



DANUBE RIVER BASIN

Boosting capacities for nutrient reduction and transboundary co-operation

Project Summary and Scope

Since the 1960s, nitrogen and phosphorus levels from agriculture, municipal and industrial sources have seriously degraded the Black Sea ecosystem, disrupted fisheries, reduced biodiversity, posed threats to humans and resulted in billions of dollars of losses to the economies of the six Black Sea littoral countries. Nutrient and toxic pollution from the 17 countries comprising the Danube River Basin, which flows into the Black Sea, created many of these threats to transboundary water quality in the region.

Therefore, the Danube Regional Project (DRP) was established as a component of the Global Environment Facility's strategic partnership on nutrient reduction in the Danube/Black Sea Basin. The overall objective was to reduce nutrient loading into the Danube River and its tributaries and to improve water quality in the Danube and the Black Sea. The project is designed to complement the activities of the International Commission for the Protection of the Danube River and undertook approximately 180 basin activities in addition to 130 national and regional small grant projects.

Best Agricultural Practices

- **General**
 - All farms larger than 5 hectares and/or 5 animal units should calculate their resource economy every year by April 1 of the preceding year and covering at least the resource economy for nitrogen and phosphorous;
- **Crop production systems**
 - Every farm with at least 5 hectares of arable crops should ensure soil sampling at least every 5 years.
 - Crop rotation and fertilising plans should be prepared every year for all farms larger than 5 hectares, with the finishing date no later than March 31 (or August 1 for winter crops). Fertilising plans should be based on the expected yield level and the needs of the crops, and include both livestock manure and mineral fertiliser.

INVESTMENT

Global Environment Fund	USD 17.24 million
Country co-financing	USD 19 million
Total	USD 35 million

PROJECT DURATION

December 2001 to September 2007

NUTRIENT CHALLENGES

- Nutrient enrichment of the Black Sea North West Shelf from emissions in the Danube River Basin

EARLY NUTRIENT BMP "WINS"

- Agreed definition of 'Best Agricultural Practice'
- Reduced nitrogen by 14 tonnes/year and phosphorous by 2 tonnes/year on eight demonstration farms
- Enhanced a nutrient pathway estimation model
- Made recommendations on phosphorous-free laundry detergents
- Published guidance document for nutrient reduction in wetlands
- Restored wetlands and carried out land-use change pilots.
- More than 100 small grant projects launched aimed at reducing nutrients at community level.



● Livestock production systems

- Livestock should be fed with rations that are correctly balanced with energy, protein and minerals in relation to productivity.
- Cleaning of stables with water should be avoided or reduced to a minimum.
- Watering of the livestock should happen in a way that hinders spill of water.

● Livestock density

- Livestock numbers should be limited to ensure that nitrogen content in the manure is no more than 170 kg/ha. Manure should be sold to other farms or distributed to fields of other farms in case of a higher livestock density.

● Livestock manure management

- There should be storage capacity for at least six months production of livestock manure at the farm. Production systems with use of bedding material need storage capacity for both liquid and solid manure. Production systems with deep bedding can store the manure on the field for up to six months if the manure has a dry matter content of minimum 30%.
- Farmers should limit the extent that rain water dilutes livestock manure.
- Spreading of manure from October 15th to March 1st should not take place, particularly not on frozen land or land with a slope of more than 7 degrees.
- Proper technology should be used for spreading livestock manure. Liquid manure and slurry should be spread with a band-laying system or be injected into the soil.
- Livestock manure should be incorporated into the soil within six hours.

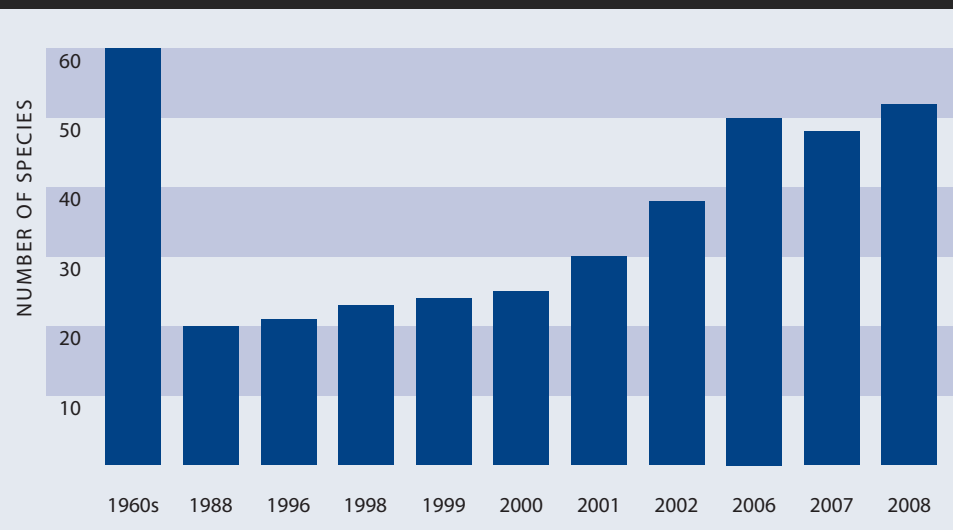
Key BMP Indicators

The Danube basin has a long history of water quality monitoring which has been supplemented by the use of MONERIS. Decreases in nutrients in the mid 1990s are mostly attributed to regional economic decline but the DRP has assisted countries in introducing new approaches (e.g. BAPs, BAT, etc.) that are intended to reduce impacts as economic conditions increase.

Further information

Details are available on the ICPDR web site: www.icpdr.org

Zoobenthos – Constanta, Romania (number of species)



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