



CEDRIG
Light

Construction of a water treatment plant and sewer system for the Guaqui town, Department of La Paz / Municipality of Guaqui

—
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● Vue d'ensemble

Informations Générales

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Objectif général	Improve the current living conditions of Guaqui's inhabitants through the implementation of an appropriate sewage system, benefiting the overall population (perspective for the next 20 years)
Pays	Bolivie
Budget	Bs. 7.000.000 (approximately USD 1'000'000)
Durée de l'activité	September 2016 - July 2017 (approximately 10 months)

Sommaire

Description Due to the absence of a wastewater treatment plant in the Guaqui town, wastewater is discharged directly to Titicaca Lake, causing serious water pollution. Through the construction of a sewage treatment plant, the water pollution will be reduced along with an improvement of the living conditions of the local population. However, as a result of frequent lake level fluctuations, the sewage treatment plant might suffer negative impacts from flooding. In addition, frosts during the cold winter months can affect the plant's main components such as (i) sewage collection network and sewer manhole, (ii) emissary, (iii) pumping sump, (iv) pumping line, (v) treatment plant, (vi) infiltration ditches.

Termes clés	Wastewater treatment system	sewage collection network
	emissary	pump stations
	lake contamination	Bolivia
	Floods	frosts

Secteurs d'intervention

Santé

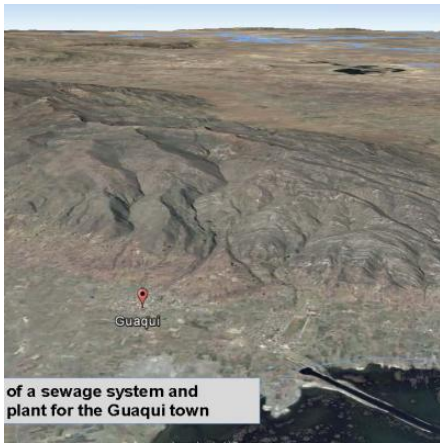
Tourisme

Eau et assainissement

Documents

Project information (pdf, 4.97 Mo)

Images

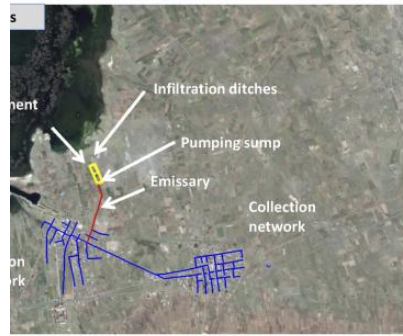


Project Information:
 Town of Guaqui
 Municipality of Guaqui
 Department of La Paz
 Autonomous Municipal Government of Guaqui
 EMAGUA (Executing Agency for Environment and Water)
 USD 1'000'000
 USD 901'344
 USD 47'050
 USD 8'100
 USD 48'500
 Sept 2016 – July 2017
 Water and Sanitation
 3'822 inhabitants
 224 ha

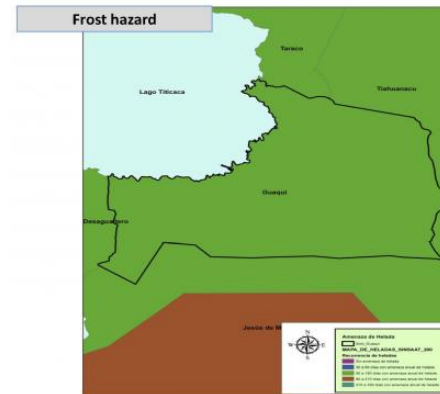
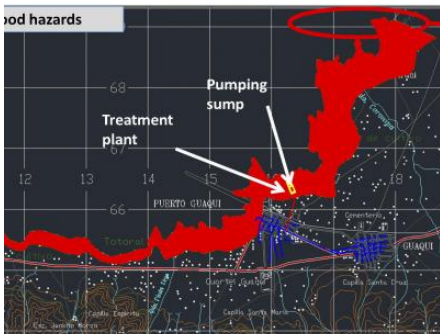
Objective: Improve the current sewage system for Guaqui's inhabitants through an appropriate sewage system and a treatment plant, benefiting the overall population for the next 20 years.



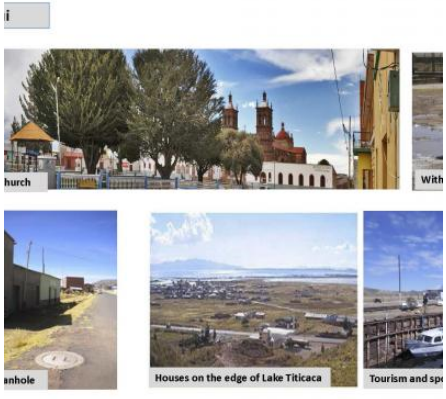
Components: Sewage collection network, Emissary, Pumping sump, Pumping line, Treatment plant, Infiltration ditch



Current study: The current study is in the final stage of the SRL (Study of Feasibility) stage.



Consequences	Vulnerability
<ul style="list-style-type: none"> Does not have a Risk Management Unit Damage to pumping sump equipment Flooding of the sand trap Collapse of oxidation lagoons Efficiency reduction of stabilization lagoons due to periods with low temperatures 	<ul style="list-style-type: none"> High quality Strong support Technical capacity Community organization Major urban



○ Perspective des risques

Aléas dûs à la dégradation de l'environnement

Nom de l'aléa Pollution de l'eau (en surface et souterraine)

Exposition Pas sûr

Commentaires Domestic sewage is untreated and are discharged into the fields/grounds and lake

Conséquence **Laminar erosion of contaminated soils and effluent infiltration could result in contamination of surface and groundwaters to the detriment of uncovered populations**

Probabilité
Peu probable

Gravité
Nuisible

Importance du risque
Risque faible

Nom de l'aléa Dégradation (terres, sols, écosystèmes, biodiversité)

Exposition Oui

Commentaires Altiplano zone with various erosional processes caused by wind (60%) and water (40%), relief with slopes between 2 and 10%.

Conséquence **Silting of network, pumping sump and treatment plant**

Probabilité
Probable

Gravité
Peu nuisible

Importance du risque
Risque faible

Aléas naturels (hydro-météorologiques et géologiques)

Nom de l'aléa Inondations

Exposition Oui

Commentaires According to the local hazard map, the water treatment plant is located in a flood prone area. Flood events occurred in 1986, 2002 and 2012. Approximately every 15 years.

Conséquence **Damage of the wastewater treatment plant components such as pumping sump. Overflow of stabilization lagoons would contaminate crops near the plant**

Probabilité
Très probable

Gravité
Très nuisible

Importance du risque
Risque élevé

Conséquence

Damage to crops and animal fodder in surrounding areas due to floodingProbabilité
ProbableGravité
NuisibleImportance du risque
Risque moyen

Nom de l'aléa

Froids extrêmes

Exposition Pas sûr

Commentaires

At the project site, between 90 to 180 days per year with frosts are observed, 3'835 m above sea level, average temperatures around 4°C, minimum temperatures until -10°C. It happens on average every 2 years.

Conséquence

Problems in the operation of the plant and reduced efficiency of the oxidation lagoonsProbabilité
ProbableGravité
NuisibleImportance du risque
Risque moyen

Aléas dûs aux changements climatiques (et à la variabilité du climat)

Nom de l'aléa

Changements dans la fréquence et l'intensité des phénomènes météorologiques extrêmes (ex : vagues de froid ou de chaleur, inondations, sécheresses, tempêtes, ouragans, cyclones)

Exposition Pas sûr

Commentaires

There are variations of extreme temperatures, mainly frost with a tendency to increase in the future

Conséquence

It could affect the operation and efficiency of the wastewater treatment plant in oxidation lagoonsProbabilité
Peu probableGravité
NuisibleImportance du risque
Risque faible

Évaluation détaillée des risques nécessaire ?

Oui – Une évaluation détaillée des risques est nécessaire.

○ Perspective des impacts

Estimer l'impact sur l'environnement

Milieu
environnemental

Eau

Élément de l'activité Wastewater treatment plant

Impact sur
l'environnement Bad odors from the plant could disturb the surrounding population

Estimer l'impact sur les risques de catastrophe

Élément de l'activité Wastewater treatment plant

Nouveau risque ou
risque accentué Could be an incentive for the construction of new settlements in areas at risk from flooding

Estimer l'impact sur les changements climatiques

Élément de l'activité Wastewater treatment plant

Impacts sur les
changements
climatiques Greenhouse gas emissions from oxidation lagoons

Évaluation détaillée des impacts nécessaire ?

Oui – Une évaluation détaillée des impacts est nécessaire.