform of Equipment and Machinery

3.4.1 Description

This is the place assigned to station machinery, store tools and equipment of the works and for their maintenance and repair.

3.4.2 Environmental Impacts

The implementation of temporary works for storage of equipment or workshops in general involves impacts similar to those mentioned in the case of temporary housing, but the following must be added: utilization of liquid and gaseous fuels such as gasoline, greases, carbonic gases and acetylene for welding, all of which produce impacts on the soil and the air if not adequately managed. Liquid fuels, greases and oils might contaminate the soil, and the gases might contaminate the air, also all are highly inflammable and might cause fires. The cleaning of equipment might also produce great amounts of sand and sludge which need to be adequately disposed of.

3.4.3 Mitigation Measures

Are as follows: a) To the extent possible the floor of the site where equipment and machinery is stationed must be easy to clean to avoid contamination of the soil with oils and fuels; b) the workshops must have appropriate containers to store residual fuels, which must not be disposed of into the soil but taken to recycling plants, nor must they be burned because this gives way to great air contamination, c) the maintenance and clean-up workshops of the machinery must have adequate easy-to-clean floors, sewage must have a sand trap, cotton waste and solids trap and degreaser prior to their final disposal, d) a facilities against fires must be envisaged to avoid accidents.

3.5 Installation of Equipment and Testing

3.5.1 Description

The installation of equipment involves transportation to the site of the works and the installation of the equipment of the infrastructure works, such as the pump stations, treatment plants, etc.

3.5.2 Environmental Impacts

These involve necessary actions for the installation of equipment such as pruning and removal of trees, relocation of electricity posts or cables, soil preparation and special roads to transport the equipment, etc. Often the testing and start-up of the facilities involves disturbance due to noise or the disposal of the test water.

3.5.3 Mitigation Measures

Appropriate equipment needs to be envisaged (cranes or trucks) for the transportation of equipment and its placement on the site of the works so as to reduce impacts on the surrounding environment. Both transportation and start-up must be coordinated with the municipal authorities and ANDE (the national electricity company) so as to avoid transit problems and energy outages for the neighbors. The working timetable also needs to consider the regular working hours of the population so as to avoid noise during rest times or at night. Test waters must be channeled to the drainages of the location and not spilt on the streets to avoid damage to the pavement.

3.6 Final Tests of the Works

3.6.1 Description

Involve the tasks to check on the correct functioning of the works and include all the tests of pressure in the pipelines and their final disinfection.

3.6.2 Environmental Impacts

Are those stemming from the final tests of the pipelines and include spillages of test waters; most hazardous are waters with high content of chlorine used to disinfect the water pipelines. Another possible impact relates to accidents due to excessive pressure on the networks that can break the pipelines.

3.6.3 Mitigation Measures

Adequate drainages must be envisaged for the pipeline test waters, wastewater must not be spilt onto the pavement, and precaution measures must be adopted during the hydraulic tests of the networks to avoid accidents.
The tests of the sanitary sewer system must be initiated downstream of the network and test waters must run directly through the pipeline to their final discharge.

3.7 Demobilization

3.7.1 Description

Involves the withdrawal tasks of the temporary works set up for the execution of the works.

3.7.2 Environmental Impact

Include all the works of demolition and transportation of the materials used for temporary housing, floors, working platforms, signs, fences, wire fences, etc., and that could damage the surrounding area and persons if not adequately carried out.

3.7.3 Mitigation Measures

The demolition of temporary works must be carried out in such a way as to recycle as much as possible of the materials (wood, iron, scaffolding, etc.). Concrete floors must be removed from the site and transported to be used as fillers elsewhere, excavated holes must be appropriately filled in, the sites used as working platforms must be leveled taking care not to leave cutting elements behind such as pieces of iron that might cause accidents. All rods and wire fencing must be removed and transported elsewhere, as well as the signposts of the works, leaving the site in good condition. Later trees or bushes must be planted in the area.

Annex 10. Basic Environmental Questionnaire

BASIC ENVIRONMENTAL QUESTIONNAIRE (Decree N° 14.281/96)

1) Project Identification

1.1 Project Name

1.2 Name of Proponent, Professional Address (Telephone, Fax and Email) Home Address

1.3 Immovable Property Data: Cadastral Data, Land N°, Registration N°, Localization,

District, Department.

1.4 Location of immovable property: map or sketch indicating its regional location,

accesses and boundaries

1.5 IGM Topographical Map (scale 1:10.000, 1:50.000 or 1:100.000) showing

topographical and natural features of the immovable property.

2) Project Description

2.1) Project Objectives:
2.1.1 Are there any associated projects?
YES.....NO.....

2.2 Type of activity:
a) Forest
b) Livestock
c) Agricultural
d) Industrial
e) Tourist
f) Urban Development
g) Roads - infrastructure
h) Mining - Quarries
l) Energy – Power generation structures
j) Wildlife
g) Others (specify)

2.3 Have technological localization alternatives to this project been considered or are being considered?
YES.....
NO.....

- If so, indicate which ones and why the other alternatives were discarded.

2.4 Total investment
2.5 Technologies and processes that will be applied
2.6 Project Stages
2.6.1 Indicate the activities planned for each project stage and which is the current stage. If no project has been prepared, indicate the bibliography describing the processes to be utilized.

2.6.2 Specify
a. Raw material and inputs (names and quantities)
- Solids
- Liquids (m3/s)
- Gaseous (m3/s)
- Human Resources
- Services
- Infrastructure

b. Annual Production:
c. Waste:
- Solids (ton/year, m3/year)
- Liquids (m3/day)
- Gaseous (kg./h)

d. Noise generation (decibels)
Include an estimation of the waste volumes and what treatments and measures have been planned, indicating characteristics of toxicity and emission rates.

3. Description of the Area
3.1 Total surface area to be occupied and intervened
3.2 Description of the terrain
3.3 Description of the characteristics of the area of project site, as indicated below:
- Bodies of water (rivers, streams, lakes, lagoons)
- Wetlands (swamps)
- Types of vegetation (pasture, shrubs, trees)
- Indicate the distance between the Project and human settlements, cultural, health,

educational or religious facilities within a radio of less than 500 meters.

3.4 Description of the characteristics of effluent discharges
- Disposal Chamber (dimension, volume, capacity)
- Absorption Chamber (dimension, volume, capacity)
- Cesspit (dimension, volume, capacity)
- Solid Waste (Is there a garbage collection service?)

4. Sworn Statement signed by the holder of the undertaking ensuring veracity of the information provided (model is attached)

PLEASE ANNEX: (Art. 12- Decree N° 14.281/96)

a) Copy authenticated by Notary Public of the property deeds or right to the property on which the application is based.
b) Certificate of Municipal Localization where the project, works or activity will be developed: ORIGINAL or failing that, copy authenticated by Notary Public.
c) Declaration of Departmental Interest or Certificate of No Objection of the Departmental Government on the project: ORIGINAL or failing that, copy authenticated by Notary Public.
d) Photocopy of the Proponent’s Identity Card.

Annex 11. Sample TORs for the Cultural and Physical Heritage Protection Plan

1. Background

2. Objective of the Consultancy

The object of this consultancy is:

- Establish if any of the works that are part of a subproject has been qualified as a cultural immovable property;

- Propose protocols for the GR to obtain the necessary authorizations from the National Institute of Culture.

- Design a preventive disclosure program on the presence of irreproducible cultural assets in the location.

3. Scope of the Consultancy

The consultant responsible for the preparation of the Cultural and Physical Heritage Protection Plan must prepare a map or failing that, a list of the sites where cultural movable and immovable assets are located in the national territory, and the restrictions and prohibitions in effect, in order to propose the procedures and precautions to be followed.

4. Contents of the Plan

The preventive disclosure plan for the protection of cultural and historical heritage will include:

5. General Information

General information on the localization of cultural movable and immovable assets in the national territory.

6. Preventive Disclosure Program

Consists of proposing a disclosure program on the importance of the historical heritage to workers linked directly or through third parties with the concessionaire. The following are proposed: i) Induction Program for workers and contractors of the concession, and ii) Booklet that all those with direct or indirect links with the concession works must be familiar with.

7. Procedures Manual

The Procedures Manual will contain the procedures to be followed in the event of finding archaeological material within the perimeter of the works, and procedures to obtain the permit for the execution of the works from the National Institute of Culture.

8. Reports

The consultant must prepare a draft report (6 copies) to send to the GR to then receive comments and approval. The draft report must be delivered within four weeks once the contract has been adjudicated.

Final Report. This report may be prepared once the consultant the draft report has been approved. Six copies are required.

9. Estimated Time of Execution

30 calendar days have been estimated for this work. After that, the Preventive Disclosure Plan for Cultural and Physical Heritage Protection is delivered.

10. Responsible Human Resource

The consultant of the Plan must have:
Professional with studies in Anthropology or Archaeology
10 years general experience counted as of graduation date
5 years specific experience counted as of graduation date corresponding to the required professional degree in archaeological salvage work.
Knowledge of the wealth and Peruvian cultural heritage

11. Cost of the Proposal

The estimated cost of the consultancy is US$ _____.

Annex 12. General Content of the Sworn Statement of Compliance.

TO BE COMPLETED

Annex 13. Format of Internal-Use Instruments in the Project Cycle

11. a) Preliminary Environmental – Social Assessment File (PESAF)

PESAF

PRELIMINARY ENVIRONMENTAL – SOCIAL ASSESSMENT FILE

Project Name: _____ Date: _____
Institution responsible for Project: _____ Location : _____

Name of Assessor: _____ Signature : _____

Location of the site: scale map or sketch indicating its regional location, accesses and boundaries. UTM Coordinate: x……..; and……

1. The Project	
General objective of the Project: _____ _____ _____	Specific objectives of the project: - _____ - _____ - _____

2. Social Characteristics and Level of Current Services			
Variable	**Number**	**Variable**	**Number**
Total population of the district		Poverty index	
Population density		Basic Unmet Needs	
Inhabitants served at present		Rate of Illiteracy	
Number of beneficiaries (connections)		Mortality	
Population density in area to be served		Water-originated sicknesses	
Total inhabitants to be served		Type of property	

3a. Classification of the Project: Drinking Water Supply according to its Characteristics

Type de Works:
A. Exploitation of surface sources > 500m3/h
B. Adductors in non-intervened areas > 300 mm
C. Adductors and primary network > 500 mm
D. Exploitation of surface sources < 500 m3/h
E. Adductors and primary network < 500 mm
F. Water Purifying Plant
G. Groundwater utilization
H. Rainwater utilization
I. Storage tanks
J. Secondary Network
K. Connections

Scope of Work:
a. New construction
b. Expansion

Matrix No. 1
Classification of a subproject according to "type"
DRINKING WATER

Type de Works	**Objective of the subproject**				
	A-B	**C-D**	**E-F-G**	**H-I**	**J-K**
a	Type I	Type II	Type III	Type III	Type III
b	Type II	Type II	Type III	Type III	Type III
c	Type II	Type III	Type III	Type III	Type IV
d	Type IV	Type IV	Type IV	Type IV	Type IV

c. Rehabilitation	

3b. Classification o of the Project: Urban Sanitation according to its Characteristics

Objective del subproject:

A. Exploitation of surface sources > 500m3/h
B. Adductors in non-intervened areas > 300 mm
C. Adductors and primary network > 500 mm
A. Exploitation of surface sources < 500 m3/h
B. Adductors and primary network < 500 mm
C. Water Purifying Plant
D. Groundwater utilization
E. Rainwater utilization
F. Storage tanks
G. Secondary Network
H. Connections

Scope of Work:

a. New construction
b. Expansion
c. Rehabilitation

Matrix No. 2
Classification of a subproject according to "type"
SANITATION

Type de Works	Objective of the subproject				
	A-B	C	D	E-F	G
a	Type I	Type I	Type II	Type II	Type III
b	Type I	Type II	Type II	Type III	Type III
c	Type II	Type III	Type III	Type III	Type IV
d	Type III	Type III	Type III	Type IV	Type IV

4. Classification of the Project according to the Sensitivity of the Natural Environment

High	Moderate	Low
Area with Environmental Protection Regime – SEAM	Buffer Areas Protected Areas – SEAM	Anthropically intervened areas beyond the areas declared as national parks or buffer areas – SEAM
High index of biodiversity – ENPAB – SEAM	Moderate-high degree of biodiversity – ENPAB-SEAM	Low-Moderate degree of biodiversity – ENPAB -SEAM
Low level of accessibility – MOPC	Moderate level of accessibility - MOPC	High degree of accessibility - MOPC
High degree of endemism - CITES	Moderate-high degree of endemism – CITES	Low-Moderate degree of endemism - CITES
Mountainous terrain with geographical features (slope > 35%) when expansion of construction of infrastructure is planned	Undulated terrain (slope 15 to 35%) when expansion or construction of infrastructure works is planned	Flat terrains (slope <15%)
Areas vulnerable to natural phenomena (floods, quakes, others) - SEN	Areas of medium risk to natural phenomena (floods, others) – SEN	Areas of low risk to natural phenomena (floods, drought, others) – SEN
	Presence of ecosystems recognized as of moderate sensitivity (rivers, lagoons, secondary forests, others)	

Presence of ecosystems recognized as of high or critical sensitivity (rainforest, mangroves, primary forests, others) – SEAM		

Note: The level of sensitivity of the environment must be determined for each components or subproject of the Project, assigning the highest level of sensitivity to the Project as a whole

5. Classification of the Project according to the Sensitivity of the Social Environment, including OP 4.10 and 4.12 of the World Bank	
Impacts	**Instruments to Apply**
☐ Involuntary Resettlement Check on the existence of economic and social facts resulting directly of the investment projects financed by the Bank and caused by: ☐ a) Involuntary deprivation of land resulting in: i) displacement or loss of housing; ii) loss of assets or of access to assets, or iii) loss of sources of income or of the means of subsistence, whether those affected have to move to another place or not, or ☐ b) involuntary restriction of the access to areas qualified by law as parks or protected areas, with the subsequent adverse effects on the subsistence of displaced persons.	For all these cases the Involuntary Resettlement Policy Framework of the Project, Annex 2 must be applied.
☐ Check on the existence of indigenous populations.	The Indigenous Peoples Management Framework of the Project, Annex 3 must be applied.
☐ Presence of sites of great cultural interest in the direct area of influence	Complementary studies will be prepared in accordance with the TORs, in Annex 11 and their recommendations will be applied.
☐ Survey other Social Impacts resulting of the Environmental Impacts that do not necessarily generate the Bank's Safeguard Policies.	Except in relation to Involuntary Resettlement or Indigenous Populations, depending on the type of impact, complementary studies will be prepared and their recommendations will be applied.

6. Project Category: Level of Socio-Environmental Risk

Category A: High level of socio-environmental impact

Category B: Moderate level of socio-environmental impact

Category C: Low level of socio-environmental impact

Matrix No. 3
Project Category

Project Typology	**Sensitivity to the Environment**		
	High	Moderate	Low
Type I	A	A	B
Type II	A	B	B
Type III	B	B	C
Type IV	B	C	C

6. Study Requirements	

Category A:	☐ Environmental Impact Assessment (EIA)
Category B:	☐ Basic Environmental Questionnaire (Environmental Management Plan)
Category C:	☐ Application of Environmental Manuals and/or Technical Specifications for Water and Sanitation Projects*

* To be developed as part of the Project

7. Social Study Requirements	
	☐ Indigenous Peoples Plan ☐ Cultural and Physical Heritage Protection Plan ☐ Resettlement Plan ☐ Participation and Communication Plan ☐ Others

8. Observations
_____ _____

11.b) Environmental – Social Report (ESR)

EAR

ENVIRONMENTAL ASSESSMENT REPORT (being reviewed)

Project Name: _____ Environmental Category: _____

Technician Responsible: _____ _____
Executing Agency Signature

Person Responsible for Environment: _____ _____
Executing Agency Signature

I. Environmental and Social Aspects:
Describe, per project, the main relevant environmental and social aspects.

II. Environmental and Social Assessments Carried Out: Conclusions and Recommendations
Describe, per project, the main relevant environmental and social aspects.

III. Environmental Budget:
Budget that must be included in the project in the different stages of implementation, in the respective contracts and the agencies responsible.

IV. Compliance with the Environmental Authority:
The status of the situation in relation to compliance with the respective environmental legislation must be presented. In the event of some pending permit, it must be made clear who will assume this responsibility for its fulfillment prior to initiating the execution of the works.

11.c) Environmental – Social Follow-up Report (EFR)

EFR

ENVIRONMENTAL FOLLOW-UP REPORT (being reviewed)

Project Name: _____ Environmental Category: _____

Technician Responsible: _____ _____
Executing Agency Signature

Person responsible for environment: _____ _____
Executing Agency Signature

I. Supervisory Field Visit
Participants: _____ Visit No. _____
_____ Date _____
_____

II. Background of the Operation _____
_____
_____

III. Compliance with the environmental and social conditions established in the contract

a. _____. □ Yes □ No
b. _____. □ Yes □ No
c. _____. □ Yes □ No

IV. Aspects Reviewed

- Execution of the Environmental Management Plans and Programs:
  _____
  _____
  _____

- Assessment of the Execution: _____
  _____

- Executed Budget: _____
  _____

- Conclusions and Recommendations:
  _____
  _____

11.d) Final Environmental Report (FER)

FER

FINAL ENVIRONMENTAL REPORT (being reviewed)

Project Name: _____ Environmental Category: _____

Technician Responsible: _____ _____
Executing Agency Signature

Person responsible for environment: _____ _____
Executing Agency Signature

---

1. Final Supervisory Field Visit
   Participants: _____
   _____ Date _____
   _____

   Background _____:
   _____
   _____

2. Compliance with environmental and social conditions established in the contract

   a. _____. □ Yes □ No
   b. _____. □ Yes □ No
   c. _____. □ Yes □ No

3. Aspects Reviewed

   - Execution of the Plans and Programs identified in the EMPP:
     _____
     _____

     - Working Platform:_____
     - Area for loan of materials: _____
     - Areas of Utilization of Material: _____
     - Areas of final waste disposal: _____
     - Others: _____

   - Assessment of the Execution: _____
     _____

   - Final Executed Budget: _____
     _____

   - Conclusions: _____

Annex 14. Consultation on the Environmental and Social Management Framework

Presentation of the Environmental and Social Management Framework, June 2007. List of Participants

Name and Surname	Institution
Gustavo González	DIGESA
Hugo Fanego	SENASA
Carlos Cañete	SENASA
Genaro Cristaldo	SENASA
Manuel López Cano	ESSAP S.A.
Antonio Rojas	SENASA
Antonio Montanholi	SENASA
Jorge Cabreras	SENASA
Juan Manuel López	ERSSAN
Víctor Hugo Cáceres	ERSSAN
Norberto Zaracho Echague	ERSSAN
María Rosalba Morínigo Palma	ESSAP S.A.
Ricardo Sitjar	ESSAP S.A.
Ing. Sonia Cuenca	ESSAP S.A.
Gladys C. Alcaraz	ESSAP S.A.
Jorge Chamorro A.	General Comptroller's Office (CGR)
Federico Palacios	General Comptroller's Office (CGR)
Aida Olavarrieta	SEAM
Edelina Duarte	SEAM
Olga Marecos	ESSAP S.A.
Lilian Fleitas	SENASA
Marco A. Zambrano	WB Consultant
Graciela Sánchez	WB
Ignacio Urrutia	WB Consultant

Dissemination and Consultation Plan of the Environmental and Social Management Framework (including Terms of Reference of Environmental Assessment, presented in April 2008

Objective, Content	Date	Status to December 2008
• **Activity**	**Date**	
▸ Opening of the Dialogue Process with delivery of Draft 1 of the Environmental and Social Management Framework, undergoing in-house revision by all the parties.	April 10	
▸ Posting of the ESMF 1 on web pages of ESSAP, ERSSAN, SENASA and SEAM and Infoshop of the World Bank	April 14 and April 21	
▸ Consultations, comments on the ESMF 1	April 30	
▸ Confirmation of receipt of comments on the ESMF 1	After each delivery	
▸ Comments of participants on the ESMF 1 on web pages of ESSAP, ERSSAN, SENASA and SEAM	April 23 and May 5	
▸ ESMF – Version 2: with comments provided by ESSAP, ERSSAN, SENASA and SEAM	May 19	
▸ ESMF – Version 2: revised by the World Bank	May 30	

Objective, Content	Date	Status to December 2008
▸ ESMF – Version 3	June 2	
▸ Publication of the ESMF – Version 3 on websites of ESSAP, ERSSAN, SENASA, SEAM and updating of Infoshop of the World Bank	June 2	

Timeline of Dissemination and Consultation of the Environmental and Social Management Frameworks (ESMF) version updated to December 19, 2008

Activity	Date
1. Complete interagency revision of ESMF, TORs of the IEIA	22/12/2008
2. Posting of ESMF, TORs of the IEIA, IPMF, IRAPPF on web page of ESSAP, ERSSAN, SENASA y SEAM	26/12/2008
3. Consultation on the ESMF, TORs of the IEIA, IRAPPF in meetings with local governments and national organizations and non-governmental organizations, including universities	30/12/2008
4. Updating ESMF, TORs of the IEIA, IRAPPF incorporating results of the consultation, and delivery to the Bank	05/01/2009
5. Posting of the ESMF on Infoshop of the World Bank	05/01/2009

Calendar of Dissemination and Consultation of the Indigenous Peoples Management Framework (IPMF), updated version to December 19, 2008

Activity	Date
1. Complete interagency revision of the IPMF	22/12/2008
2. Post the IPMF on web pages of ESSAP, ERSSAN, SENASA and SEAM	26/12/2008
3. Consultation on the IPMF in meetings with the *Instituto Paraguayo del Indígena* (Paraguayan Indigenous Institute) and non-governmental organizations working on the country's indigenous issues.	29/12/2008
4. Updating of the IPMF, incorporating results of the consultations, and delivery to the Bank.	05/01/2009
5. Posting of the IPMF on the World Bank's Infoshop	05/01/2009