



PHOTO: ICPDR/VICTOR MELLO

## HUNGARY

### Szódrákos Creek Program – Phase 2

#### Project Summary and Scope

The Tavirózsa Association, an NGO, implemented a wetlands rehabilitation demonstration project to reduce the nutrient pollution of lakes from a poorly managed sewage system.

The project focused on the 132 square kilometre catchment of Szódrákos Creek northeast of the Budapest agglomeration. The creek runs north through Veresegyház and three lakes, including Malom Lake, which was given national protection status in 1985. The water eventually drains into the Danube River above Budapest. Veresegyház, a bedroom community of 15,600 lying 30 minutes from Budapest, is one of the fastest growing towns in Hungary, attracting some 500 new residents per year to a new suburb 30 minutes from Budapest. It also draws plenty of visitors with attractions such as fishing lakes and wetlands, a beach, a nature trail, an all-year thermal bath and a bear sanctuary.

The main ecological concern in the catchment area was the introduction of foreign grass carp to the lakes, which destroyed natural aquatic and marsh vegetation that used to help absorb nutrient pollution. Because many anglers like to fish in clear open spaces, fishing associations continued to stock the lake with reed-eating carp even though the introduction of exogenous fish species is prohibited by law. Other nutrient inputs come from leaching household cesspits and discharge from the local sewage treatment plant. Water quality monitoring by authorities has also been poor. In 1996, a new sewage treatment plant was built near the lakes to serve Veresegyház and neighbouring villages. Plant capacity was over-used, however, and the concentrations of nutrients discharged from the treatment plant were above permitted levels and leached into the lake system. Bacteria levels increased sharply including toxic cyanobacteria and coliform bacteria, causing allergic reactions, fever and vomiting among local residents.

In 2006, with the help of the DRP Small Grants Programme, Tavirózsa purchased equipment to test water in the three lakes. Monitoring found that heavy rainshowers in April and May caused significant nutrient pollution in the lakes because of the city's poorly functioning combined sewage system. In one instance, rain volumes pushed up the solid steel cover of a sewer allowing sewage to seep into the lake. The NGO measured algae and cyanobacteria chlorophyll and found counts to be double acceptable limits. They notified the Hungarian health authority ANTSZ but there were doubts that water quality tests were being carried out according to law.



#### INVESTMENT

Danube Small Grants  
Program of the UNDP-GEF  
Danube Regional Project **USD 4,675**

#### PROJECT DURATION

2006 - 2007

#### NUTRIENT CHALLENGES

- Nutrient inputs from leaching household cesspits and discharge from local sewage treatment plant
- Introduction of foreign grass carp fish species to lakes which destroyed natural vegetation that used to help absorb nutrient pollution.
- Demonstration of wetlands rehabilitation used to reduce the nutrient pollution



Project funds were used to purchase water testing equipment to determine pollution levels, which found very high organic and nutrient counts. Following a baseline environmental assessment in the spring of 2006, a small fenced-off pilot site was created at the southern part of Pamut Lake. The grass carp was removed and natural wetland vegetation (rooted and floating native aquatic plant species) with high nutrient removal capacities was collected from the surrounding area and replanted in the pilot site. Water quality monitoring was implemented at the start and end of the project to see if nutrient pollution was reduced. The next step was to test the demonstration site water to prove that quality improved. (See table below.) Based on that evidence, the NGO hopes to secure a larger project using the same strategy to restore all three lakes. Discussions took place with the mayor to improve sewage treatment discharge. One of three local fishing associations at Pamut Lake agreed to work with the NGO, which in turn undertook to change the anglers' ideas about grass carp and local water ecology.

#### Reduction of nutrient concentrations of Pamut during project

	Time of measurements	Phosphate-P (mg/l)	Nitrate (mg/l)	Nitrite(mg/l)	Ammonium (mg/l)
Before rehabilitation	15.08.2006	0,8	13,0	0,20	0,10
After rehabilitation	29.10. 2006	0,9	24,0	0,12	0,04
	09.02.2007	0,0	11,0	n.a.	n.a.
	18.08.2009	0,1	8,0	0,13	0,08
Change from 2006 to 2009	---	- 87,5 %	- 38,5 %	- 35%	- 20%

The results of reduction of nutrients concentrations in the pilot rehabilitation area of Pamut Lake between 2006-2009 during and after the project:

#### Best Practices

- The natural self-cleaning capacity of wetland areas was improved with the help of small funds.
- Water quality monitoring is essential to prove nutrient pollution was lowered.
- Removing alien species will allow for endemic species of fish and wetland plants to thrive.
- Wetland species were returned to site through replanting efforts.

#### Additional Benefits

- Funds helped the NGO to execute the pilot site, the results of which will facilitate a larger grant to accomplish similar work on all three lakes.
- New testing equipment will be used to monitor long-term water quality.
- Natural, social and economic values; protected species and human impacts were also assessed.

#### Other Key Successes

- The mayor may agree to improve sewage plant discharge.
- Water quality will improve in future which would help large local bathing area.

#### Key BMP Indicators

- Replanted aquatic plant species showing improvements of water quality and valuable local fish species

#### For Further Information

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#### About the Living Water Exchange

The Living Water Exchange, a GEF/UNDP project promoting nutrient reduction best practices in Central and Eastern Europe, will share information and accelerate the replication of the most appropriate nutrient reduction practices developed from GEF and other investments in the region.

For more information, please visit <http://nutrient-bestpractices.iwlearn.org/> or email Chuck Chaitovitz [chuck@gef.org](mailto:chuck@gef.org)