Global Water Partnership

Revitalization of the Lake Ruzinov

Story of Public – Private Partnership

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Description of problems

- Lake was formed as a result of gravel mining for construction in 1960s when Bratislava (capital city) was expanding its housing stock
- The locality belongs to one of the most industrialized and urbanized areas of Bratislava
- As a result of uncontrolled lake management the following threats have manifested:
  - Faecal contamination
  - Illegal dumping
  - Leakage of local sewage without treatment
  - Reduced aesthetic value in the “middle of the city”

The first steps taken

- Health inspectorate prohibited to use the lake for recreation purposes
- Municipality recognized the problem as “lowering housing prices”, thus initiated “clean-up” campaigns of local citizens
- Environmental inspectorate requested local polluters to stop pollution

First results and problems

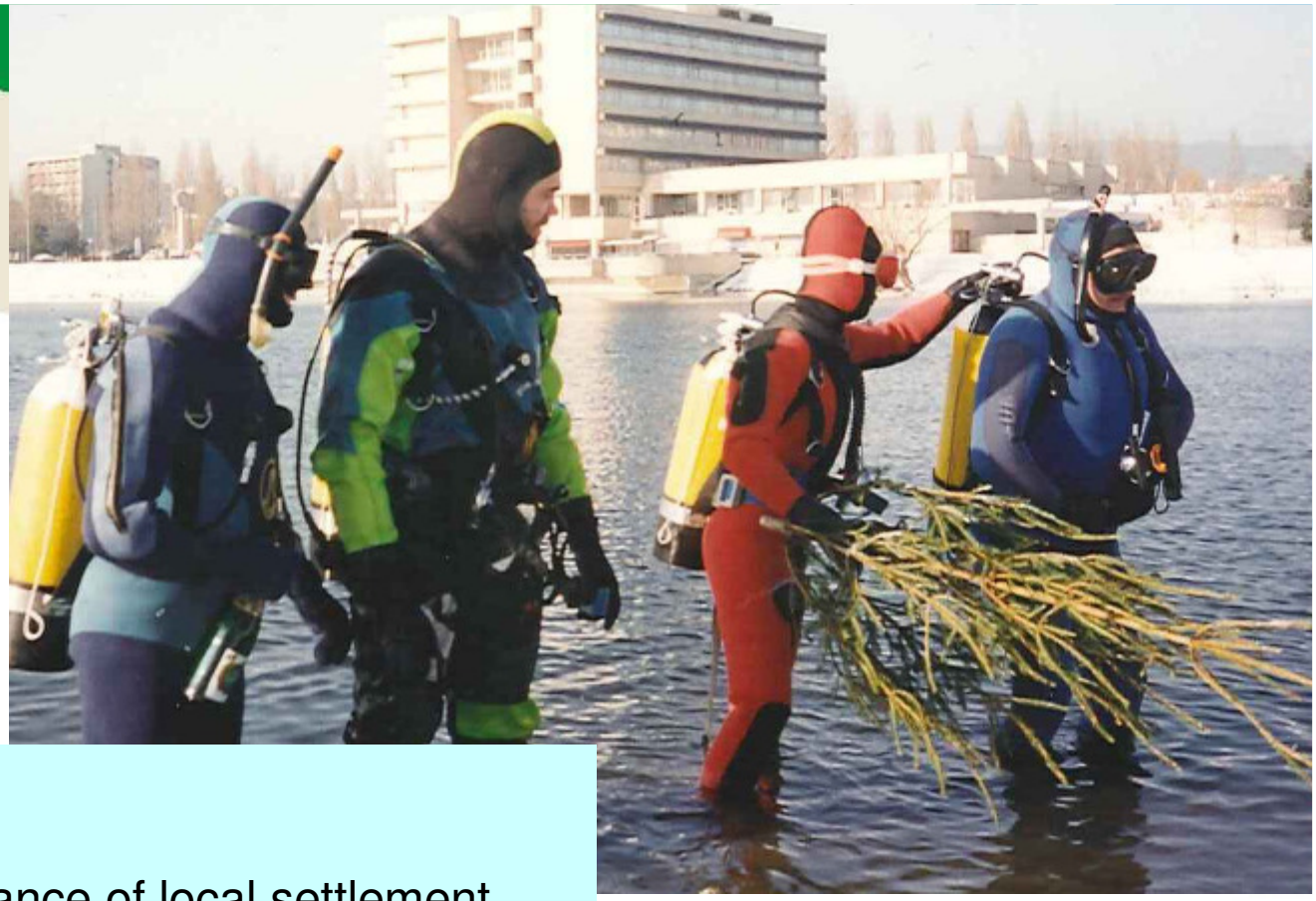
- Results were not as good as expected:
  - Increased number of rodents and mosquitoes threatened the health and quality of life of the local people
  - Gravel pit lake and contaminated sediments showed very low self-treatment recovery

- Two additional problems complicated the situation:
  - Technical problem regarding how to excavate contaminated sediments in a highly urbanized area while insuring the sustainable status of the lake
  - Lack of finance to support revitalization

Actions taken

- Local NGO in cooperation with municipality developed a **Revitalization Plan**:
  - Grouping experts to propose “technical” solutions
  - Grouping authorities to designate “management” measures
  - Grouping donors to generate funds

Technical solutions



Addressing problems:

1. Minimum disturbance of local settlement (restricted use of dragline excavator that is noisy and disturb sludge making it difficult to collect)

2. No-space for temporary storage of excavated hazardous waste

Technical solutions

- Use of special vacuum vehicle operated by divers
- Step-by-step siphoned contaminated sediments (totally 14, 270 m3) pumped into tankers
- Divers also removed more than 10 tons of bulky waste (tires, barrels, bicycles, fridges, etc)

Technical solutions

- **Addressing problems:**
- Revitalize biodiversity of the lake
- Excessive growth of water plants
- Control of waste water discharge

Management measures

- Reconstruction of sewers to divert waste water away from the lake
- Establishment of biological and chemical monitoring of the lake
- Regulation of fish activities (Fish Association)
- Installment of education boards and “park” rules

zero vzniklo v rokoch
bou štrkopieskov
najmä blízkeho sídliska.
je 56 000 m².
a postupne naplnilo
i podzemnými vodami,
a najmä od západu až
. Podzemné vody
unaja určujú jeho
režim, ale nezasahujú
roveň hladiny vody
ne ovplyvnilo aj napus-
o diela Gabčíkovo.
sa podzemná voda
dosfou približne 0,7m/deň.

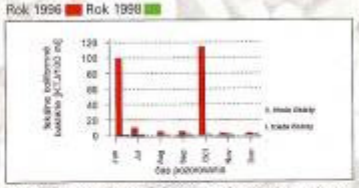
bola do jazera nelegálne
lizácia a spolu so psími
crementmi sa stala
istenia jazera. Zlá kvalita
dná úprava brehov si
iahly projekt revitalizácie.

V priebehu rokov 1993 - 1998 sa realizovali technické úpravy na jazere. Z dna jazera bol odsatý znečistený sediment v množstve 14 230 m³ a vytiahnutých 10 ton odpadu.

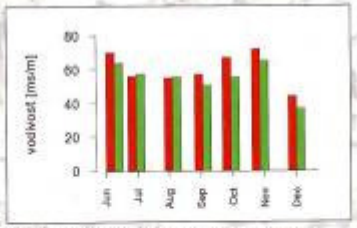
Brehové opevnenie dostalo novú úpravu a vodné vtáctvo prírode blízky biotop.

Nahromadením organických a anorganických látok sa vytvorili dobr
makroskopických porastov stolístka klasnatého, mikroskopických cyanol
prejavuje tvorbou „vodného kvetu" cyanobaktérií (siníc). Takýto stav r
plochy a zhoršuje biologickú kvalitu vody. Vodné rastliny však odčerpáv
ňovali. Na dosiahnutie rovnováhy bolo treba zaviesť regulované kosen
aj pre rôzne druhy fauny. Stálymi druhmi sú labuť hrbozo
častá lyska čierna. Jazero je zarybňované násadkou ka

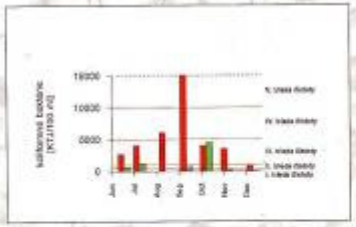
ŠTRKOVECKÉ JAZERO
BRATISLAVA - RUŽINOV
Rozloha vodnej plochy: 56 000 m²



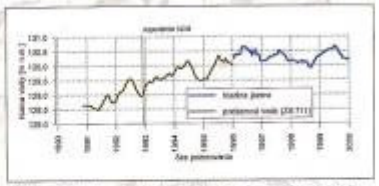
Fekálne koliformné baktérie sú indikátorom čerstvého fekálneho znečistenia. Ich prítomnosť sa považuje za hygienicky škodlivú. Výrazný pokles hodnôt je odrazom regulačných opatrení, najmä obmedzenia voľného pohybu psov.



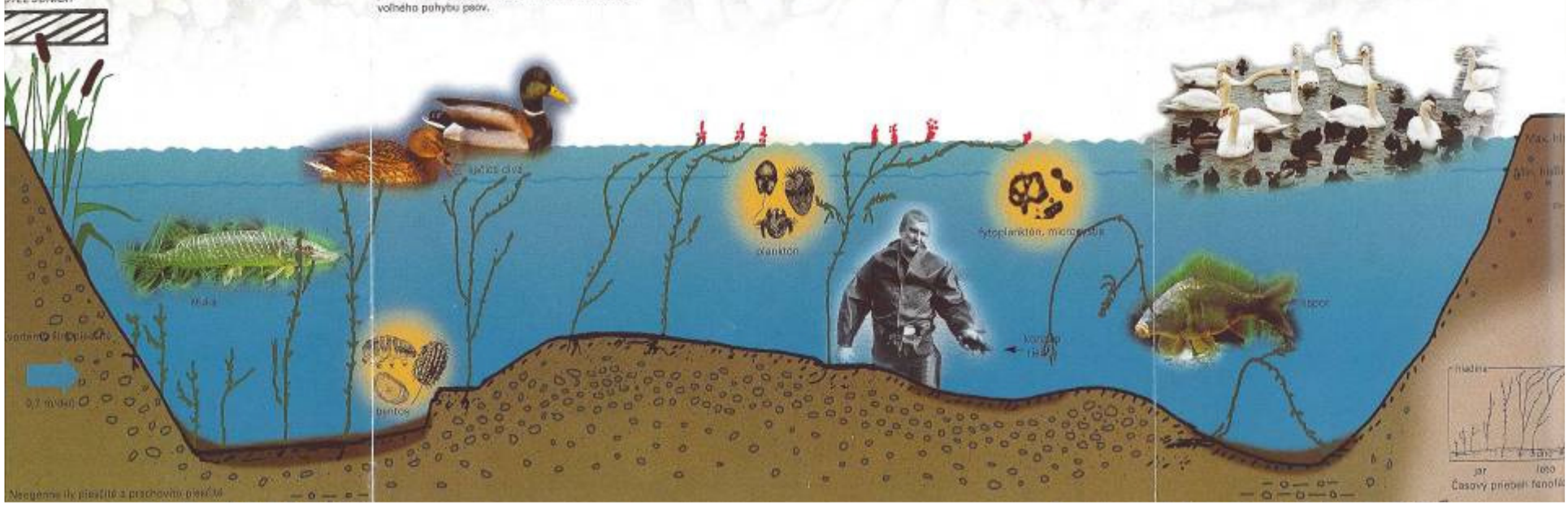
Vodivosť udáva celkový obsah rozpustených látok vo vode. Pokles je vyvolaný znižovaním obsahu CO_2 a rastom rastlín v letnom období (tzv. vegetačné čistenie).



Koliformné baktérie sú indikátorom staršieho fekálneho znečistenia. Ich opakované prítomnosť sa považuje za hygienicky škodlivú.



Kolísanie hladín závisí od zrážok a hladiny vody v Dunaji.



How to finance this project?

- NGO made a deal with the municipality:
  - 50:50 share (and all future operation cost bear with municipality)
  - Total cost estimated at 500 000 USD
  - Donors mobilized: **totally 14 companies committed!!!!!**
    - Refinery company (provided also tankers)
    - Geotest company (provided expertise)
    - Water Construction Company (provided equipment)
    - Local Divers Club (provided divers)
    - Chemical factory (provided monitoring)
    - Several banks (secured financing management)
    - Fish club Flipper (provided expertise)
    - Citizens of households (provided labor to clean up the lake)
    - Agro-farm (receiving water flowers as source of biomass)
    - Hydormeteorological Institute (provided monitoring system)

Ruzinov Lake Today

Tools applied

- Discuss
- Discuss

Lessons learnt

- Discuss
- Discuss