

Restoration of La Piedad Lagoon

■ La Piedad Lagoon, a body of water spanning 39 hectares with a storage capacity of 0.762 Mm³ and a depth ranging from 1.5 to 2 m, is grappling with a severe pollution crisis. This issue is not isolated; it directly impacts 132.5 thousand people and indirectly affects a staggering 530 thousand inhabitants of Cuautitlan Izcalli, and the entire population of the Basin of Mexico, where Mexico City is located. The Lagoon, a vital water source, has been receiving between 1 to 2 Mm³/year of water from the Guadalupe Dam and a concerning 150 liters/second of wastewater discharges from the neighborhoods of Lomas de Cuautitlan and La Piedad since 2003.

The Metropolitan Autonomous University (UAM) in Mexico, together with various collaborators including ejidatarios, community and environmental organizations, companies, and authorities, are working together to find solutions in favor of the conservation of the Lagoon, whose pollution has generated annual losses for ecosystem services not provided for more than \$6,625 USD; for agricultural production not carried out for \$180,680 USD; and for carbon not captured for up to \$1.51 Million USD (IDB, 2021).



UAM-EPIC Approach

Dr. Sosa Rodríguez, an academic from UAM-Azcapotzalco, has been leading the restoration project of La Piedad Lagoon for more than six years, recently integrating the EPIC approach, where students from different programs taught at UAM are contributing to the generation of knowledge to advance the project. The activities carried out by the students include: Conducting interviews, Collecting and analyzing water samples, Preparing brochures and documentaries, Building a portfolio of green economic projects, Developing architectural proposals based on landscape design.

The project also seeks to strengthen governance, encourage community participation, and revitalize the natural environment.

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General Objective

■ The project to restore La Piedad Lagoon seeks to change current paradigm of urban development and recover undeveloped areas to create functional ecosystems that improve the quality of water, the climate resilience, and the quality of life of ejidos. It also aims to create an alternative water source for emergency situations in the Metropolitan Area of Mexico City.

The research group will conduct the ecological rescue of La Piedad Lagoon and its channels by constructing a wetland system and a linear park of 1.5 kilometers long. Likewise, the benefits of this intervention will be estimated in terms of carbon sequestration, climate vulnerability reduction, and water quality improvement. It will also promote the development of capacities and knowledge among communities; the quality of water will be monitored, and governance will be strengthened by the Basin Committee, an auxiliary organization of the Basin Council of the Valley of Mexico, created on March 21st, 2023. The project is aligned with the National Water Program 2024, the Regional Water Program 2021-2024, the Paris Agreement, and the 2030 Agenda.



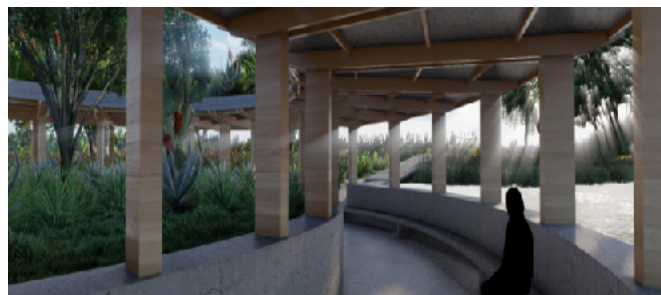
Stages of the Project

1. ECOLOGICAL REHABILITATION STAGE

This stage is comprised of three years and begins with the recovery of the Lagoon's ecological functionality and its environmental, social, and economic benefits through constructing a wetland system and restoring the Lagoon's channels. Environmental education programs will take place by creating an educational and hydro-botanical pavilion in the Lagoon and implementing programs for monitoring biodiversity through the Naturalist platform and water quality monitoring.

2. STAGE OF SUSTAINABLE PRODUCTION AND SERVICES GENERATION

This three-year stage focuses on developing sustainable productive activities. The Lagoon and its surrounding areas will promote recreational activities, support flood control, and become a climate buffer area. In this area, regenerative agriculture to recover degraded areas will be carried out, as will rescuing traditional knowledge, and designing a low-emission housing development zone.



3. WATER SECURITY STAGE

This stage lasts three years. Scientific, technical, and economic elements will be available to advance the identification and construction of water purification sources to provide drinking water for indirect consumption. This project will improve water security for the municipality of Cuautitlan Izcalli and the ZMVM, adaptation capacities, and emissions mitigation for future public compensation programs.

