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Reducción del riesgo de desastres



Guaqui

Project: Construction of a sewage system and wastewater treatment plant for the Guaqui town



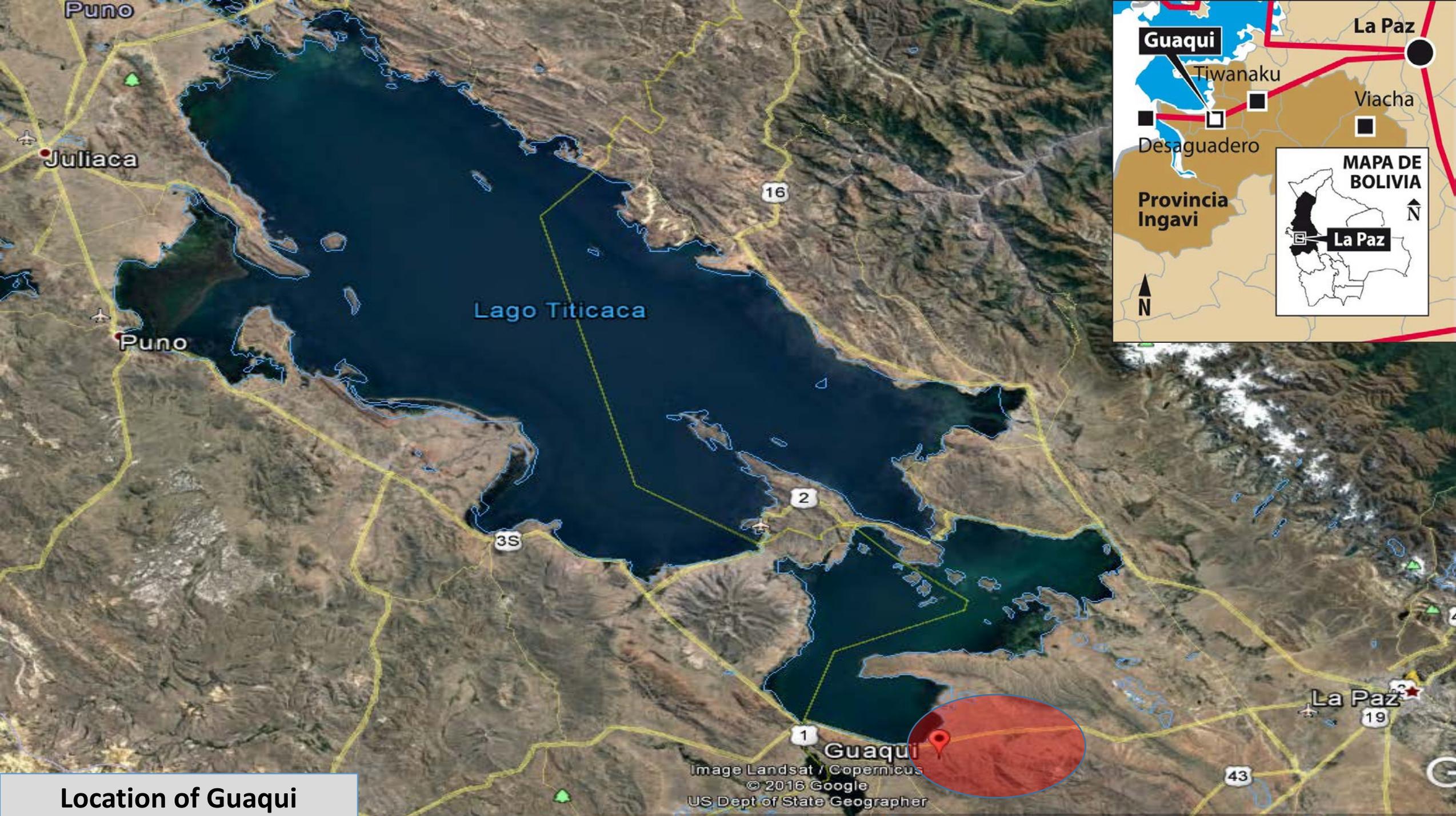
General project data

Location:	Town of Guaqui Municipality of Guaqui Department of La Paz
Management:	Autonomous Municipal Government of Guaqui
Executor:	EMAGUA (Executing Agency for Environment and Water)
Cost of investment:	USD 1'000'000
Cost of infrastructure:	USD 901'344
Cost of supervision:	USD 47'050
Environmental mitigation:	USD 8'100
Technical assistance:	USD 48'500
Period of execution:	Sept 2016 – July 2017
Sector:	Water and Sanitation
Beneficiaries:	3'822 inhabitants
Area covered:	224 ha

Objective: Improve the current living conditions of Guaqui's inhabitants through the implementation of an appropriate sewage system and wastewater treatment plant, benefiting the overall population (perspective for the next 20 years).



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



Lago Titicaca

Juliaca

Puno

Guaqui

La Paz

Guaqui

Tiwanaku

Viacha

Desaguadero

MAPA DE BOLIVIA

La Paz

Provincia Ingavi

Image Landsat / Copernicus
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US Dept of State Geographer

Location of Guaqui



Port of Guaqui

Guaqui town

Guaqui Guaqui

Google

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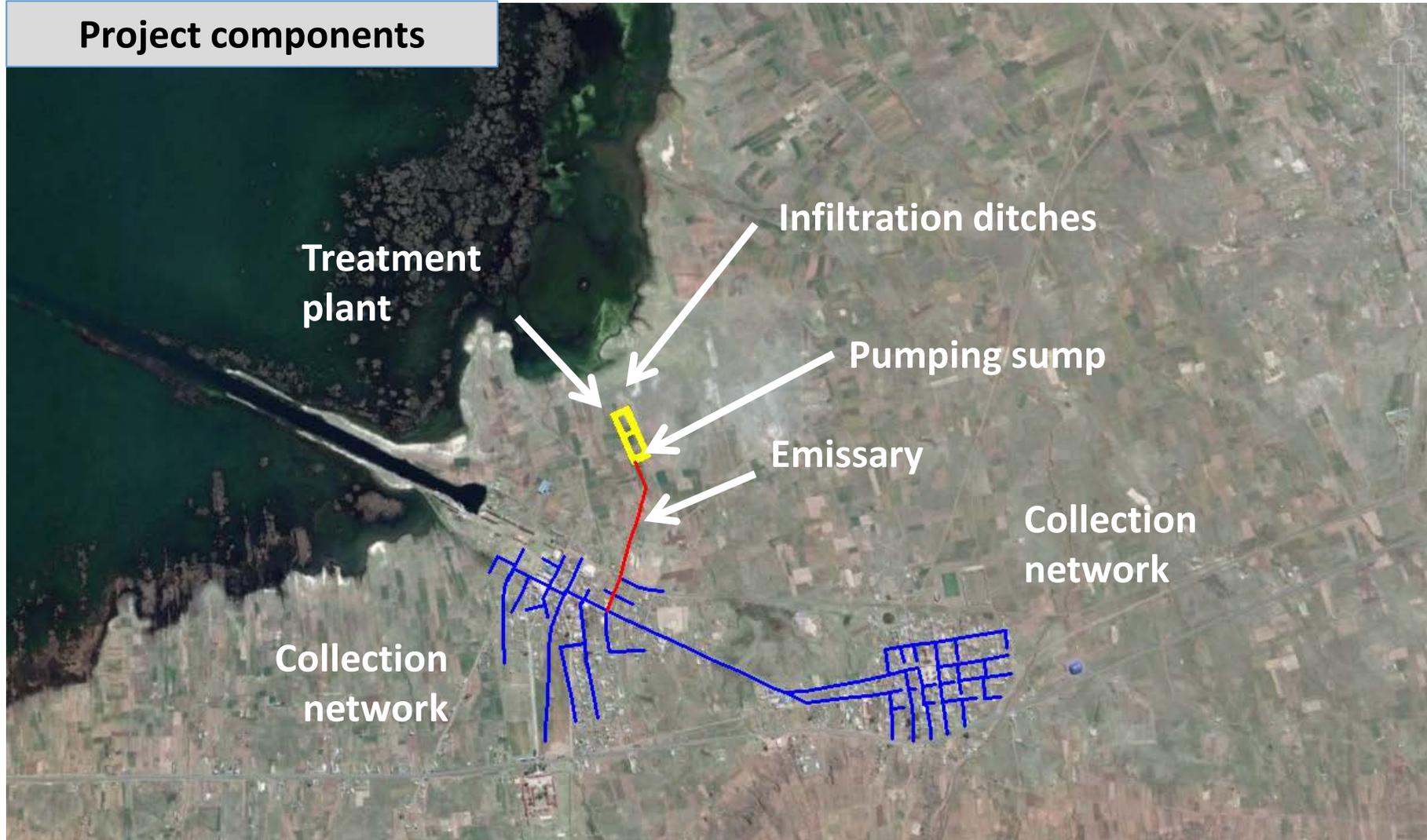
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Image © 2016 CNES / Astrium

Coverage and range of the Project

Fechas de imágenes: 5/2/2016 16°35'36.59" S 68°50'21.89" O elevación 3836 m alt. ojo



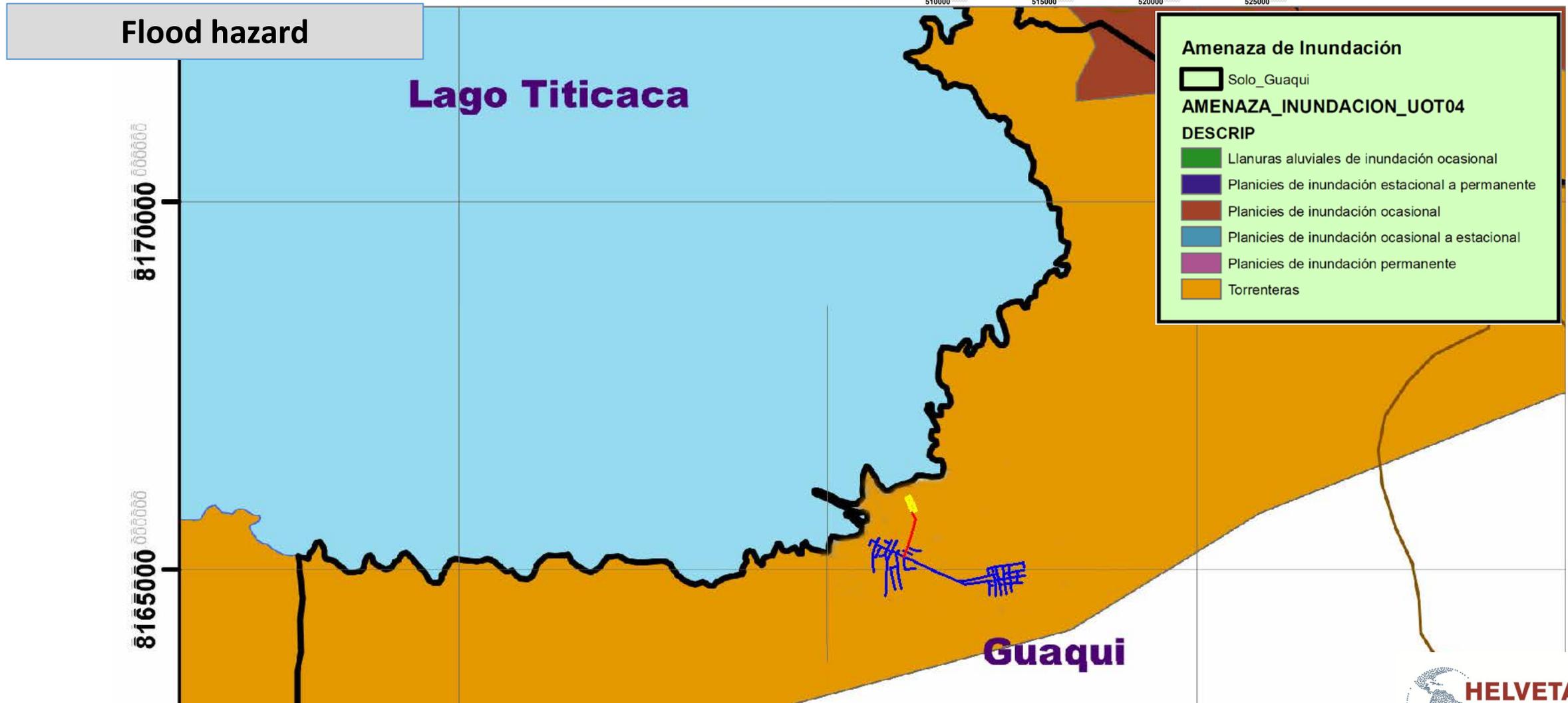
Project components



Current situation: The final study design was prepared by the company Pirámide Ingeniería y Construcciones SRL and is in the contracting stage for its execution.

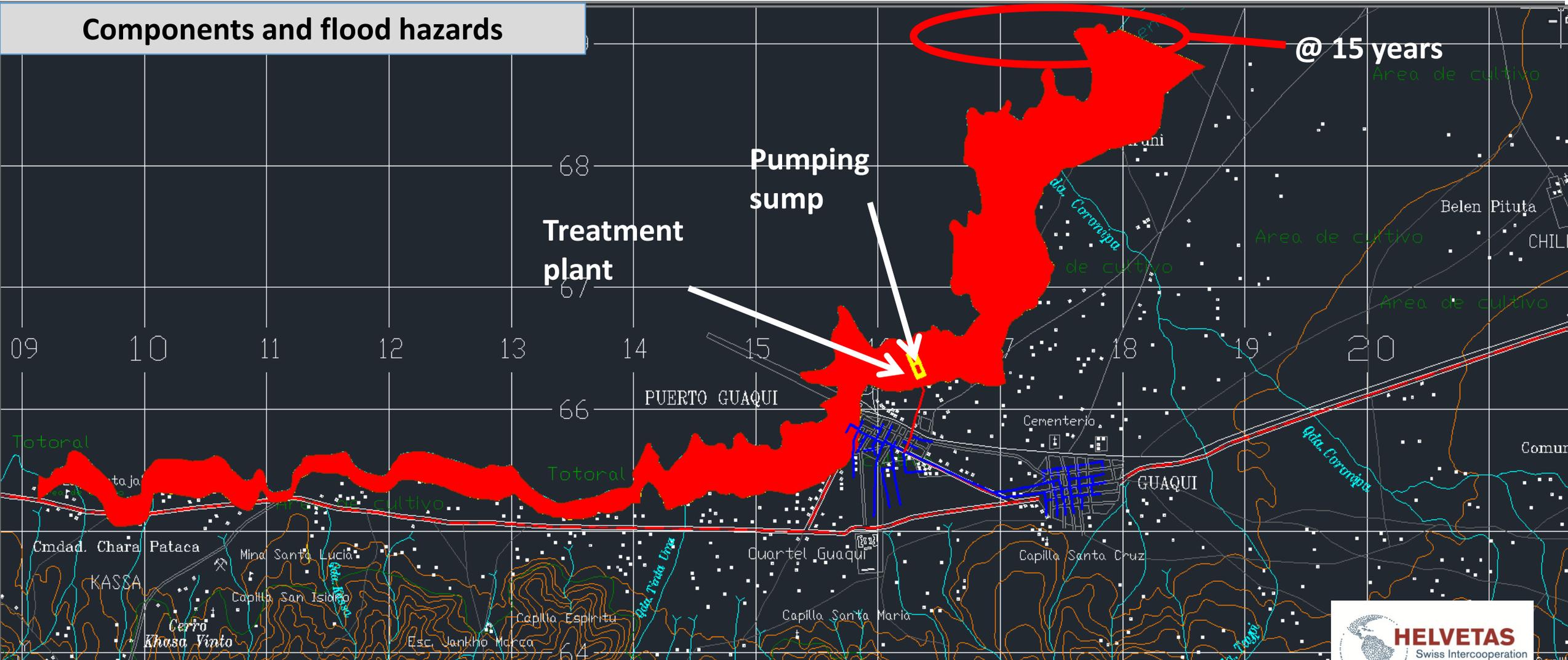
Components:

- Collection network
- Emissary
- Pumping sump
- Treatment plant
- Infiltration ditches



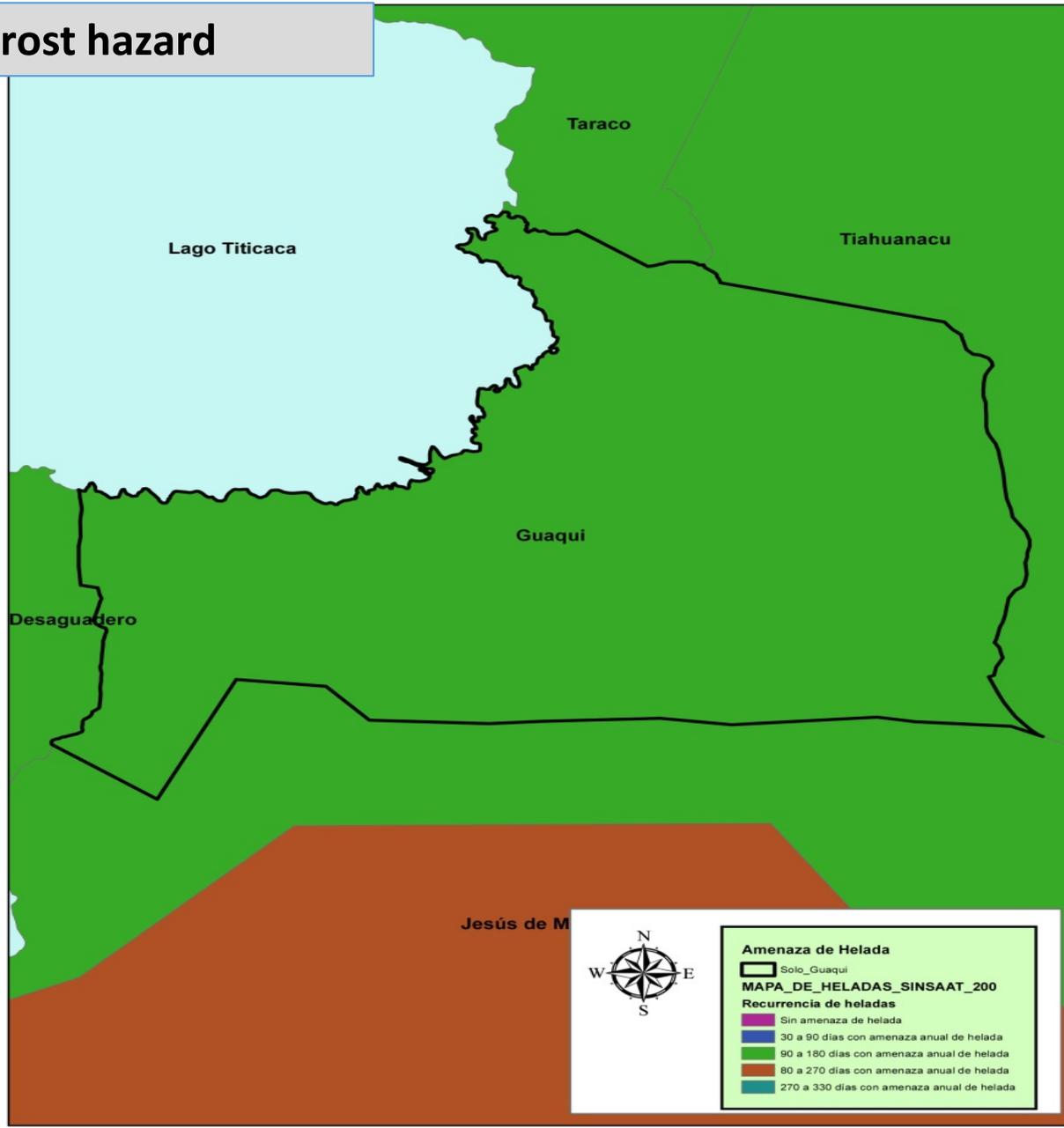


Components and flood hazards





Frost hazard





Hazards

- Floods due to the increase of the Titicaca Lake water levels
- Occurrence of frost with a tendency to increase in the future

Consequences

- 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

Vulnerability

- High quality construction
- Strong supervision
- Technical assistance and capacity building
- Community support, organization and representativeness
- Major urban rural center

Pictures of Guaqui



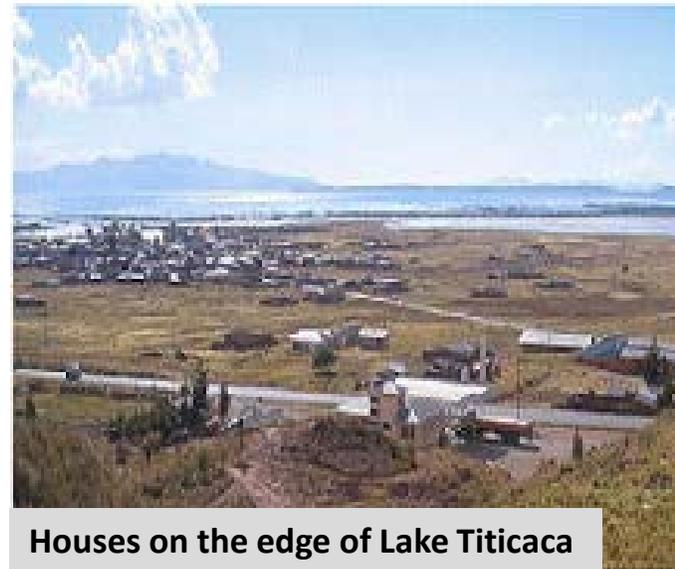
Town of rural area, Square and Church



Without sanitary system



Drinking water manhole



Houses on the edge of Lake Titicaca



Tourism and sports activities on Lake Titicaca

Project components, plant location, risks, soil types and flood zones



Flooded pumping sumps



Oxidation lagoons



Flood zone and type of soil



500 families and 22 houses in 11 coastal municipalities like Guaqui in the west of the city of La Paz were affected by flooding on the level (1 m) of Lake Titicaca, as a consequence of the rains in the last two months.



Location of the project, near Lake Titicaca



Project components, plant (oxidation lagoons) and pumping sump



Oxidation lagoons



Flooded oxidation lagoons



Machines of a pumping sump