



ÉLÖDUNA

A mi folyóink. A mi ügyünk

Budapest Sludge Management Case Study

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Környezetvédelmi
és Vízügyi
Minisztérium

enviroduna



Magyarország célba ér



Hungary and Budapest in Europe

Geographical location:

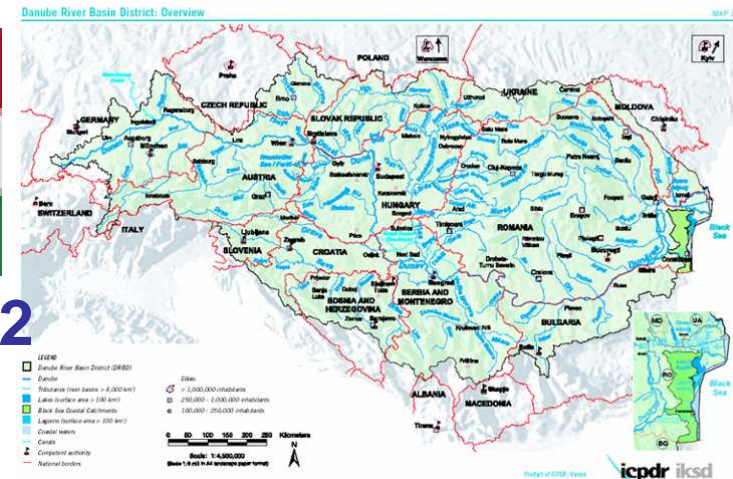
- Central-Europe,
- Danube watershed –
- Budapest is the Capital of Hungary

EU membership: 01.05.2004

EU Environmental requirements



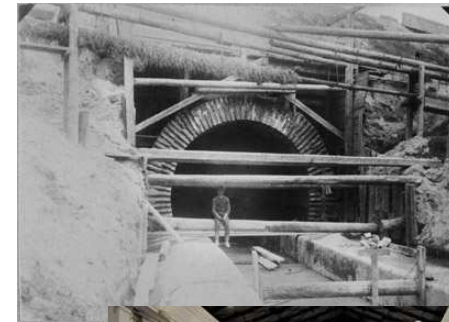
Total area: 93000km²
Population: 10M



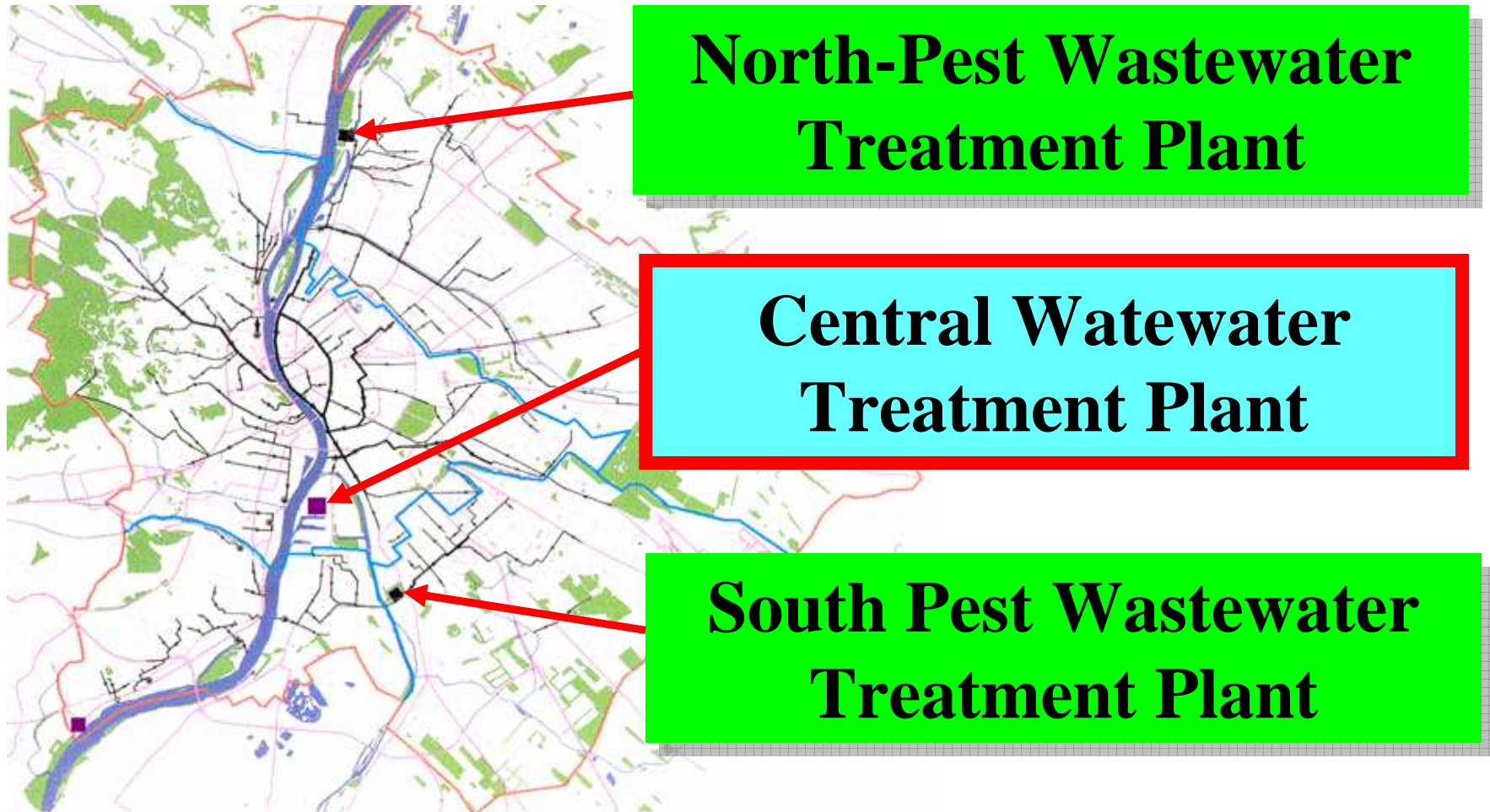
Budapest Wastewater History

The beginnings:

- Roman empire- Aquincum
- Middle ages
- Sewers in Pest- 1780-1868-1910
- Sewers in Buda- 1873-1914
- South Pest WWTP: 1966
- North Pest WWTP: 1980
- Bp Central WWTP: under construction



Wastewater treatment in Budapest



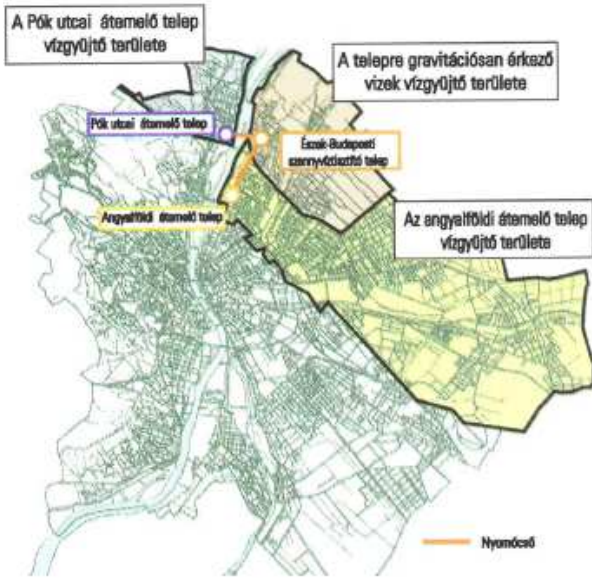
Area of Budapest :	525 km ²
Number of inhabitants :	1.85M
Length of sewer system	4 915 km
Total wastewater:	600 000 m ³ /d
Population connected to sewer system:	96%
Type of sewer system :	66 % combined 34 % separated
Population served by BCWWTP	49%
Wastewater treated by BCWWTP	350 000 m ³ /d



Hungary has signed the Sofia agreement for the protection of Danube river basin in 1994.

Hungary has joined the EU in 2004, so the Urban Wastewater Directive (91/271/EC) is to be followed.

North Pest WWTP



Since 1980

$$Q_d = 200\,000\text{m}^3$$



22-23.06.2008.

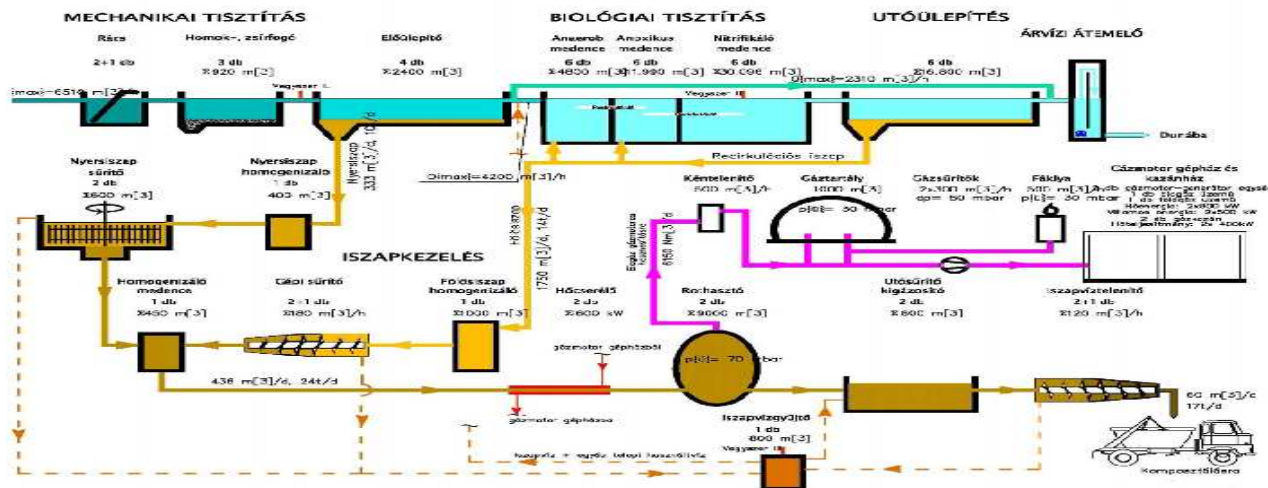
Urban Sanitation Workshop Paris



South Pest WWTP

Since 1966

$$Q_d = 80\,000 \text{ m}^3$$



Szennyvíztisztítás és iszapkezelés technológiai kapcsolási rajza "A" változat

3. ábra

Budapest Central WWTP

Completion date: 31st of
December 2010.

EU supports the
implementation of the
projects by the **Cohesion
Fund**.

The biggest ongoing
environmental protection
project in Central Europe.
(Σ428,7M/WWTP250M EUR)
Green-roof covered compact
plant



$Q_d=350\ 000\text{m}^3$

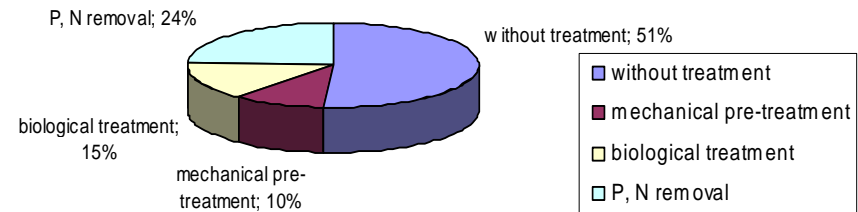


Outcomes of the BCWWTP project:

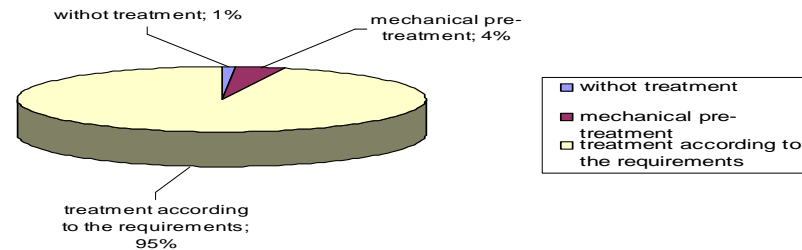
- ✓ Meet Urban Wastewater Directive 91/291/EC
- ✓ Prevention and mitigation of water contamination
- ✓ Sustainable water management (protection of drinking water wells)



Budapest wastewater treatment situation in 2006.

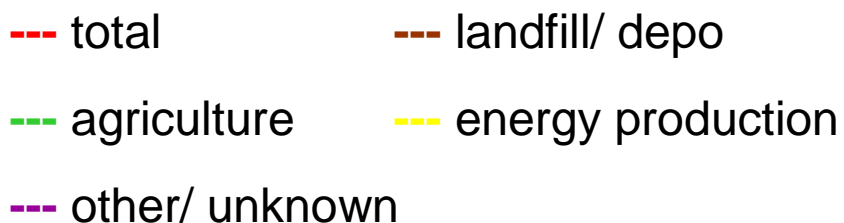
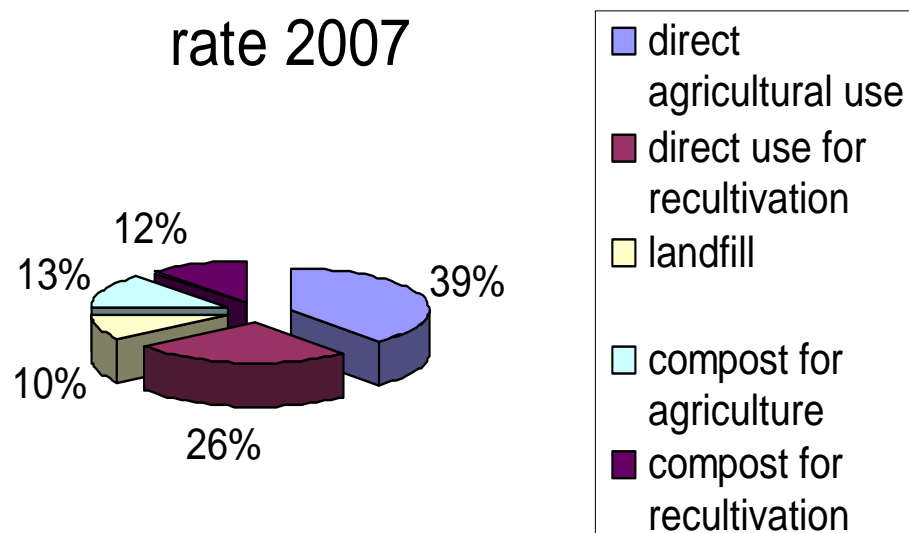


Budapest wastewater treatment situation in 2010.

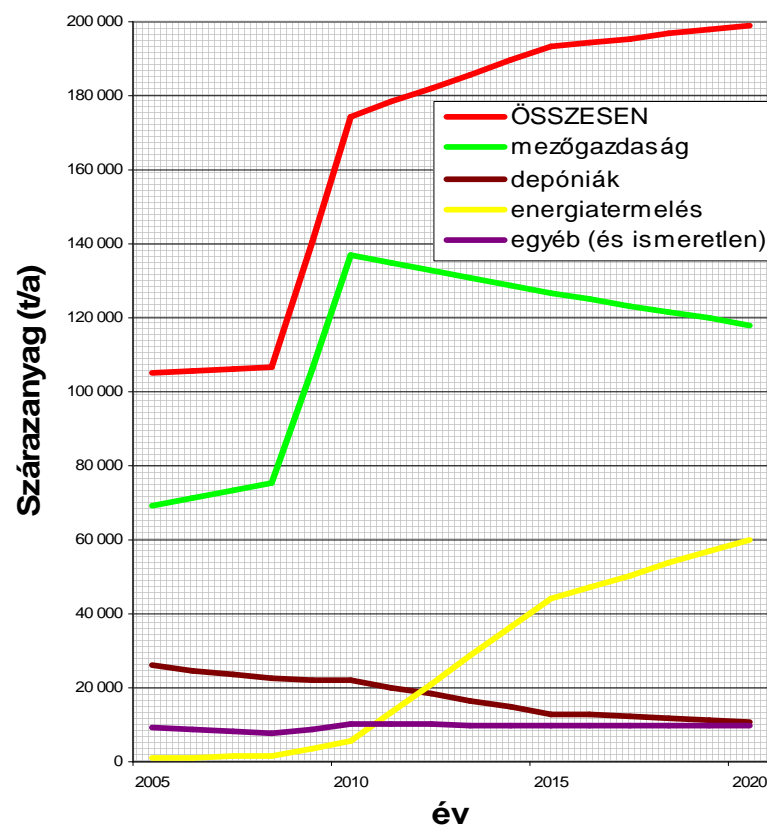


Sludge disposal in Hungary

aggregated sludge disposal rate 2007



Sludge use prediction 2005-2020



Sludge treatment and disposal in Budapest



	WWTP	South Pest	North Pest	BP Central
recent	Sludge treatment	digestion, biogas utilisation	dewatering, chemical stabilisation	
	Sludge disposal	agriculture by contractors	landfill	
future	Sludge treatment	digestion, biogas utilisation, ELODE trial (electro-osmosys dewatering)	digestion, biogas utilisation	digestion, biogas utilisation, composting
	Sludge disposal	agriculture by contractors	landfill	land reclamation, agriculture, (energy production)
22-23.06.2008.		Urban Sanitation	Workshop Paris	11

Sludge features in 2011

	waste- water	sludge	Dry solid content	
wwtp	1000 m ³ /year	t/year	t/year	%
North Budapest	66.430	53.394	18.688	35,0
South Pest	23.000	31.000	9.000	29,0
Budapest Central	128.000	75.700	20.440	27,0
South Buda (cancelled)	20.988	24.768	6.935	28,0
Total	238.418	184.862	55.063	29.79

Background for sludge utilisation

- EU- harmonized Hungarian legislation
- Hungarian wastewater and sludge concept
- Environmental program of Budapest
 - **Budapest Sludge treatment, disposal and utilization study**
- Sludge concept of the operator company (NP, SP)
- Sludge concept for the BCWWTP

UNDER PROGRESS

Concerns against the sludge

- civil protest against implementation, transport, operation
- lack of environment-objected thinking (or oversized)
- local interests vs community ones
- regulatory/legal restrictions, discrepancy
- problems with final disposal:
 - capacity, aversion, hostility (agriculture)
 - economic aspects (energy purpose)
 - reliability (contractual)
- **sustainability**

Thank you for your attention!
For further information please visit:
www.eloduna.hu

