Microsoft

Saving the axolotl through traditional agriculture

Photo credit: Víctor Martínez/Conservation International

Situated in the Valley of Mexico (site of Mexico City), Lake Xochimilco is a historic wetland system featuring a rich biodiversity that includes the critically endangered axolotl salamander. However, over many years, the wetland has experienced pollution and over-extraction of water, leading to significant ecological degradation.

With support from Microsoft, Conservation International (CI) is collaborating with local partners to improve water quality and restore biodiversity in Xochimilco. The initiative also emphasizes sustainable agricultural practices, aiming to ensure the long-term health and sustainability of the Lake Xochimilco ecosystem.

Restoring the traditional wetlands of Lake Xochimilco

An important agricultural area for over 1,100 years, the Xochimilco ecosystem represents the last remaining segment of an ancient lagoon system renowned for its canals and chinampas, or floating agricultural islands.

By preserving wetland areas, the canals and farming plots sustain a diverse range of plant and animal life. However, urbanization has significantly disrupted the chinampa system, resulting in water pollution and a threat to biodiversity.

CI, a nonprofit organization committed to protecting nature and its benefits for humanity, is actively collaborating with local partners, including the National Autonomous University of Mexico, to conserve and restore Lake Xochimilco's

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wetlands through the Refugio-Chinampa model. This initiative aims to safeguard this ecosystem by implementing various conservation measures, including restoring traditional chinampa wetland agricultural techniques, planting native species, and employing biofilters to enhance water quality.

The chinampa wetland agricultural technique emphasizes transitioning to sustainable agricultural practices by educating farmers on the use of organic fertilizers and proper water management methods.

Biofilter systems purify the water, thereby improving habitats for native species. These semi-permeable barriers, constructed from aquatic plants and volcanic rocks, prevent the invasion of exotic fauna into the canal system. The plants within the biofilters capture water pollutants, facilitating the thriving of native fauna, such as axolotls. Regular monitoring of water quality ensures the effectiveness of these biofilters and the overall health of the wetland.

The chinampa wetland agricultural technique emphasizes transitioning to sustainable agricultural practices by educating farmers on the use of organic fertilizers and proper water management methods. These practices are essential for enhancing water quality and achieving the broader restoration goals of the initiative. Efforts also focus on reopening channels bordering the chinampas to increase aquatic habitats and restore optimal conditions for axolotls and other endemic and native species.

Saving the axolotl

The axolotl, an amphibian native exclusively to the canals and wetlands of Xochimilco, is known for its remarkable ability to regenerate lost limbs and organs. The axolotl population has experienced a critical decline due to habitat destruction, pollution, and the introduction of invasive species. Recent estimates indicate that only between 50 and 1,000 individuals remain in the wild, a sharp decrease from thousands recorded in the 1990s.

Refugio-Chinampa initiatives establish sanctuaries within the canals, free from pesticides and chemical fertilizers, providing a safe environment for the axolotls to flourish and potentially increase in number. Continuous inventories of the current

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axolotl population aid in reintroduction efforts and monitoring the success of restoration processes. Moreover, researchers are engaged in ongoing water quality assessments to ensure the habitat remains conducive to the species' survival.

Photo credit: UNAM Ecological Restoration Lab

As amphibians, axolotls are quick to suffer from—and show—the effects of pollution. A thriving population of axolotl would indicate a healthy overall ecosystem. That means in addition to benefiting the axolotl, the Refugio-Chinampa model enhances the overall quality of the habitat, which hosts 5% of Mexico's described species. These efforts emphasize the importance of preserving the unique ecosystem of Lake Xochimilco.

Collaborating with Microsoft

Refugio-Chinampa, now in its fifth year, is expanding with support from Microsoft to involve more local farmers and a larger restoration effort, benefiting 36 chinampas directly and affecting 144 indirectly—totaling a crop area of 1.5 hectares. Microsoft funding also enabled the construction of 440 meters of canals, which are important for the wetland restoration process, including slope stabilization and the planting of 150 trees to reinforce the canal banks. In the future, an additional five chinampas will be included, and 600 additional trees will be planted.

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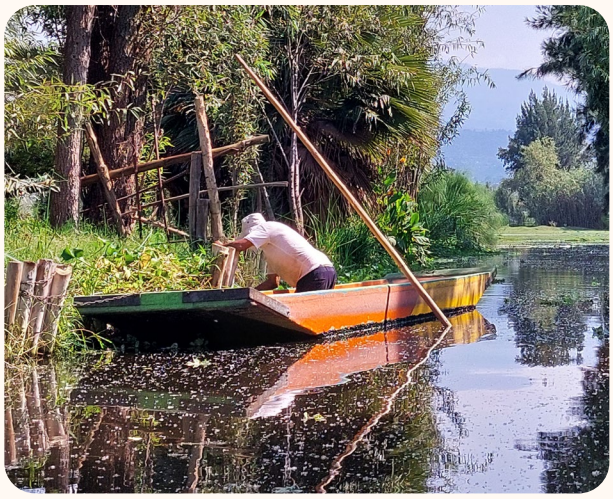
Additionally, Microsoft's involvement has been crucial in attracting further investment, resulting in an additional $500,000 in funding from other corporate partners. "Microsoft's participation has enhanced the project's capacity to generate long-term environmental and community benefits, increasing other brands' willingness to invest due to the trust and respect for Microsoft's operations and rigorous due diligence," stated Maira Bezerra, Director of Healthy Watersheds at CI.



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Going forward

CI is dedicated to the continuous expansion and scaling up of the project, with the ambitious objective of restoring the entire ecosystem, which is estimated to cost approximately $600 million. If successful, this restoration could supply 15-20% of the produce consumed by Mexico City, highlighting the project's potential impact on local food security. In addition to the wetlands of Xochimilco, the project has become a flagship landscape for freshwater science at CI, with aspirations to evaluate the impacts of the project on other benefits, including carbon storage and flood control.

Learn more about how Microsoft is working to restore and protect the water basins where it operates.

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