

Case Study: The Restorer, Constructed Wetlands Canal Cleansing

Fuzhou, China

Context

Fuzhou is a large city on the coast of southeast China with a population of about 1.5 million. There are 80 kilometers of open canals that transport roughly 130,000 m³ waste water per day through the city, out to the Min River and eventually to the Min Estuary, an important fishery for the Fujian province. The canals had become heavily polluted, particularly with raw sewage. City officials found that setting sewer pipes and pumping waste water to conventional treatment plants would be prohibitively expensive. They were looking for a mechanism to treat the water in the canals themselves.

Key Features

Restorer Technology is comprised of

- a floating platform to support planted ecosystems,
- an aeration system to maintain an aerobic aquatic ecosystem
- a walkway for operator access
- a bio-augmentation system

Cleaning the water are 100,000 plants, 10,000 koi carp, and two strains of bacteria. This is an example of a constructed wetland where natural processes are put to work in a constructed system.

This system has drastically improved the condition of the water. It is clear, does not smell and supports fish. The Restorer also improves the landscape aesthetics and appeal of the neighborhood.

Process/Implementation

The project has faced challenges. There was a major fire in the floating blower building. The canal was entirely drained once due to a dam failure. The system has also endured several torrential rains and tropical storms. Still, the biology appears to be thriving and treating water.

Cost-Benefit Analysis

The Restorer costs about US\$10 per person per year compared to conventional sewage treatment at US\$80.

The chemical oxygen demand (the amount of oxygen needed to decay all organic matter in the water) has fallen from about 100 mg per liter to 40 mg per liter, indicating a high degree of treatment effectiveness.