

PROJECT REPORT

2019

# DIAGNOSIS STUDY OF THE HIGUERAS RIVER, PERU



**SAVING RIVERS AND LAKES ORG.**

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Water sample collection during the project.

# Understanding a River in Crisis

In late 2019, Saving Rivers and Lakes began its first diagnostic study in the city of Huánuco to evaluate the environmental condition of the Higueras River, one of the main freshwater sources for over 700,000 inhabitants and part of the upper Amazon basin. Despite its ecological importance, the river was showing visible signs of pollution — affecting both aquatic life and public health.

To obtain accurate data, water samples were collected from various points along the river, from the rural area of Cozo to the urban stretch near Huánuco city, and analyzed by the accredited laboratory TYPSA-Perú.



# What the Analysis Revealed

The laboratory results confirmed that the Higueras River suffers from severe contamination, mainly due to domestic wastewater, agricultural runoff, and industrial residues.

- Physical and chemical indicators revealed problems with water clarity and color: turbidity reached 322 NTU (extremely high) and color measured 37.5 CU, both showing the **presence of sediment, waste, and organic matter.**
- Oil and grease were detected at around 1.0 mg/L, suggesting **traces of urban wastewater** and household pollution rather than heavy industrial discharge.
- Nutrients such as nitrates (0.76 mg/L) and nitrites (0.39 mg/L) indicated **agricultural influence**, particularly from fertilizers and livestock waste.
- **Heavy metals appeared** in concentrations that pose risks for aquatic life and human health: aluminum (4.5 mg/L), iron (5.8 mg/L), and manganese (0.26 mg/L) were the most elevated, with smaller traces of arsenic, lead, and copper also present.
- Microbiological tests revealed alarming levels of contamination: E. coli (3,500 NMP/100 mL) and fecal coliforms (11,000 NMP/100 mL), confirming that **untreated sewage is being discharged directly into the river.**
- Although pesticides such as DDT, aldrin, and lindane were below detection limits, the combined chemical and biological indicators **place the river in a high-risk pollution category.**

These findings align with local health reports showing that over 80 % of households near the river suffer from parasitosis and anemia, both linked to poor water quality.

# Social and Environmental Impact

The diagnostic confirmed that the pollution of the Higueras River directly affects both the environment and the health of nearby communities. The presence of fecal coliforms and heavy metals reflects severe sanitary and environmental risks that compromise the quality of life of the population living along the riverbanks.

The study also revealed a clear loss of biodiversity in the river and surrounding ecosystems, with several aquatic species at risk due to contamination and habitat degradation. Communities reported a noticeable decline in fish populations and the deterioration of recreational and social spaces that were once central to local life.

These findings demonstrate that the challenges faced by the Higueras River are not only ecological but also social, underlining the need to link public health, environmental restoration, and sustainable management in future interventions.



# Moving Forward

Following the results, Saving Rivers and Lakes proposed a set of concrete actions aimed at reversing the current state of the river:

- **Pollution Control:** establish stricter regulations on waste disposal and industrial and agricultural emissions; promote better management of domestic and organic waste.
- **Habitat Restoration:** replant native vegetation along the riverbanks, create buffer zones to prevent erosion, and remove invasive species.
- **Community Engagement:** develop educational activities and workshops that involve residents in conservation practices, water monitoring, and waste reduction.
- **Sustainable Management:** promote collaboration among local authorities, civil society, and universities to ensure continuous monitoring and the creation of long-term management plans.

This study became the foundation for future projects carried out by Saving Rivers and Lakes in Huánuco, focused on environmental education, restoration, and the protection of the Higueras and Huallaga river systems — vital sources feeding into the Amazon basin.