WP 4.1 Floods and Excess Water
The Middle Tisza case

Gábor Ungvári, András Kis
BCE-REKK

2nd EPI WATER Conference
Madrid, 6-7th February 2013

Evaluating Economic Policy Instruments for Sustainable Water Management in Europe

The research leading to these results has received funding from the *European Community's* Seventh Framework Programme (FP7/2007-2013) / *grant agreement* n° 265213 – project EPI-WATER "Evaluating Economic Policy Instrument for Sustainable Water Management in Europe".

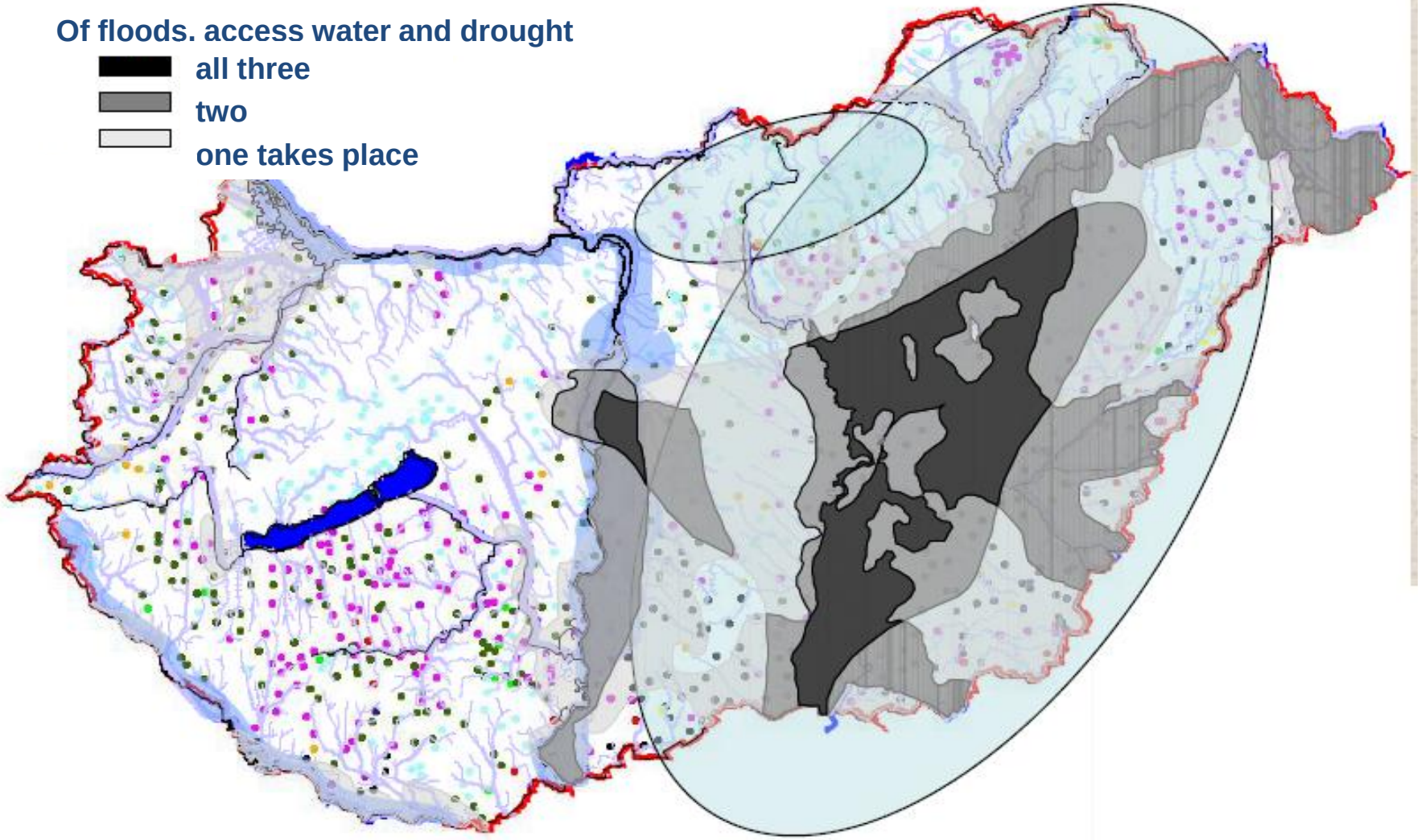
Water surplus in the Tisza river valley

Either

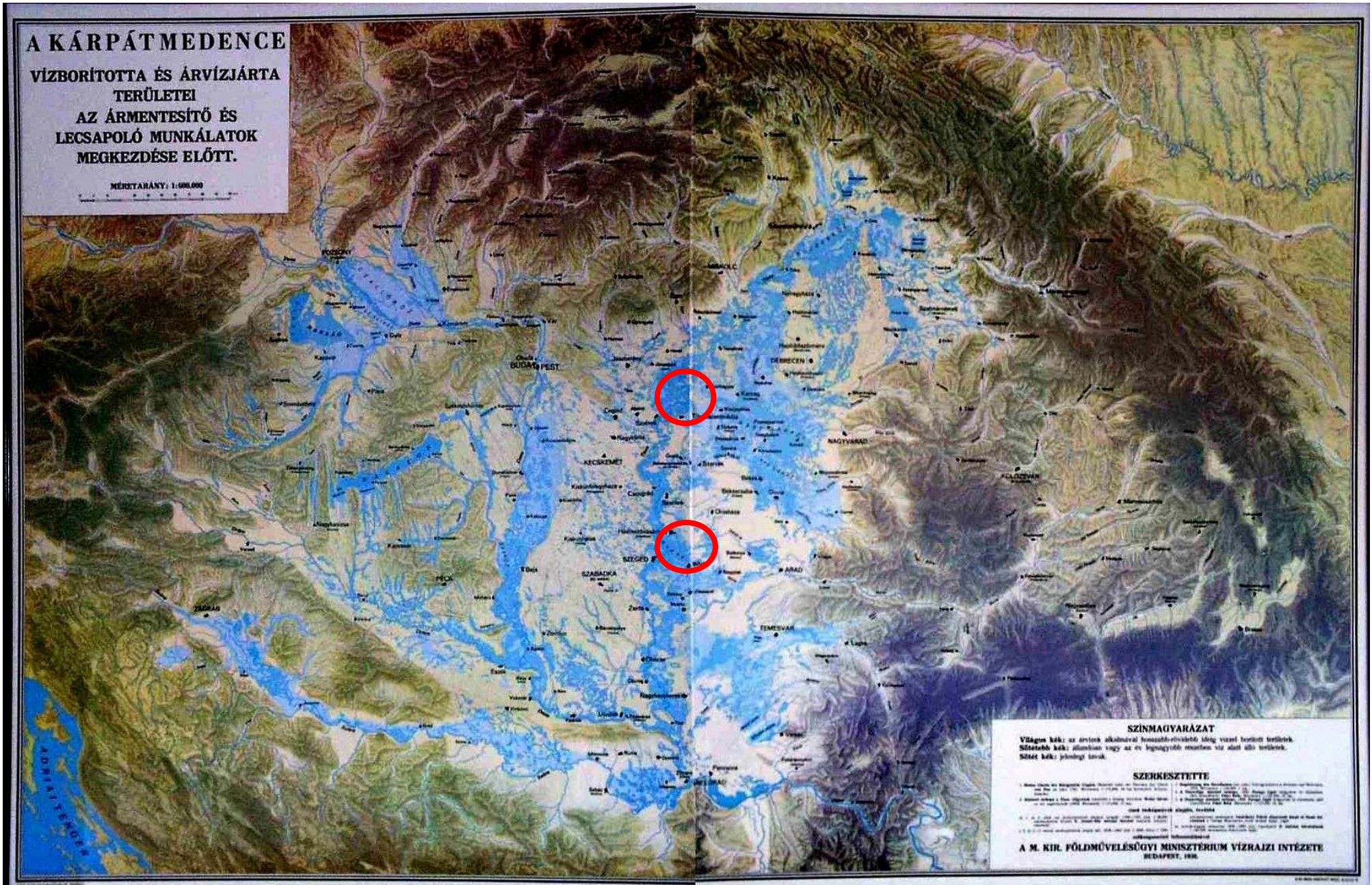
- flood water or
- inland excess water

Water extremities in the Tisza river basin

The problem is not related to overall volumes of water, but its seasonal distribution

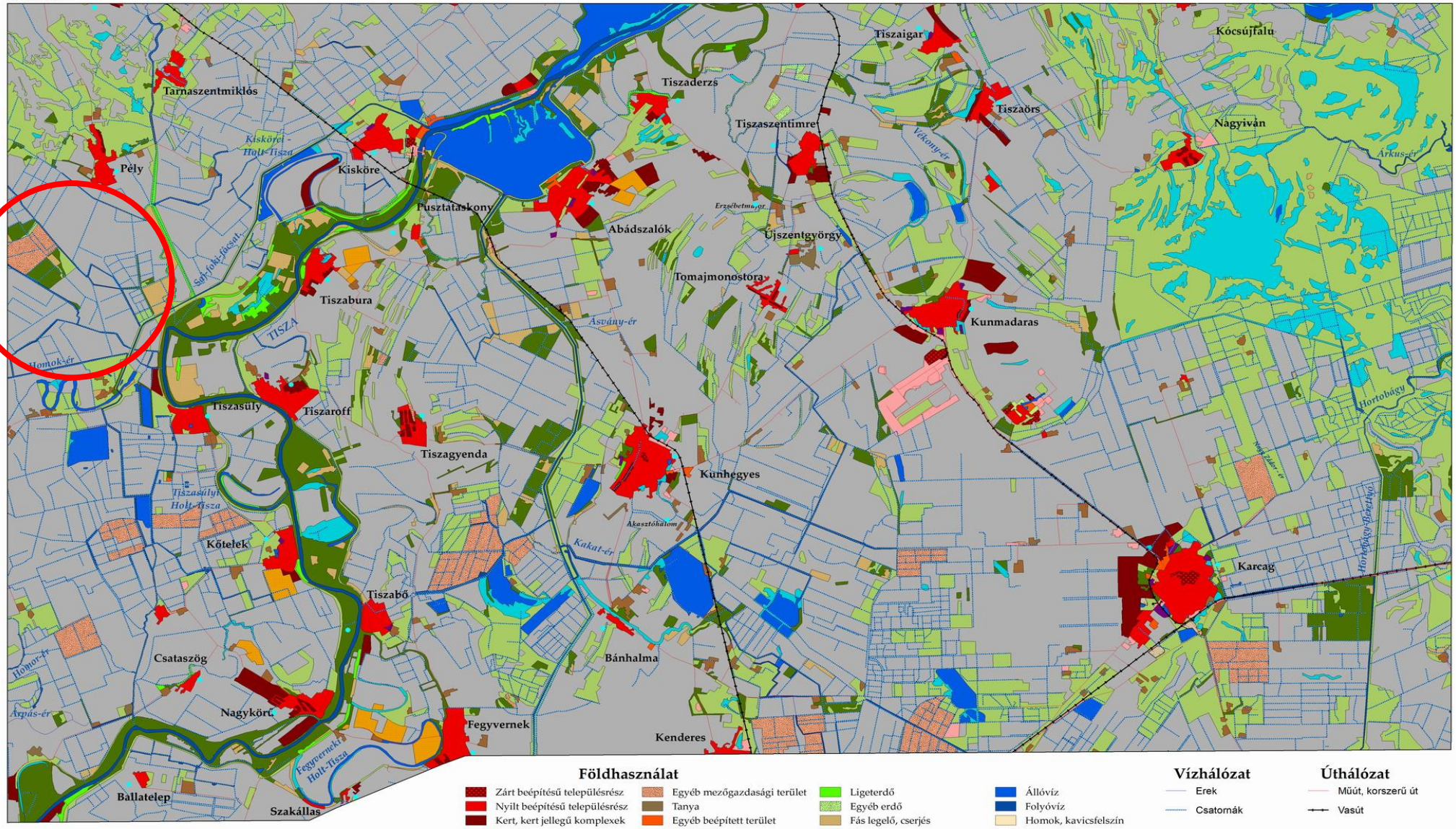


The Carpathian Basin before river regulation



Történeti felszínborítás és földhasználat a Tisza-Hortobágy mintaterületen a Corine LandCover 1:50000 adatbázis alapján (XX. sz. vége, 1998-99)

5. Melléklet



Földhasználat

- Zárt beépítésű településrész
- Nyilt beépítésű településrész
- Kert, kert jellegű komplexek
- Temető
- Park
- Ipari, kereskedelmi telephely
- Mezőgazdasági telephely
- Egyéb mezőgazdasági terület
- Tanya
- Egyéb beépített terület
- Szántóföld
- Szőlő
- Gyümölcsös
- Lombos erdő
- Ligeterdő
- Egyéb erdő
- Fás legelő, cserjés
- Gyepek
- Vízállásos, lápos gyep
- Mocsár
- Nádas, gyékényes mocsár
- Állóvíz
- Folyóvíz
- Homok, kavicsfelszín
- Külszíni bánya

Vízhálózat

- Erek
- Csatornák

Úthálózat

- Műút, korszerű út
- Vasút

0 2,5 5 10 15 20 25 km

É Ny K D

Program: „A Tisza biológiai változatosságának megőrzése integrált ártéri gazdálkodás segítségével"
Finanszírozó: KvVM-UNDP-GEF

Alaptérkép: Corine LandCover 1:50000 adatbázis
Forrás: Földmérési és Távérzékelési Intézet 2005.
Feldolgozás: Nagy Dezső

The roots of the problems – environmental perspective

- The low level natural mitigation capacity against water extremes

  It means

- reduced provision of regulating ecosystem-services
- Substitution: landscape management infrastructure for safe circumstances
  - Flood defence
  - Territorial water management (drainage and irrigation) systems

The roots of the problems – economic perspective

- The balance dropped between the
  - The severity of external effects
  - The effectiveness of defence inftrastructure to mitigate and
  - The maintenace costs

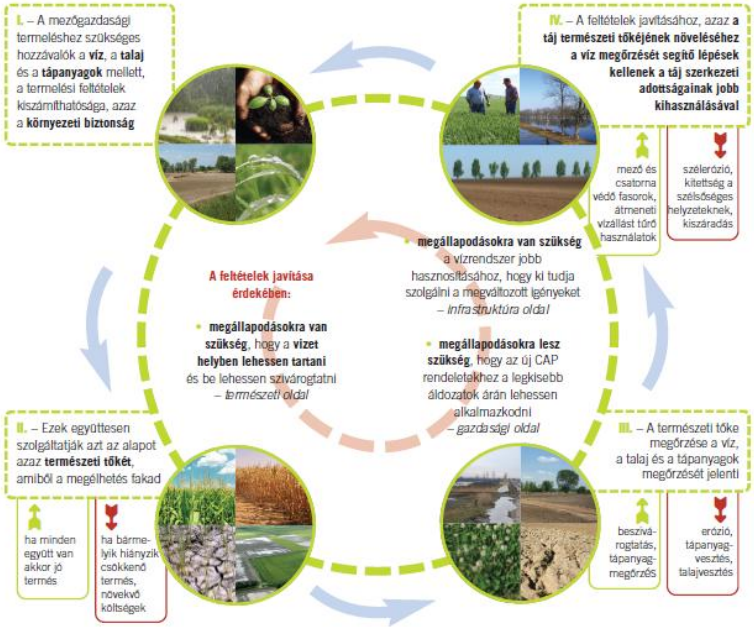
- Landscape maintenance services are mainly financed by the government (flood protection, excess water drainage, irrigation)
- Beneficiaries do not face the full costs - over-demand for services
- Shrinking state resources
- Low willingness/ability to pay more (or pay at all) for the services in their recent form

Strategy of our research

- Land use adaptation is the key driving force to change the demand for the landscape maintenance services

- Reflecting costs and benefits of water services for beneficiaries and providers can drive land use adaptation

- To tackle water surplus problems – land use adaptation must be enhanced



WP 4.1 Floods and Excess Water

Multi-disciplinary approach:

- Economists
- Engineers (hydrological modelling)
- Ecologists/botanists
- Mediators

Selection of sites: possibility for a real economic context of land use adaptation, cooperative local partners

Bids for ecosystem services provided by the farmers to assess the viability of the proposed EPI

Background analysis to determine the value of land use based services

Cooperation with:

- Local farmers
- Water management associations
- Water directorates
- National policy makers

Assess the economic position of land owners and government and changes as a result of different water regimes and EPIs

WP 4.1 Floods and Access Water - Content

1. Marosszög excess water management
   - Problems with excess water inundations (and irrigation)
   - CAP requirement for ecological focus areas
   - Land use change can help both
   - EPI: a tradable land use market
2. Middle Tisza case study
   - The evolution of floods on the river Tisza
   - Past analysis of protection: dikes vs. reservoirs
   - Reservoir option selected – but half finished job
   - EPI to improve reservoir operation, take care of equity problems, lower flood risk and reduce costs