



SERBIA

Cleaning-up Lake Celije from Nutrients and Sediments

Project Summary and Scope

The objective of this project is to reduce the impacts of nutrient pollution on water quality in Lake Celije and the surrounding watershed by improving agricultural practices and managing nutrient pollution. Lake Celije and the Rasina River were chosen because of high population pressures resulting in elevated nutrient loads from wastewater into the lake.

- **Component 1:** Protection of water quality – The project created a “green comb biological filter” and a buffer zone to protect the lake and its watershed from nutrient pollution.
- **Component 2:** Education and awareness raising – The project reached out to community members to educate them about the dangers of nutrient dumping and to demonstrate effective ways to reduce nutrient pollution.
- **Component 3:** Media, promotional and lobbying activities – The project used several methods to stimulate public interest and involvement.

Benefits and Best Practices

- The project offered a low-cost option by creating a “biological” filter where the river flowed into the lake. The flow was directed through reed beds created in a 50 m channel to retain nutrients and sediments.
- A buffer zone of 10,200 trees covering 10.8 ha was created in the catchment of the Rasina River in order to reduce soil erosion and prevent sediment overloads.
- Education and awareness raising were carried out in workshops, training sessions and public lectures.

INVESTMENT

GEF USD 19,342

Co-financing from from the Dutch Embassy (boats, vehicles, staff resources, etc.) USD 34,433

Total financing USD 53,776

PROJECT DURATION

November 2009–August 2010

NUTRIENT CHALLENGES

- Nutrient pollution from a variety of sources, including the municipality of Brus (population of 16,000 without wastewater treatment facilities), industrial activities, untreated wastewater discharge from a population of at least 24,000 in the region, agro-chemicals and untreated waste from cattle breeding.
- Inappropriate land use led to the loss of trees, causing erosion and sedimentation.

EARLY NUTRIENT BMP “WINS

- Reduction of high nutrient polluting agriculture in the buffer zone along the lake
- Uptake of nutrients from urban wastewater by the “green comb” filter
- Reduction of erosion and sediments impacting the lake by planting trees



- Media outreach and promotional and lobbying activities, including TV and radio presentations, were carried out to educate the public about nutrient problems and potential solutions offered by this project.

Other Key Successes

The project itself was a platform to raise awareness among the local population about nutrient issues and the available solutions. This was accomplished through work with the media and promotional and lobbying activities to stimulate interest and involvement.

Lessons Learned

Land ownership was a critical consideration in ensuring the outcomes, security and sustainability of the project. Farmers illegally planted corn up to the banks of the river, which delayed planting of riparian buffers until after the completion of the project.

Key BMP Indicators

- Area under aquatic plants
- Area under eutrophication in delta
- Amounts of nutrients (sodium, phosphorous) and organic matter in the water

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