

Sustainable Environmental Management of the Lake Titicaca Basin



The **Sustainable Environmental Management of Lake Titicaca Basin** project aims to build a model framework to address regional challenges through research, education and innovation. Jointly developed and implemented by the Universidad Nacional del Altiplano, Puno (UNAP) and the University of Oklahoma (OU), the project will bring together teams of faculty, staff, and students, with partners from local communities, civil society, governments, and industry to **frame the challenges, identify the questions that need to be answered, and create equitable, just, and durable solutions** for the people of Puno and surrounding communities.

OUR GOAL

Create a regional center of excellence in environmental management at UNAP to advance the research, education and innovation needed to foster positive, sustainable use of the natural resources in the Lake Titicaca Basin.

OUR VISION

A sustainable and resilient future for Puno and greater Peru.

OUR APPROACH

- Foster a culture of engagement with stakeholders.
- Provide training in the generation and use of research and innovation for sustainable development
- Cultivate capacity to conduct solutions-oriented, high-quality research and research-driven innovation relevant to regional challenges.
- Establish administrative/research infrastructure to support faculty and student success.

OVERARCHING CHALLENGES

Land use and climate change are two major pieces of the sustainability puzzle. In the Lake Titicaca Basin, these interacting challenges have negatively impacted the surrounding communities, threatening the region's environmental health, economic vitality, and very identity.

The region's water infrastructure is particularly vulnerable to these challenges escalating the vulnerability and risk to the health and well-being of Puno's citizens.

Sustainable Environmental Management

The Lake Titicaca Basin

BACKGROUND

Lake Titicaca, at an elevation of 12,850 feet in the Andean Altiplano, is the highest large lake in the world. More than 120 miles long and 50 miles across at its widest point, it sits in a vast basin straddling the boundary between Peru and Bolivia. Studies have demonstrated the continuous presence of human populations in the lake's area for thousands of years, with cultural development linked to the region's climate history.

Today, the Lake Titicaca Basin (LTB) is a critical food and water resource to the growing Peruvian coastal cities of Puno (population 219,500) and Juliaca (population 308,500). The LTB is also among the ecosystems most sensitive to climate and land use change, and its citizens among the most vulnerable in terms of the impacts to their well-being and health.

Historical and ongoing environmental degradation related to urbanization, agriculture, population growth, fisheries, tourism, and mineral resource extraction are straining the natural resources within the LTB resulting in impaired air, water, and soil with negative effects on human and ecosystem health.

Like much of Peru, the region of Puno is also sensitive to climate change and variability. The region is already experiencing changing precipitation patterns, temperature and other weather extremes, and increased climate-related hazards like droughts, flooding, and landslides. These vulnerabilities are exacerbated by poor and unevenly distributed infrastructure.

Since the 1980s, multiple attempts have been made to address the challenges in the LTB, including the visible aspects of pollution and declining lake water levels. The efforts by local and national governments as well as many non-governmental organizations have resulted in a patchwork of policies and projects that been largely ineffective.



Near shore algal blooms in Puno City, Lake Titicaca

GOING FORWARD

As the leading local public university in the region, the Universidad Nacional del Altiplano, Puno (UNAP) is creating a regional center of excellence to foster preservation, restoration, and positive, sustainable use of the natural resources in the Lake Titicaca Basin. UNAP will partner with the University of Oklahoma to develop and strengthen scientific and technological capacity and capabilities in cutting-edge research, education, and innovation.

The partnership will connect researchers from both universities to conduct a needs assessment, develop and implement technical trainings, engage local, regional and national stakeholders, and facilitate transdisciplinary, use-inspired research that integrates the perspectives of multiple stakeholders in defining problems and working together to develop research-based solutions.