

Measures to reduce nutrient losses



CZECH REPUBLIC

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Water-Management Development and Construction Inc.

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since 1890

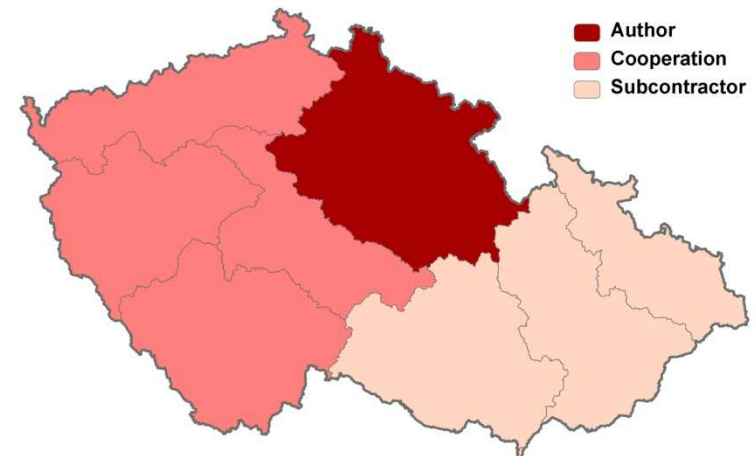
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Water management planning

- Author of River Basin District Management Plans



Water management planning in the Czech Republic

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- 1953 The first water management plan in former Czechoslovakia
- 1975 Updated, valid until 22.12.2009
- 2001 Implementation of the Water Framework Directive (2000/60/EC) in the Czech law system

Aims:

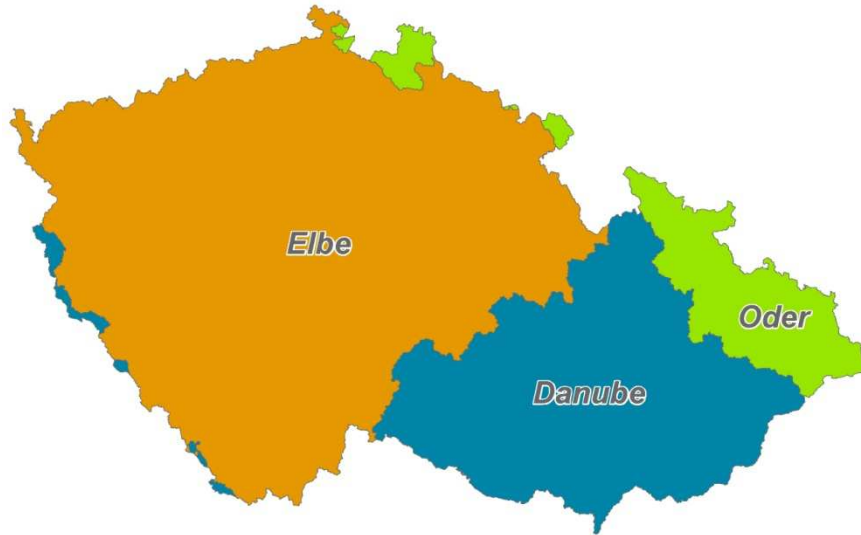
- Improvement of the status of water
- Sustainable use
- Flood protection and mitigation of effects of droughts

→ River Basin District Management Plans
(*and Plan of Main River Basins of the Czech Republic*)

River Basin Districts in the Czech Republic

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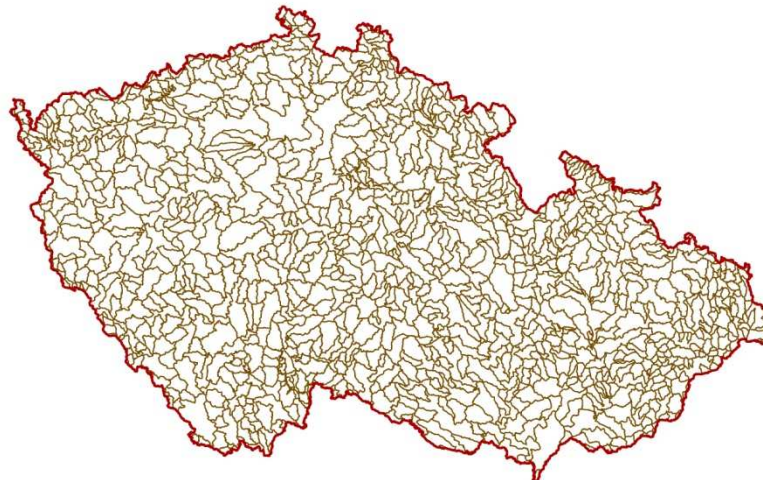
Main River Basin Districts



River Basin Districts



Surface Water Bodies



River Basin District Management Plans (RBMP)

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- prepared by the river basin administrators
 - in cooperation with ministries (M. of Agriculture and M. of Environment), regional and central water authorities and the public*
- reviewed and updated every six years

Stages of the 1st RBMP preparation :

- January 2005 - Preliminary work
- **June 2005 – July 2009 RBMP draft**
- 2008 - Submitting for regional authorities approval, public comments...
- December 2009 - Publishing the approved RBMP

River Basin District Management Plans

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Main phases of establishing RBMP :

1. Assessment of the water bodies' current status
 - ▣ *Monitoring*
 - ▣ *No monitoring available: input-output balance calculation (not very accurate)*
 - *Point sources with discharge $> 500 \text{ m}^3/\text{month}$*
2. Design of measures
3. Estimate of measures' impact on water bodies' status

Types of Measures

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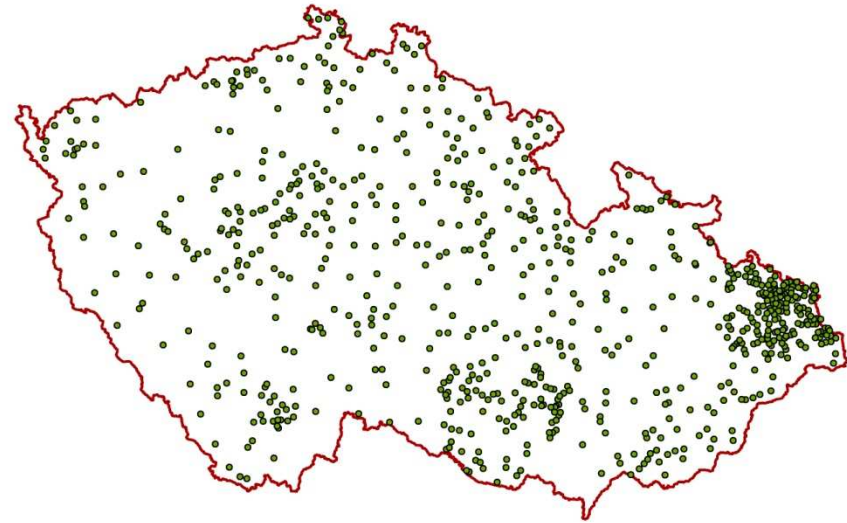
3 types:

A a concrete project (with identified locality, financing...)

- *building of a new WWTP*

Type „A“ measures

(in this map WWTP and drainage)



Types of Measures

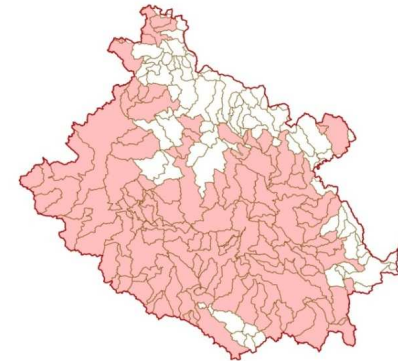
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B definition of right procedures in water bodies

- *codes of good agricultural practice in water bodies with designated Nitrate Vulnerable Zones*

Type „B“ measures

*(in this map water bodies with NVZ
in Upper an Middle Elbe RBD)*



C requirement of a new legal enactment, applied to the whole RBD

- *reduction of invasive plant species*

Measures to reduce nutrient losses

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1. Water protection against nitrate pollution from agricultural sources

- Measure type B (*in fact A - B*)
- 91/676/EEC (Nitrates Directive)

Implemented in the Czech law system in 2001

„Action program“ - Identification of *Nitrate Vulnerable Zones* and *Codes of Good Agricultural Practise*

Measures to reduce nutrient losses

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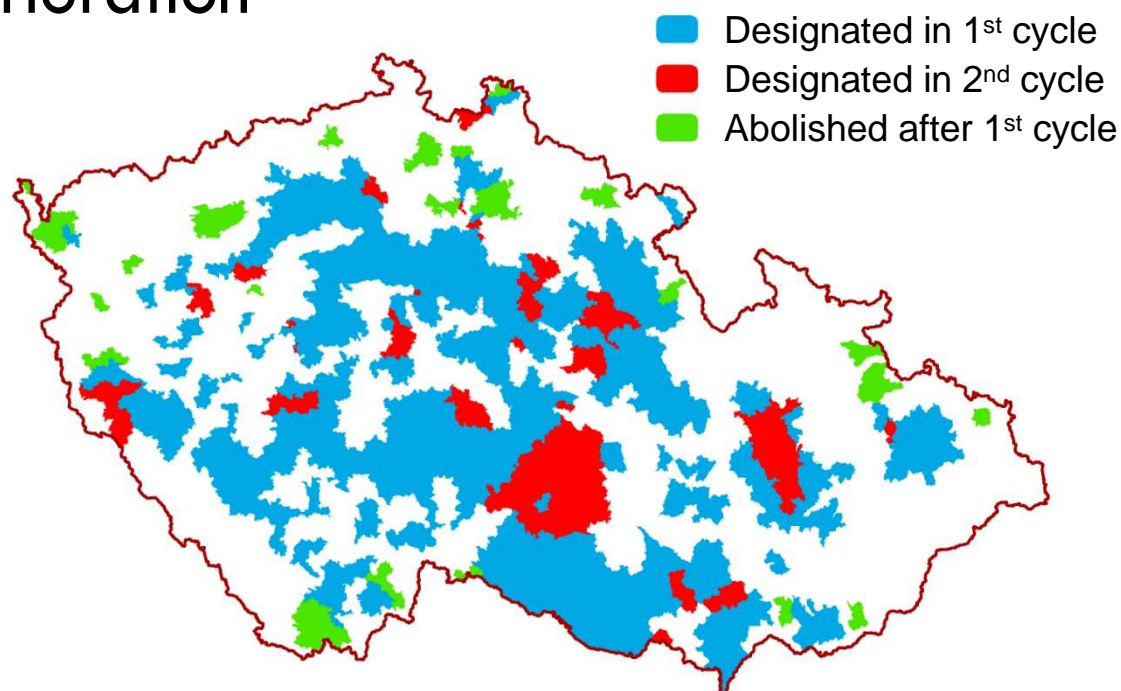
Nitrate Vulnerable Zones

- Cadastral subdivisions
- Nitrate concentration > 50 mg/l or where is risk for water quality deterioration

- 2 cycles:

- 2004 - 2007

- 2008 - 2011

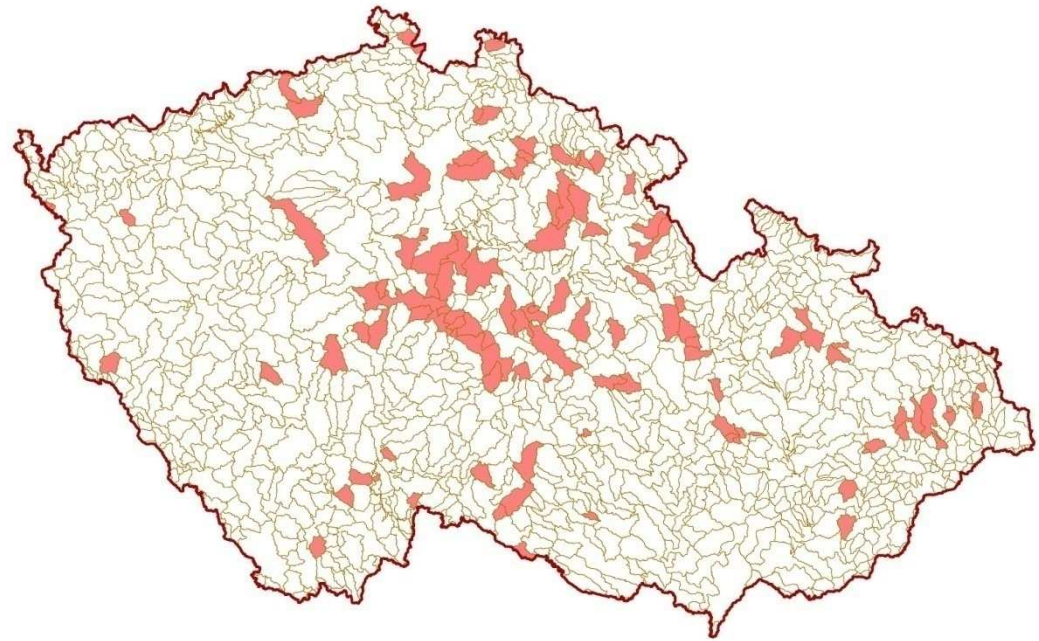


Measures to reduce nutrient losses

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2. Elimination of nitrogen as a source of diffuse water pollution

- Measure type B



Surface water bodies where this measure is designed

Measures to reduce nutrient losses

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Based on Czech law system:

- Water Act
 - *Dangerous materials treatment*
- Fertilizer Act
 - *requirements for fertilizers storage and use*
 - *special restrictions for slurry and manure*
 - *calculations of necessary amounts of fertilizers*
- Government grants for “Agro-environmental Measures”
 - *Ecological farming*
 - *Integrated production*
 - *Regardful farming on grass plots*
 - *Grassing of endangered arable land*

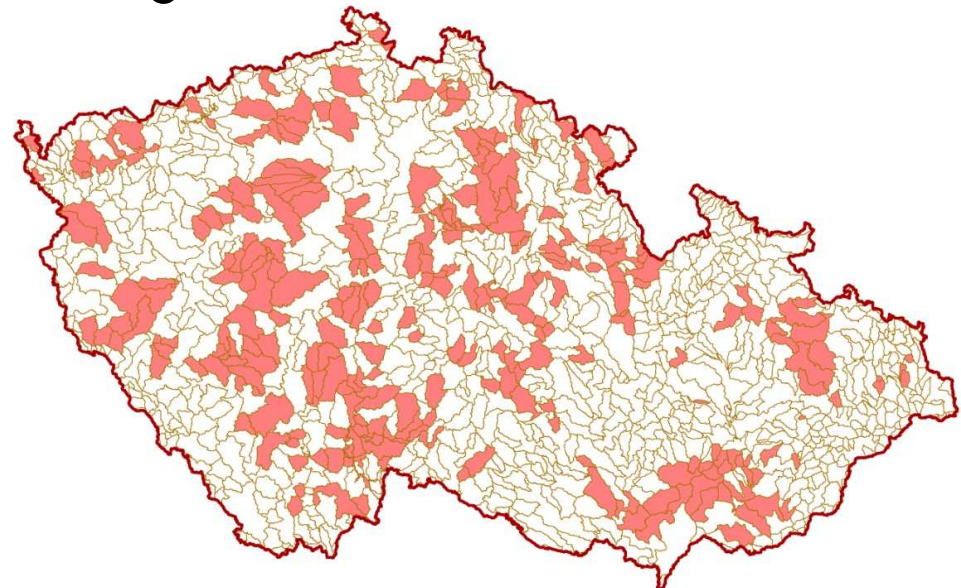
Measures to reduce nutrient losses

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3. Mitigation of water erosion with regard to the pollutants transport

- Measure type B (*in fact B - C*)
- Legal framework is now being prepared: government grants for projects in endangered water bodies

Surface water bodies where this measure is designed



Measures to reduce nutrient losses

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- Phosphorus mitigation measures are included implicitly
- P concentrations on average 95 mg/kg at arable land (Mehlich 3)
- Intensive fertilization necessary at 19% of the area

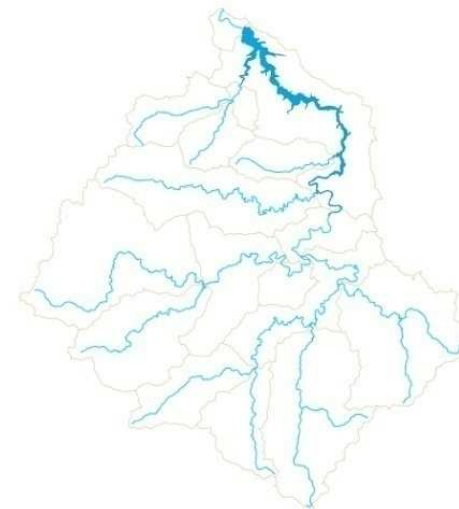


Phosphorus amounts at arable land

Svihov water reservoir

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- Largest drinking water reservoir in Middle Europe
- “Svihov Water Reservoir Basin Management Plan”
- 80% of nutrient pollution is from diffuse sources



Svihov water reservoir

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Designed measures:

- Grassing 25 – 30 % of the catchment area
- Management of grassed areas (mowing)



Erosion rill found during the field survey

Summary

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- RBMP drafts are being finished in CR
- Nitrate pollution has been solved already since 2004, some areas improved their status
- RBMP identified areas endangered by nitrogen pollution, government grants exist to ameliorate the status
- RRBMP identified areas endangered by water erosion, government grants system is being prepared

Conclusions

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- Main contribution of RBMP is to identify endangered areas (water bodies)
- Suggestions of suitable measures
- Sometimes lack of legal framework and methodology



Thank you for your attention.