

Pelicans glide in arrow formation over the lake at **Xochimilco**, south of Mexico City, as two elegant herons stand in the water and stare at a boatload of tourists. Extending across 7,500 hectares of canals and gardens, this bucolic landscape displays a range of greens almost unimaginable, all in sharp contrast to the smog and frenzy of the Mexican capital right next door.

The lake is the setting of *chinampas*, the floating vegetable gardens developed here more than 500 years ago. They are one of the last remaining features of the ancient Aztec capital of Mexico-Tenochtitlán, conquered by Spaniards in 1521.

Five centuries on, this network of waterways and artificial islands, a **UNESCO World Heritage Site**, is threatened by the city's disorderly expansion and over-exploitation of its water resources. The government of Mexico City has an action plan, financed by France, to save this enormous district of the capital that is also the home of ancestral farming traditions and exceptional biodiversity.

"There is no time to lose," says resident Claudia Zenteno, pointing with clear frustration at plastic bottles, bags and cans floating in the dark, stagnant water outside her house.

Zenteno, a 50-year-old former accountant turned environmentalist, lives by the lake, in a part removed from the piers and boat tours where the water is regularly cleaned for the 1.2 million tourists who visit every year. "We used to have a wonderful view when we arrived here in 1995," she says. "It's a **shantytown** today."

Poking a hornet's nest A signpost nearby states that this is a "protected natural area where building is forbidden." Yet dozens of shacks have mushroomed here, and their sewage goes straight into the lake.

A recent study by Mexico's prestigious **UNAM university** counted 1,373 illegal constructions along 116 kilometers of canals. Most are

connected to electric meters located on land. Zenteno sees this as evidence of "complicity" on the part of the main power company, CFE, and **corrupt local politicians**. "They close their eyes to these rogue constructions," she says.

Zenteno has received the backing of the European Commission and a Mexican rights NGO, the **CMDPDH**. But she also has powerful enemies, as evidenced by the fact that two federal policemen are assigned to permanently protect this tough-talking woman.

In 2003, she filed a complaint against a neighboring family for illegally building houses on these plots. Since then her life "has become hell," she explains. Her car is regularly vandalized, and her husband has been assaulted several times. In 2010, her 20-year-old son was kidnapped and tortured for nine days. More recently, her dog was poisoned. In response, Zenteno has turned her attic into a "panic room" protected by a metal trapdoor. "I had no idea I would be getting into a fight with such a powerful network of politicians and crooks," she says.

"Four or five harvests a year" The floating *chinampas* are tied to the lake floor with willow roots. Over centuries, they have provided fruit and vegetables to the Aztecs of Tenochtitlán, the residents of colonial Mexico and now the population living in the capital.

In his patch in the touristy sector in Cuemanco, Roman Capultital grows an inviting array of veggies: bouncy lettuce, juicy spinach leaves, pungent cilantro. "The mud's nutritional qualities and considerable humidity allow four or five harvests a year," the 53-year-old grower says.

Capultital is descended from the Xochimilcas, the people who lived in the Valley of Mexico before the Aztecs arrived in the early 14th century. In the native **Nahuatl** language, Xochimilco means "the place where flowers grow." Its lake is the last of five that irrigated this zone in the Pre-Hispanic period. The Xochimilcas invented the *chinampas*, and the Aztecs extended them across their imperial, Venice-like capital.

The lake and its canals were finally overwhelmed by what is now a city of 22 million people. "Xochimilco could also disappear," says

Fernando Arana, head of **CIBAC**, the research center formed here in 1999 by the **Autonomous Metropolitan University**. The biologist says mismanagement of the lake has harmed its biodiversity, which he describes as indispensable to the capital's ecological balance.

"From the early 20th century, the lake has fed **Mexico City**, which has expanded to the point of exhausting its aquifer resources," Arana says. In the meantime, waste waters containing chemicals and heavy metals have been poured into the canals, he explains. "Since the 1970s, the lakes are refilled with water from the capital's sewerage works."

End of an era? Water levels, nevertheless, keep falling. Hundreds of plant species are threatened with extinction. First among them is the *ahuejote*, a tree related to willows, and more than 300 vertebrate species, including migrant birds. The lake is home to native species such as the Mexican duck (*Anas diazi*), Tláloc's leopard frog (*Lithobates tlaloci*) and **Acocil crayfish** (*Cambarellus*). Its most famed creature is the *Axolotl* or Mexican salamander, with its exceptional biological, physiological and medicinal qualities.

"In this century, this amphibian, which remains juvenile all its life, has practically disappeared from its natural habitat," Arana says. He says the Xochimilco ecosystem has a crucial role in helping the city **survive climate change**.

Water shortages and pollution are also endangering its millennial farming tradition. "Market gardening is in free-fall," says Antonio Martínez, a 73-year-old resident of **San Luis Tlaxialtemalco** who represents the fourth generation of cultivators in his family.

Authorities say 70% of the *chinampas* have been abandoned. Without maintenance, the plots tend to sink or dry out, depending on the slope they are on. "At this rate, the lakeside cultivation system will disappear within 10 years," Martínez warns. To recover reduced productivity without the use of fertilizers, this earth lover has moved a large part of his lavender, vegetables and aromatic herbs into greenhouses.

Funding from France UNESCO has already sounded the alarm over the threatened end of **traditional farming here**. To protect the site's precious World Heritage status, in 2012 the city government created an authority for the Xochimilco lake area tasked with recovering its biodiversity.

Months later the French government's special envoy for the planet's protection, Nicolas Hulot, signed an agreement with Mexico City Mayor Miguel Ángel Mancera. As part of the agreement, France donated 1.5 million euros to help save Xochimilco. The funds were taken from **France's Global Environment Facility**, a collaborative state agency.

"The money must be used to diagnose the polluted canals, then elaborate a cleaning strategy for the waters to protect their biodiversity," says Jean-Marc Liger, head of the French Development Agency in Mexico that is guiding the city's collaborations with France. "The following step will be to ensure better coordination among public bodies, sensitize the public and develop viable, non-polluting economic activities."

But resident Claudia Zenteno doubts that will be enough, given the city's constant growth. Although she had an initial victory in 2012, when a court found her neighbors guilty of environmental damage, illegal buildings continue to rise outside her window. Zenteno blames the local politicians. "Elected officials just let things be, to win votes."