

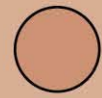


„Green-Point” environment valuation system for landscape management farming in flood-basin area

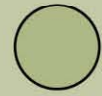
Balázs SIPOS (SZENT ISTVÁN UNIVERSITY)

László PODMANICZKY (SZIU)
Katalin MOZSGAI (ÖKO CO. LTD.)
KATALIN BALÁZS (SZIU)
Zsuzsanna KÁLDOSI (SZIU)
Dóra MÉSZÁROS (SZIU)

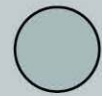




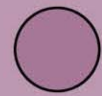
Flooding problems in Hungary,
regulation of water conservancy



Possibilities of landscape
management in flood-basin areas



Details of our farming valuation system



Example of function in practice



Conclusion and provision

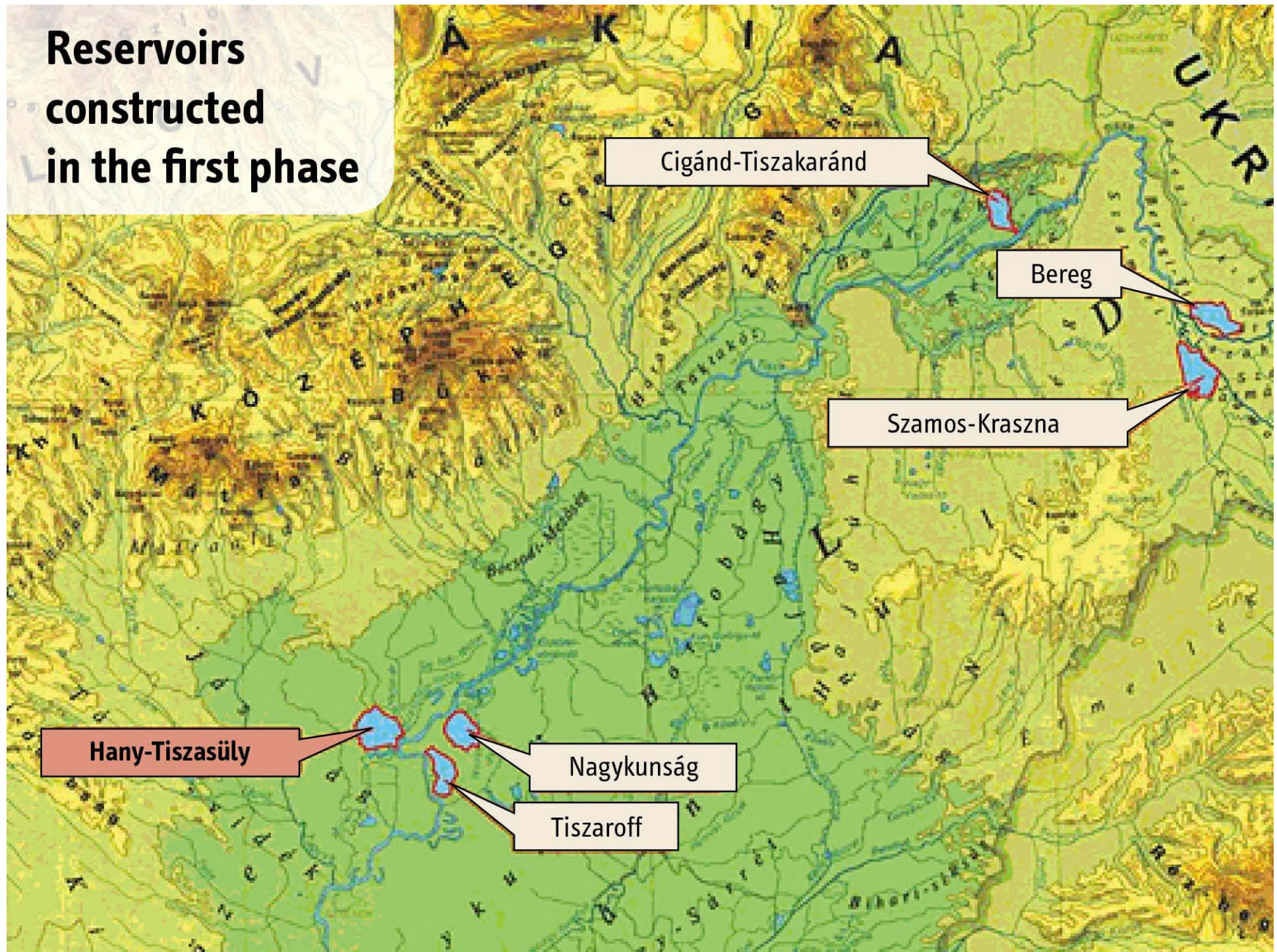




***'Flood-facts'* and the background of cause**

- Tisza is the second biggest river in Hungary
- 1998-2002 four extraordinary flood waves
- The traditional dikes were not able to manage floods of such measure
- Today about 2.1 millions hectares endangered by floods - 17 % of the population are concerned
- Regulation of the Gov. (2003) - 11 envisaged reservoirs (6 will be constructed in the first phase)
- Technical investments inside the reservoirs had to be suitable to lead contained water to territory suffering from water shortage

Reservoirs constructed in the first phase





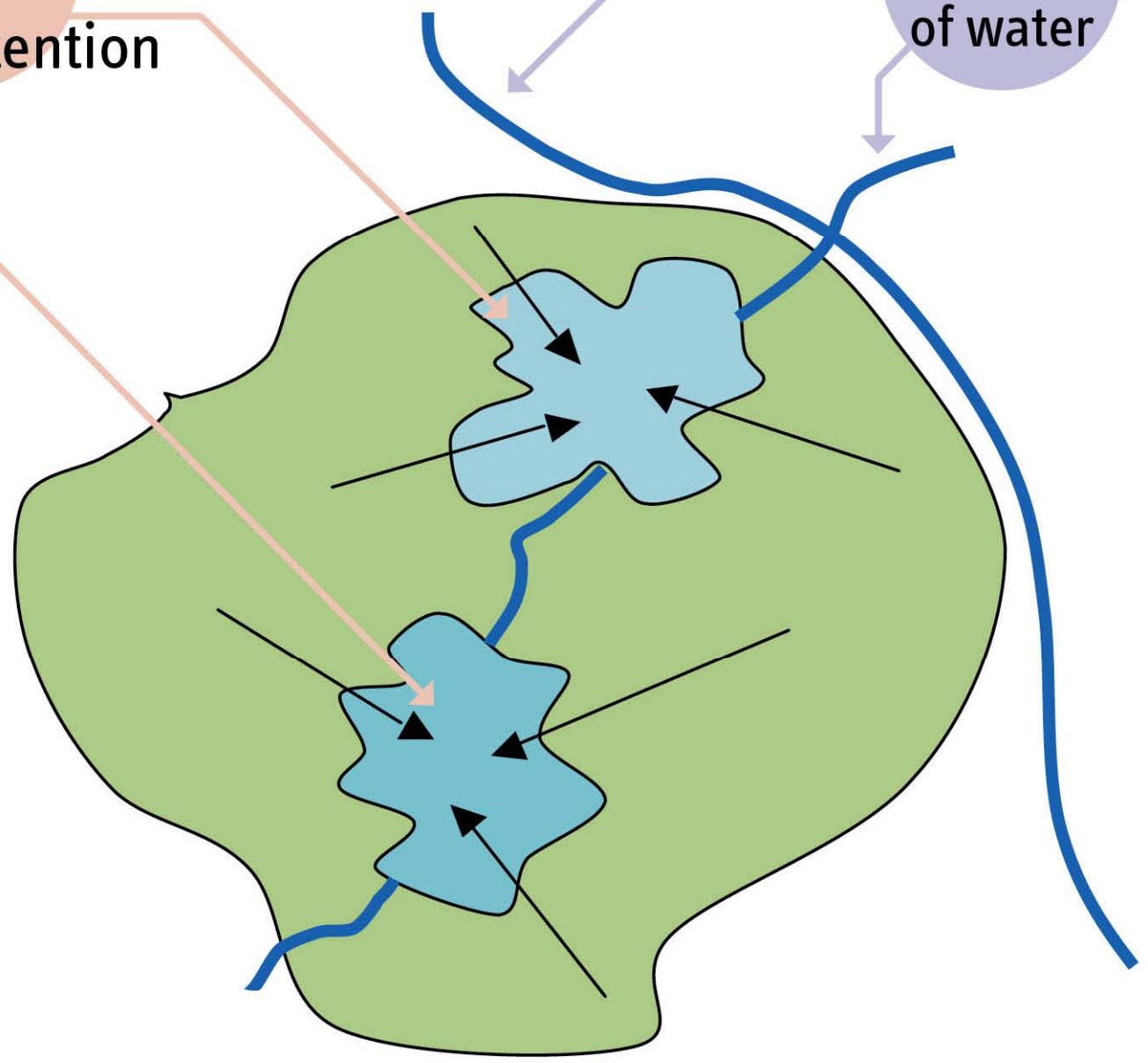
How could we use water surplus came with flood waves

- Problems of water balance caused by inland waters, then by drought
- Lack of water and surplus water appear shifted in time
- Keep water surplus in well-watered periods and territories to use it in water stressed areas and periods
- Main elements
 - Regulated floods
 - Water structure rehabilitation (pieces, drainage system)
 - Inspiration of water retention



Deeply situated areas used for water retention

Water streams ensuring replacement and exchange of water

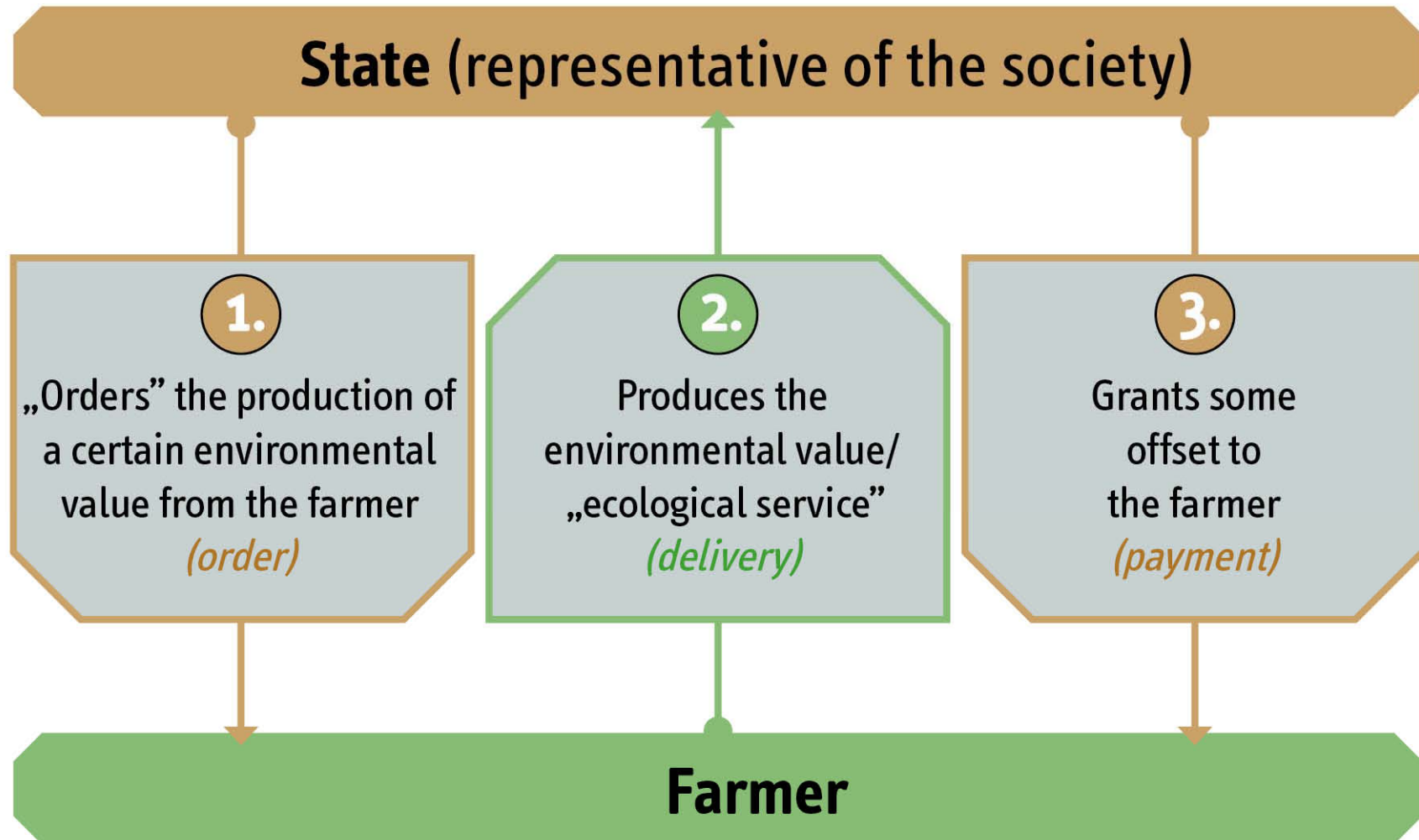




Water retention based landscape management

- Has to support the qualitative and quantitative protection of water
- Farming practice has to be based and take regard on available natural resources
- Simultaneous improvement of the environmental state and the living conditions of the farmers
- Two levels of the management:
 - Suitable water management (based on natural conditions and elevation of the area)
 - Select cultivation branch which is most suitable
- State subsidy is necessary

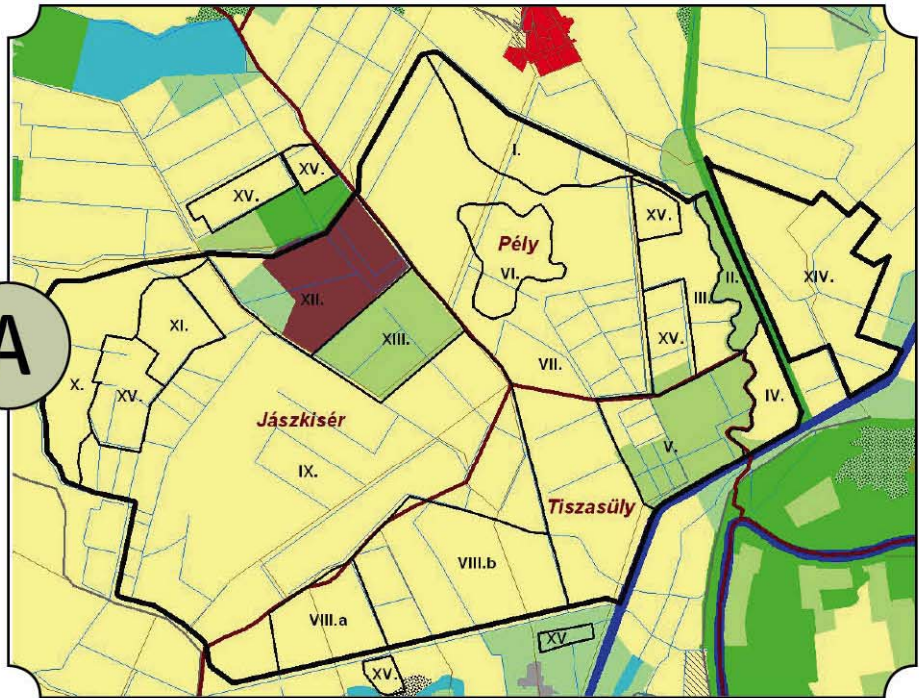
What does a „*landscape-farmer*” produce and sell?









Current land use structure

-  Arable land
-  Ryce-land
-  Meadow/pasture
-  Complex cultivation structure
-  Agr. territory with vegetation
-  Hardwood
-  Softwood
-  Natural grass

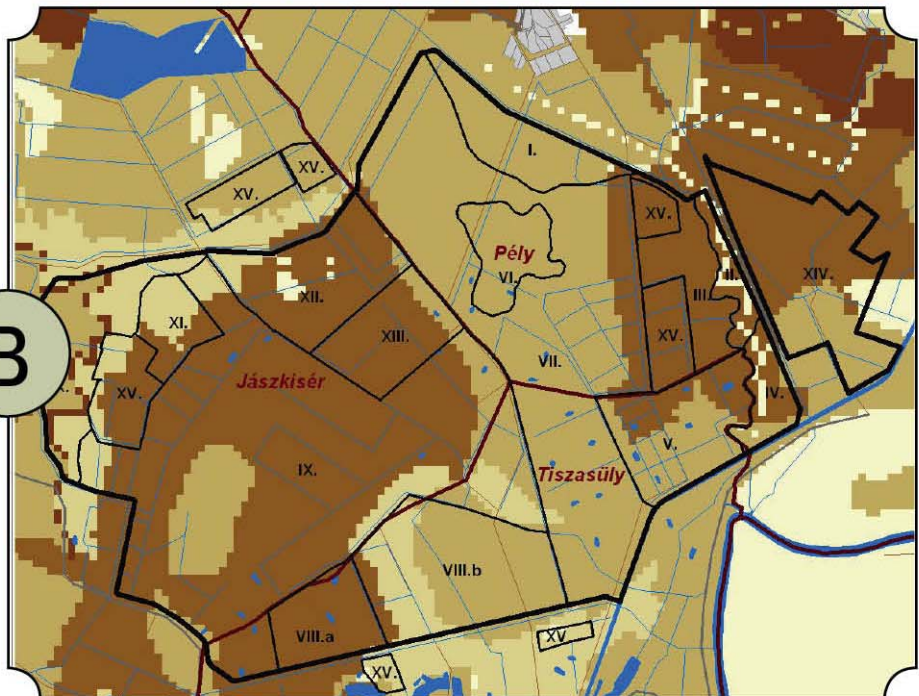
A



Agricultural potential

-  Not suggested for arable farming
-  Area of very weak productivity
-  Area of very productivity
-  Area of medium productivity
-  Area of good productivity
-  Area of excelent productivity

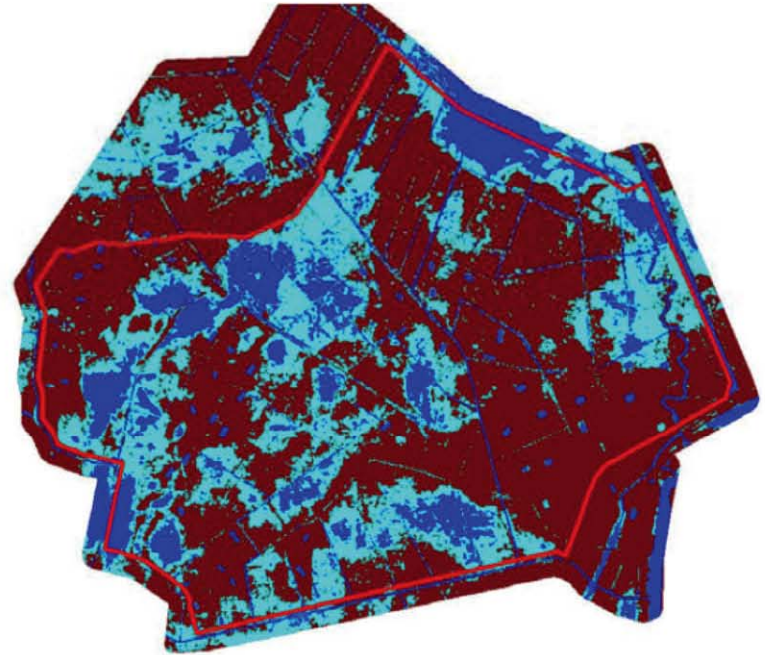
B



Ground levels

- Deep flood basin
- Low flood basin
- High flood basin

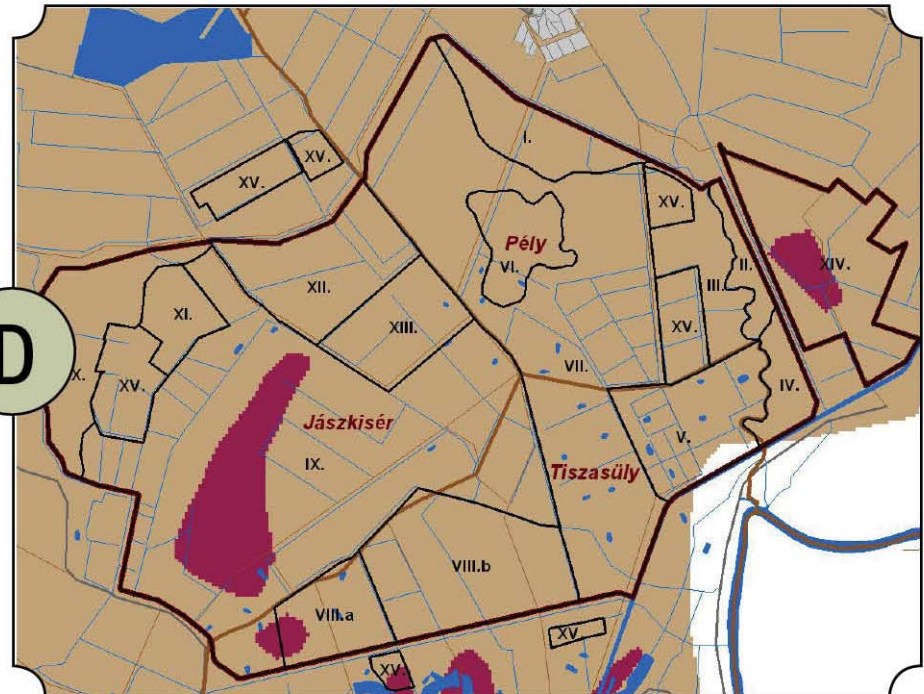
C



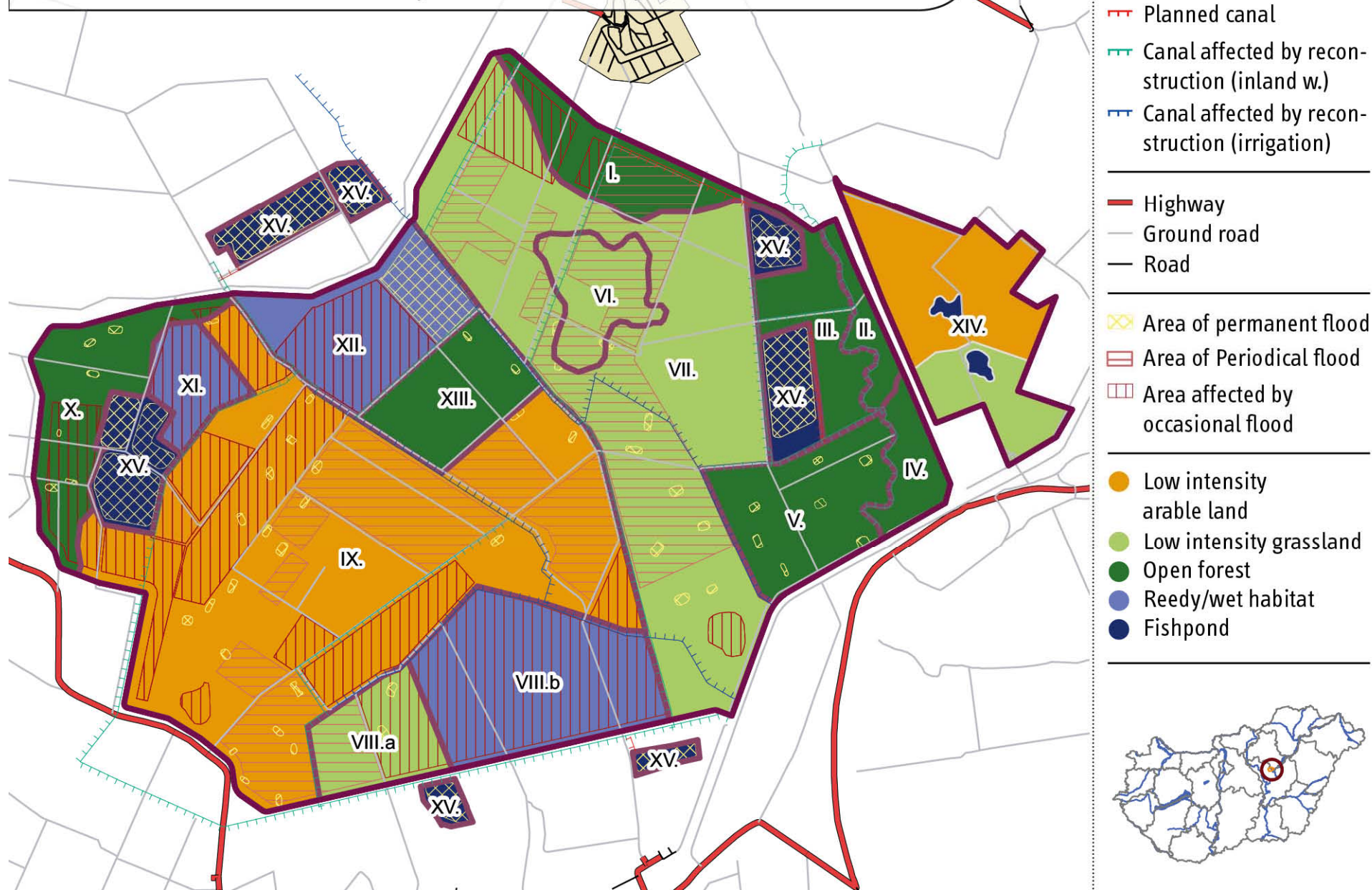
Territories endangered by inland water

- Slightly endangered
- Moderately endangered
- Meanly endangered
- Strongly endangered

D



Possibilities of landscape management of the reservoir Hanyi-Tizzasüly reservoir





The fourteen lanscape management categories in the reservoir

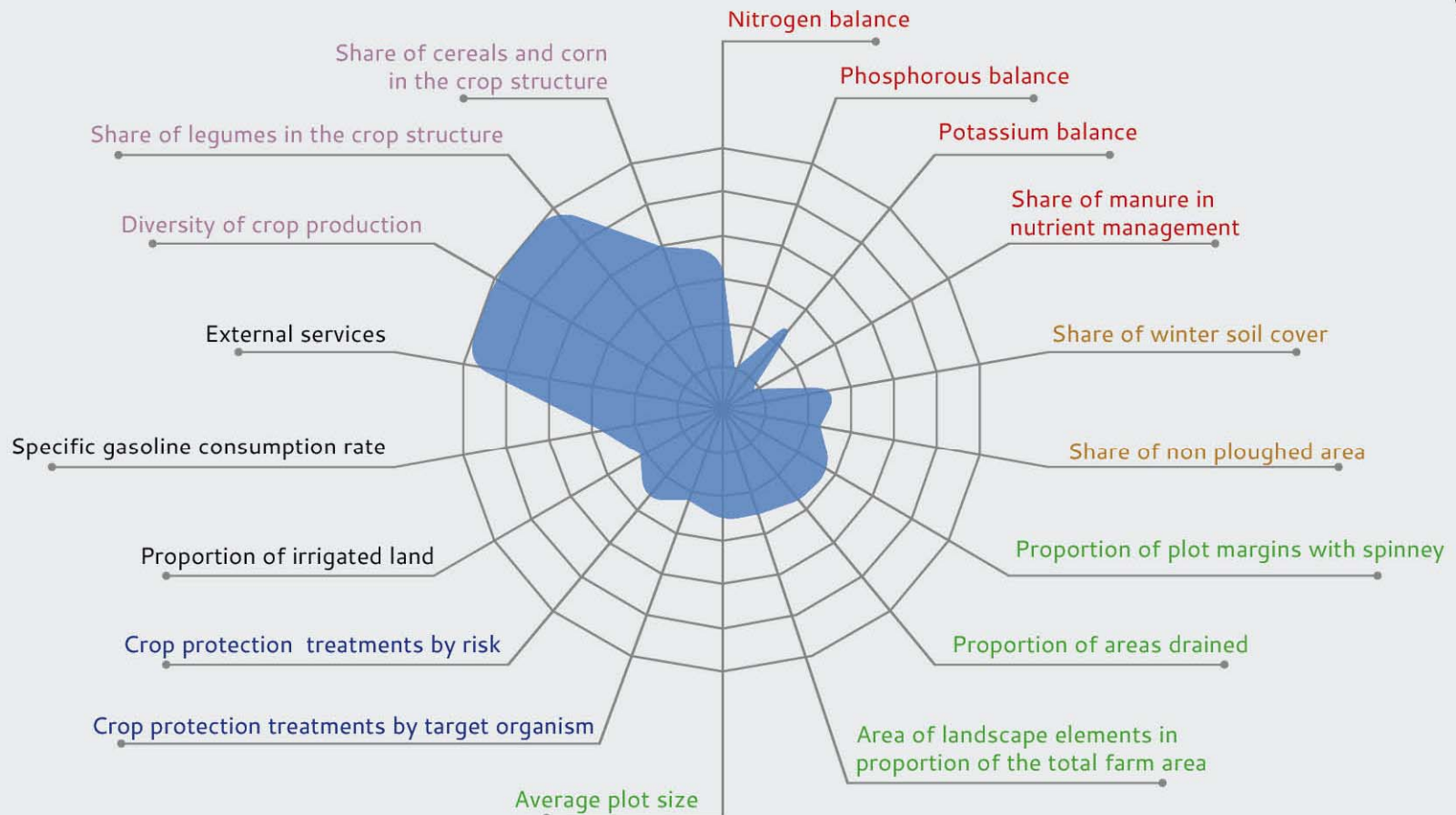
	Water management method	Land management method
1	Occasional inundation	grassland
2		orchard
3		open forest
4	Permanent inundation	wetland
5		fish-pond
6		pond
7	Without inundation	low intensity arable land
8		low intensity grassland
9		traditional orchard
10		loose set forest
11		forest with reservoir cultivation set out in the VTT
12	With frequent small inundations	grassland
13		sustainable cultivation
14		reed

Main characteristics of the “green-point” valuation system

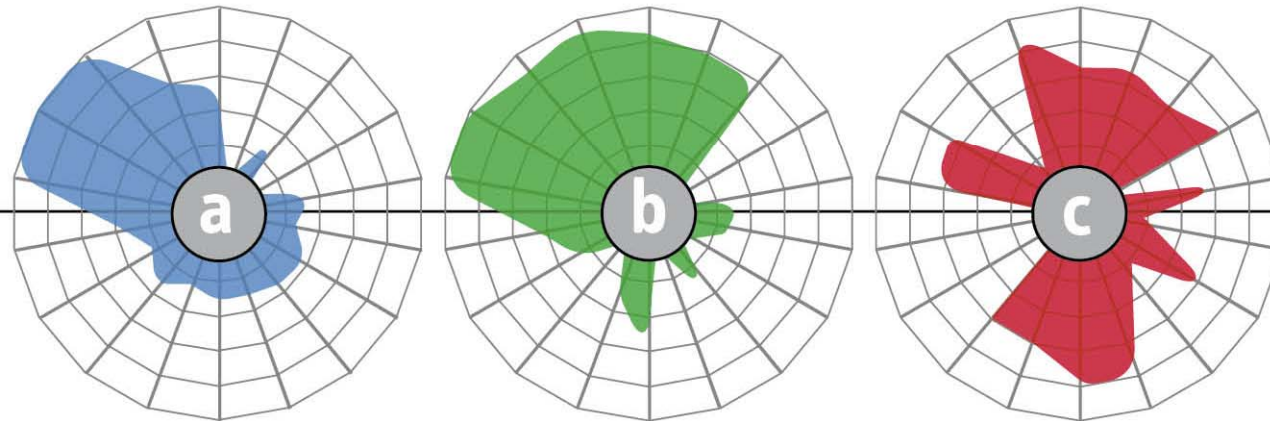
- Environmental effect of farming method in an exact quantitative way
- Indicator packages for each cultivation type (including individual water management package)
- No predefined prescriptions
- No good practice/bad practice
- Data provided by farmers themselves

Indicators used on arable lands

- Nutrient balance
- Soil protection
- Natural areas and characteristics
- Crop protection
- Use of energy
- Crop composition



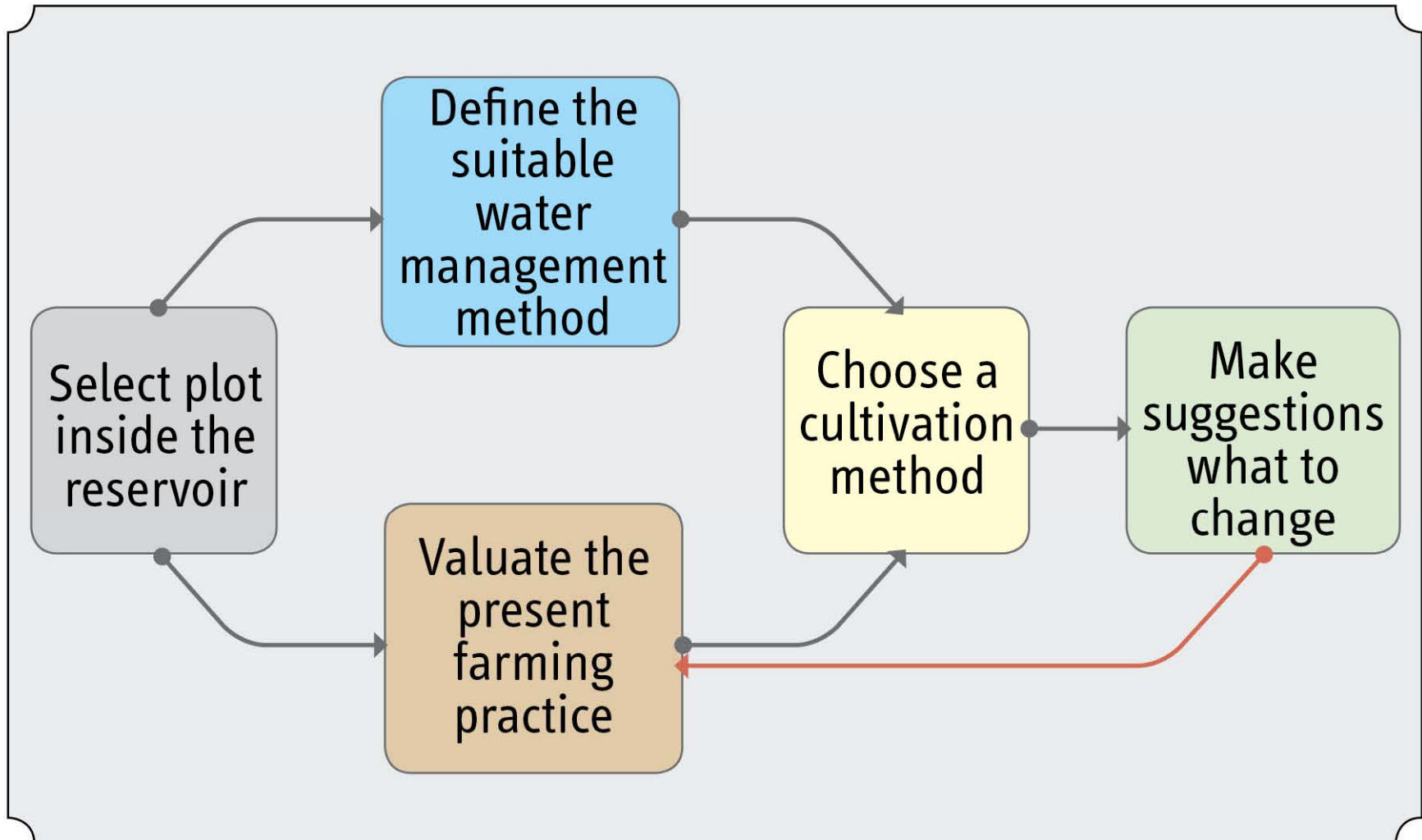
Valuating with Green-point system



- The same amount of points to be achieved by different farming practices
- Capability to compare several farms
- Evaluation by predefined algorithms
- Predefined data forms for surveying farms

The process of landscape management planning

Example of function in practice



Cultivation brach is selected by the farmer

Landscape management category	Land use scenarios		
	1st Priority	2nd Priority	3rd Priority
Low fertility arable land in higher set areas, with low drainage capacity	Extensive grassland without flooding	Loose set woodland without flooding	Extensive arable without flooding.

- First define the landscape unit concerning the plot
- Defining the suitable water managemnt
- Choosing with the involvement of the famer

Suggestion for what should be changed in farming practice

Indicators with significant change	2008	2009	2010	2011	2012	2013	2014	2015
Winter soil cover	No	No	No	No	No	Yes	Yes	Yes
Area ploughed	No	No	No	No	Yes	No	No	No
Share of organic manure in nutrient management	0%	0%	0%	0%	10%	30%	40%	50%
Gasoline consumption ratio relative to plot size	200	200	250	250	200	130	130	150
Under-sowing	No	No	No	No	Yes	Yes	Yes	Yes
Number of plant protection treatments	2	2	4	3	2	1	1	0
Total score	41.7	44.98	40.2	42	47.5	54.45	58.45	59.35

(Selected land use category: Extensive arable without flooding)



Experiences and opportunities

- Some parts to be further improved
- A multiplier needs to be included in case of corporation between farmers (social goods)
- Assessment method is also suitable to be applied elsewhere
- Should be a base for a value based subsidy system (EU cap towards 2020 - Payments should be provided not per hectare, but per unit of public goods provided)
- Reservoirs could be pilot areas for testing different subsidies integration (e.g. infrastructure and development)

Thank you for your attention!

Balazs SIPOS
sipos.balazs@kti.szie.hu



Szent Istvan University