



УНИВЕРЗИТЕТ У БАЊОЈ ЛУЦИ
UNIVERSITY OF BANJA LUKA
ПОЉОПРИВРЕДНИ ФАКУЛТЕТ
FACULTY OF AGRICULTURE



Application of GIS in agriculture

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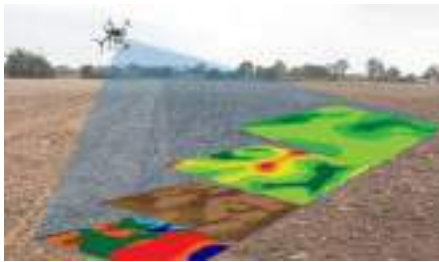
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The first workshop on ICT in Agriculture IoT and GIS in Agriculture

Tuzla, Bosnia and Herzegovina

29.09.2020.





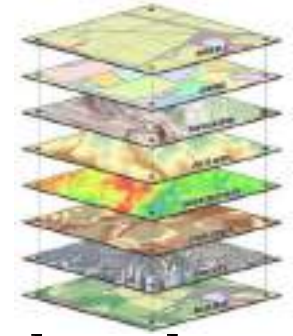
Agriculture is a business sector ideally suited for the application of Geographic Information Systems (GIS) because it is natural resource based, requires the movement, distribution, and/or utilization of large quantities of products, goods, and services, and is increasingly required to record details of its business operations from the field to the marketplace.

Nearly all agricultural data has some form of spatial component, and a GIS allows you to visualize information that might otherwise be difficult to interpret.

The value of GIS to agriculture continually increases as advances in technology accelerate the need and opportunities for the acquisition, management, and analysis of spatial data on the farm and throughout the agriculture value chain.


(GIS applications in agriculture / Francis J. Pierce and David Clay).

The application of GIS in agriculture



- At the macro level, GIS is most often used for agricultural management and planning of a region or state. Not only physical geographical, but also socio-geographical factors of agricultural production.
- Monitoring - the process of monitoring various indicators: physical and chemical soil properties, climatic elements, hydrological conditions, crop condition and autochthonous vegetation etc.;
- Application of agro-technical measures: Based on monitoring the condition of sown areas and the crops can be determined, in almost real time, at which locations it is necessary to apply certain agro-technical measures, in what quantity and type.


Animal science

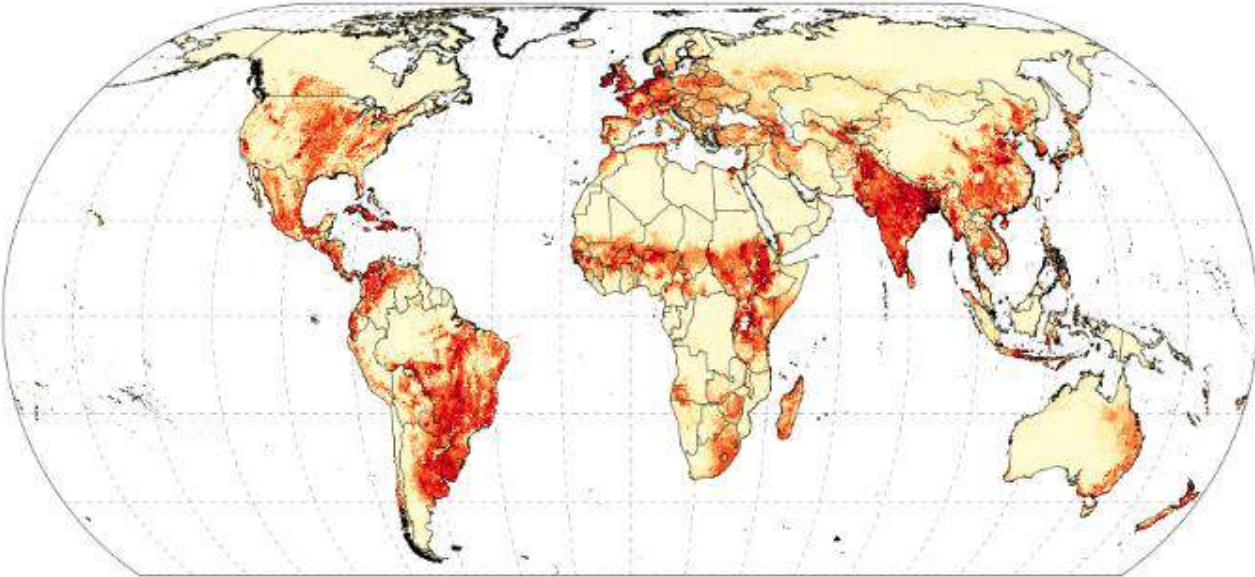

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Livestock Systems


 Global distributions
Production systems
Resources






GOATS



DUCKS



BUFFALOES


SHEEP


HORSES


CATTLE

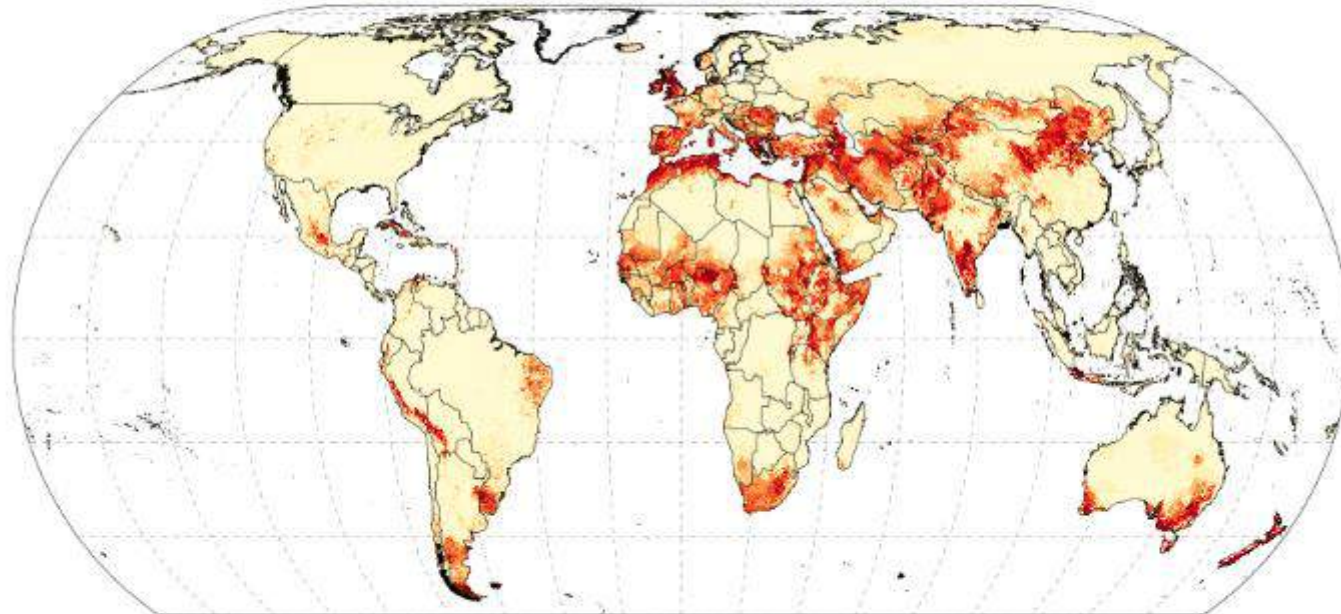

PIGS


CHICKENS



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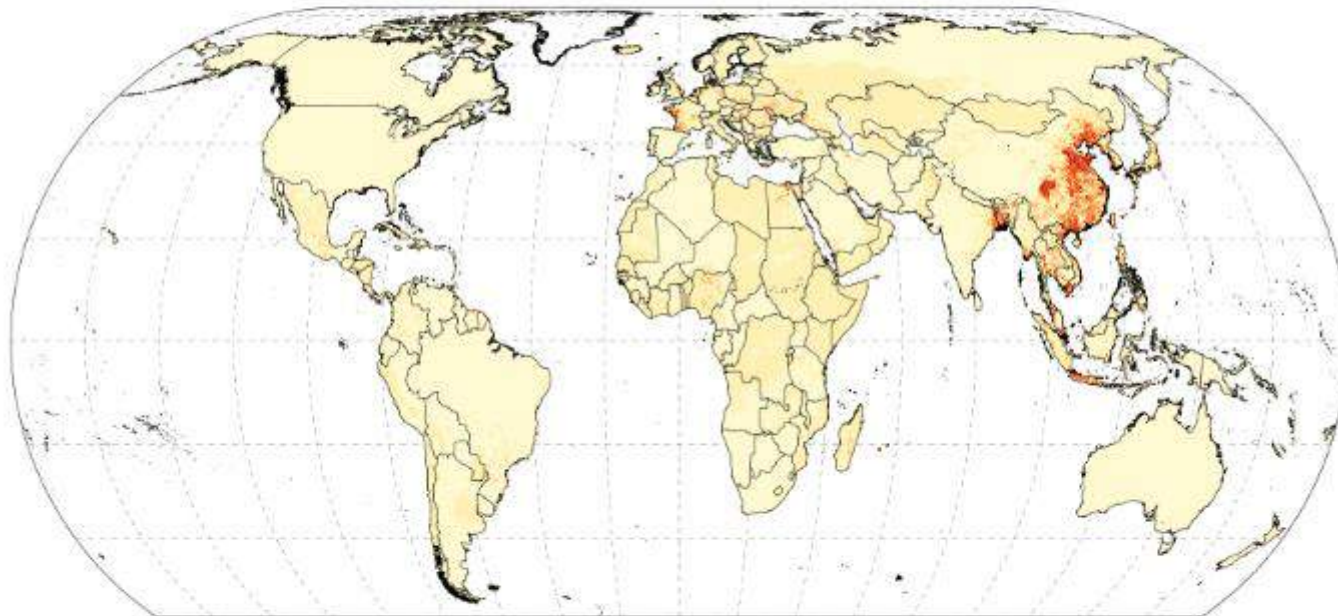
Livestock Systems



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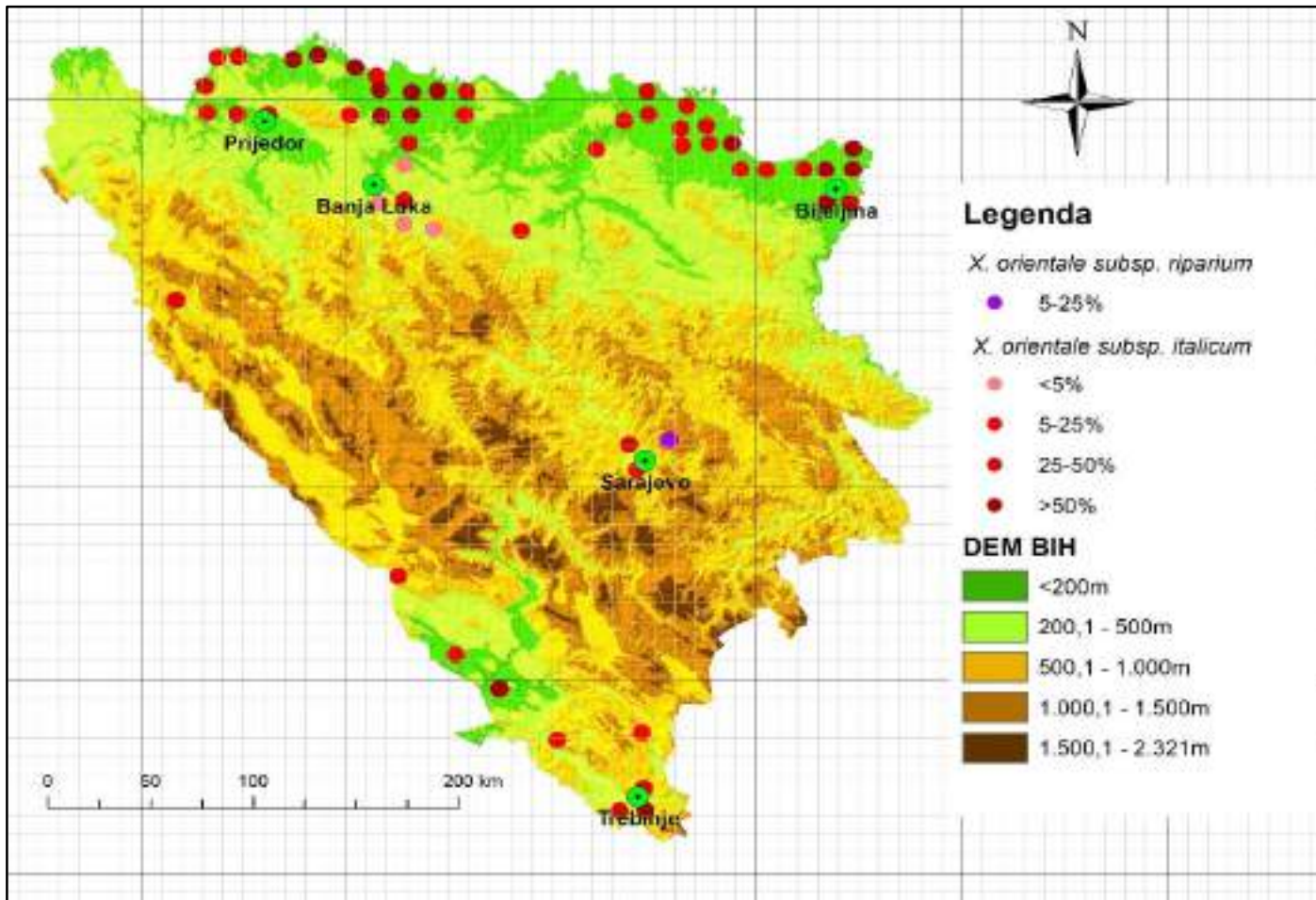
Fisheries



Database and indicators of the marine environment condition, mariculture and fisheries (HAOP)

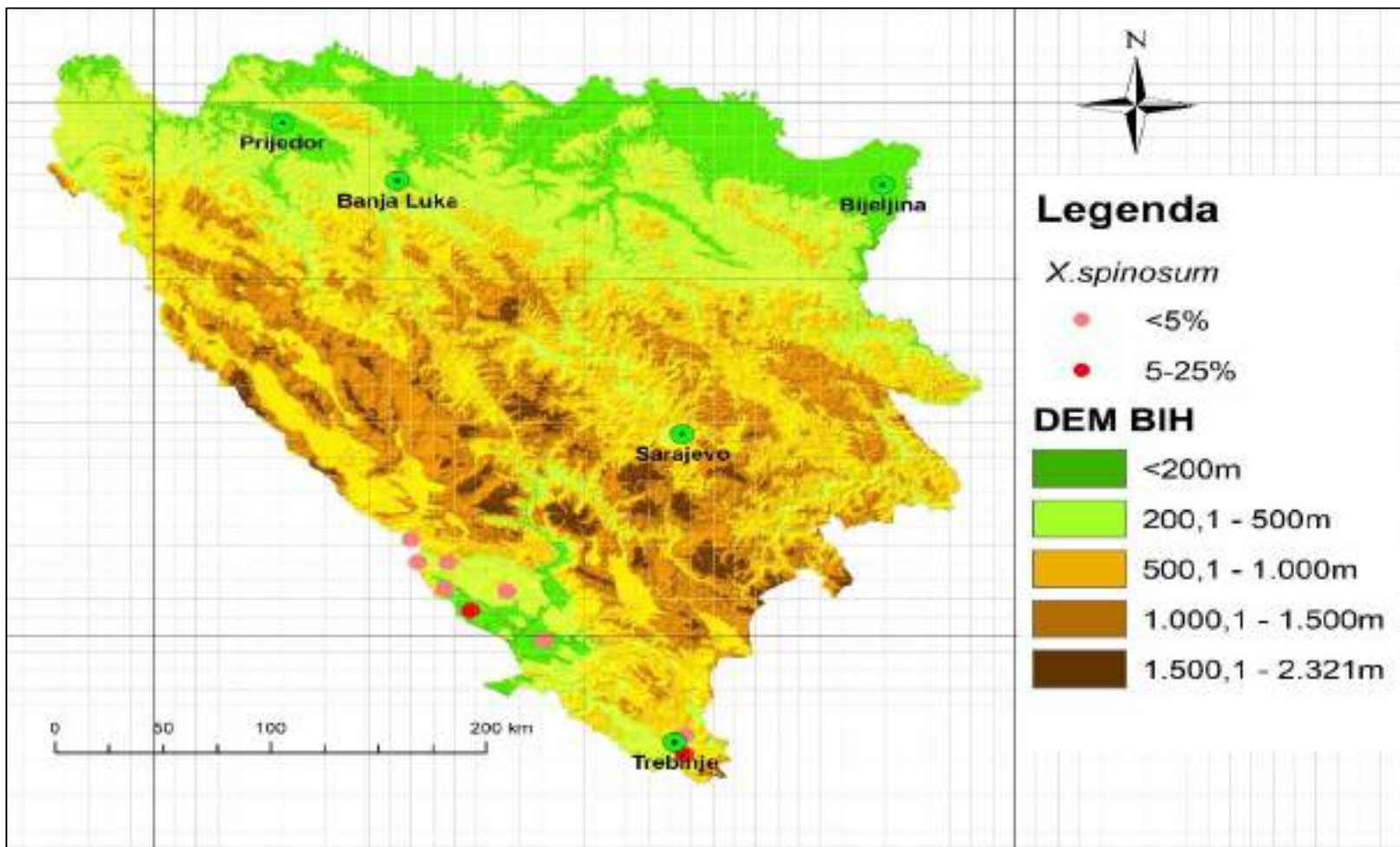
Plant production

Weed protection



Biljana Kelecevic PhD thesis Faculty of
Agriculture University of Banjaluka

Author of map
Dr Vladimir Petković

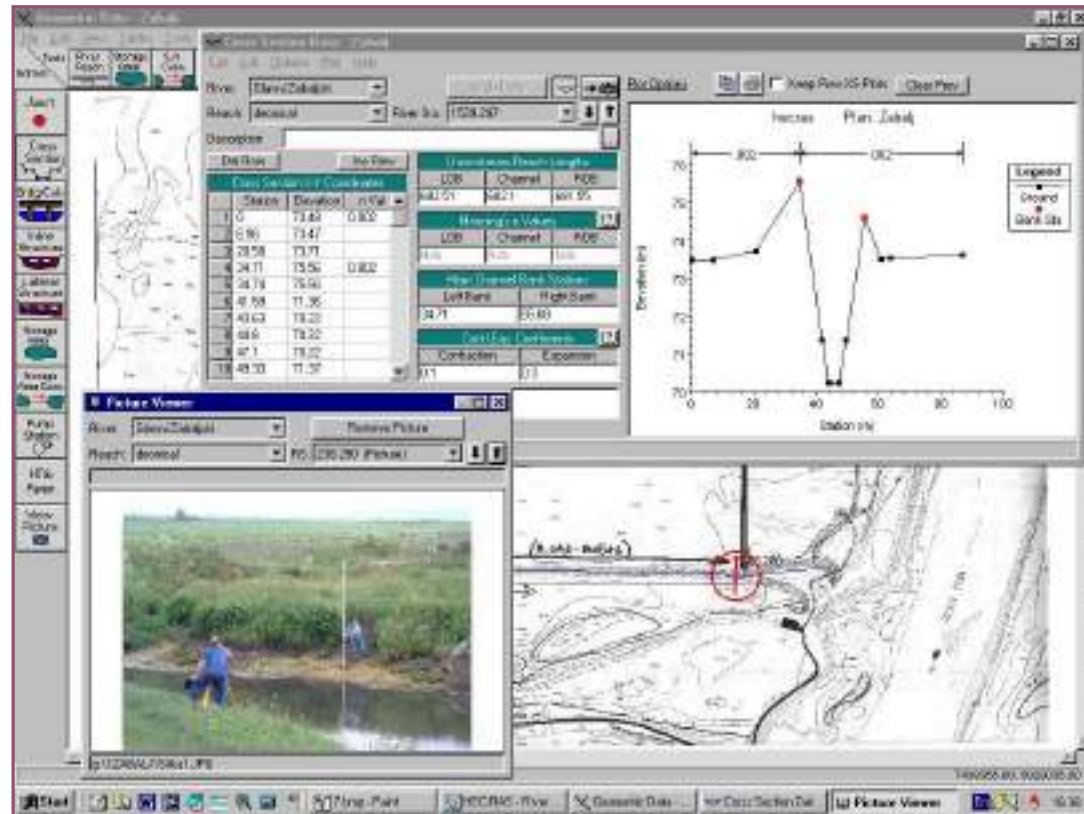
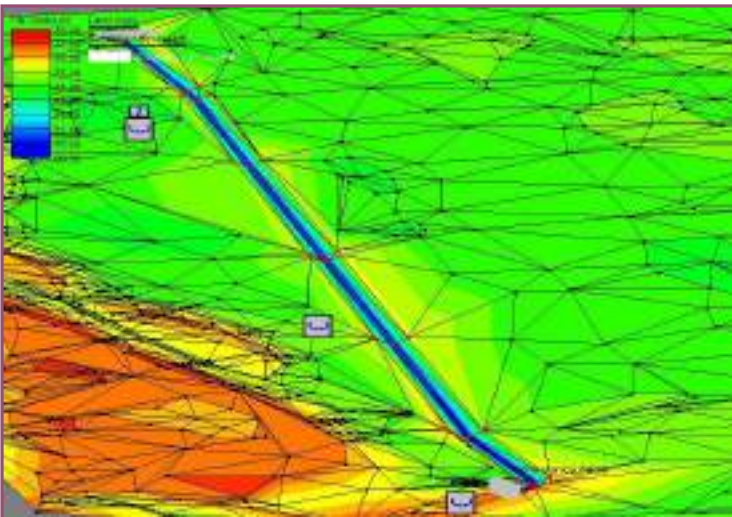


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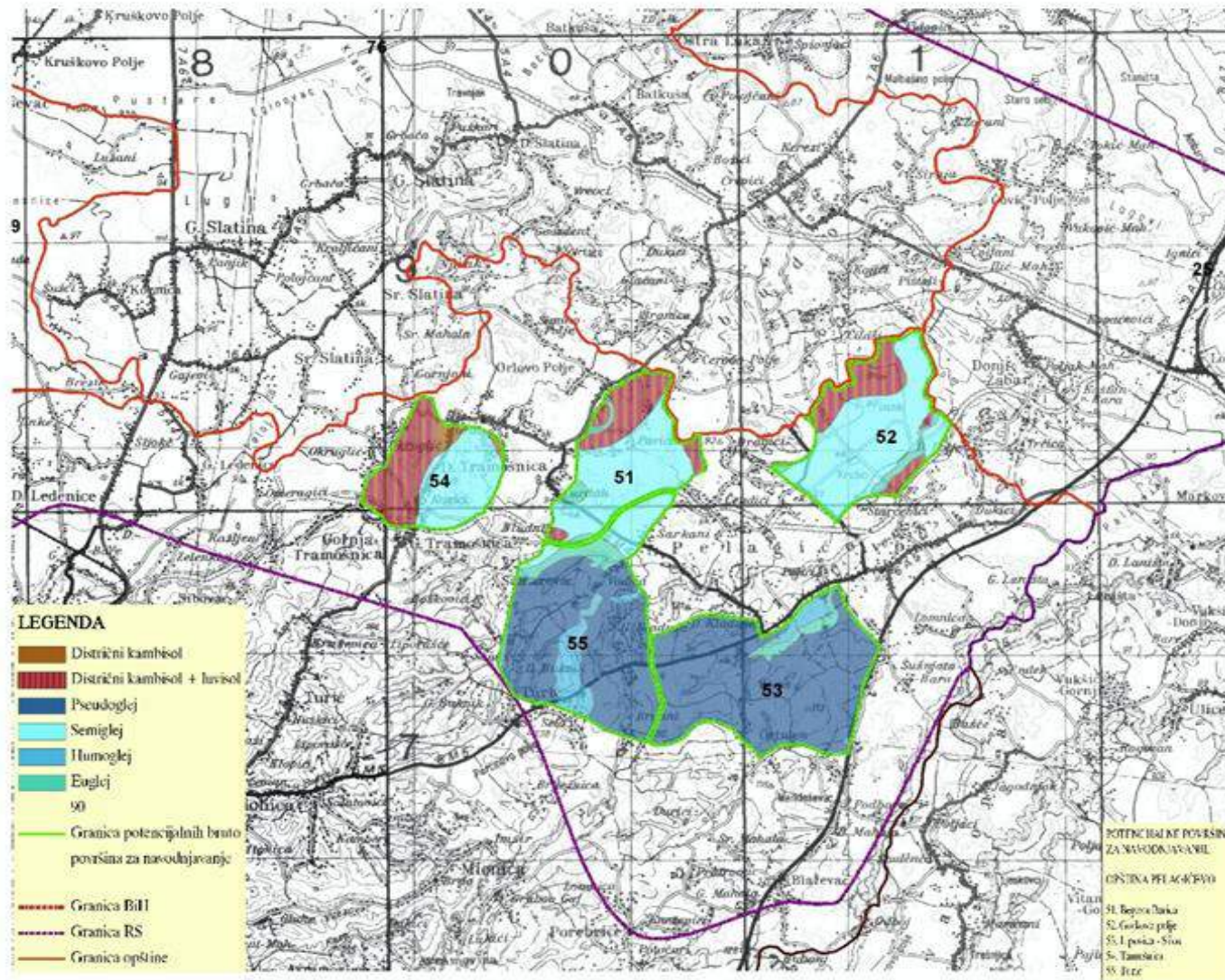
Dr

Water management for irrigation and drainage



GIS for Water management in Vojvodina Prof. dr Atila Salvai

Potential areas for irrigation - municipality Pelagicevo



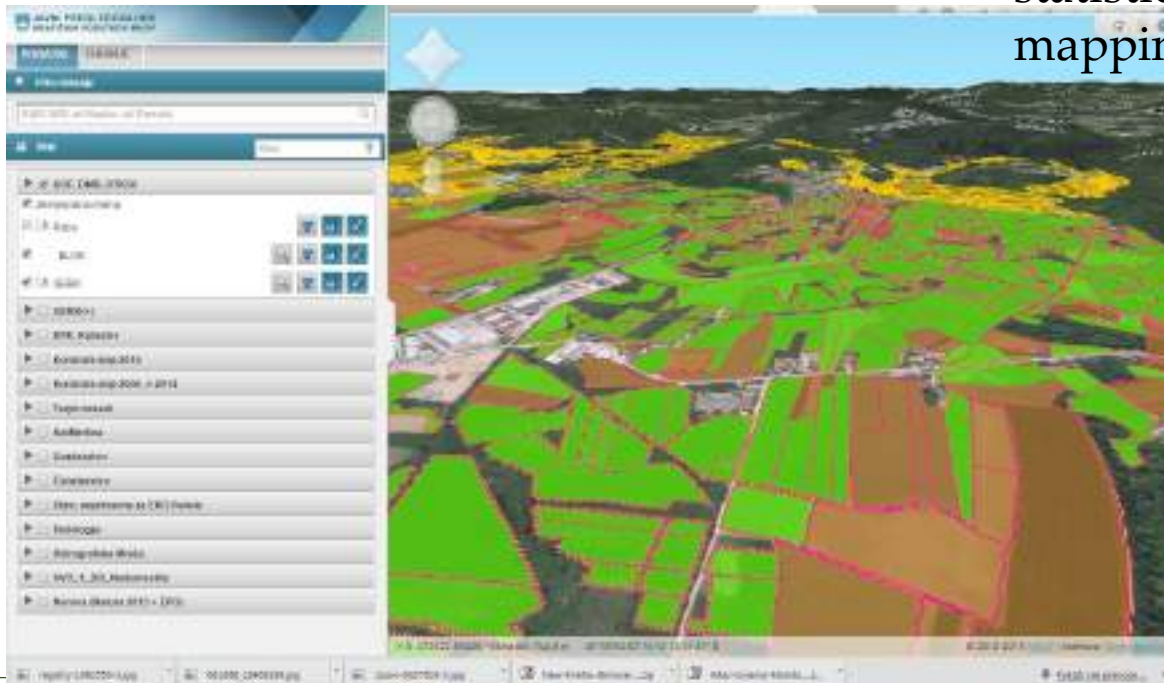
LPIS (Land Parcel Identification System)-Slovenia

Benefits:

- Data integrity
- Low maintenance and installation effort
- High performance of the central system
- Low bandwidth requirements
- Ease of use

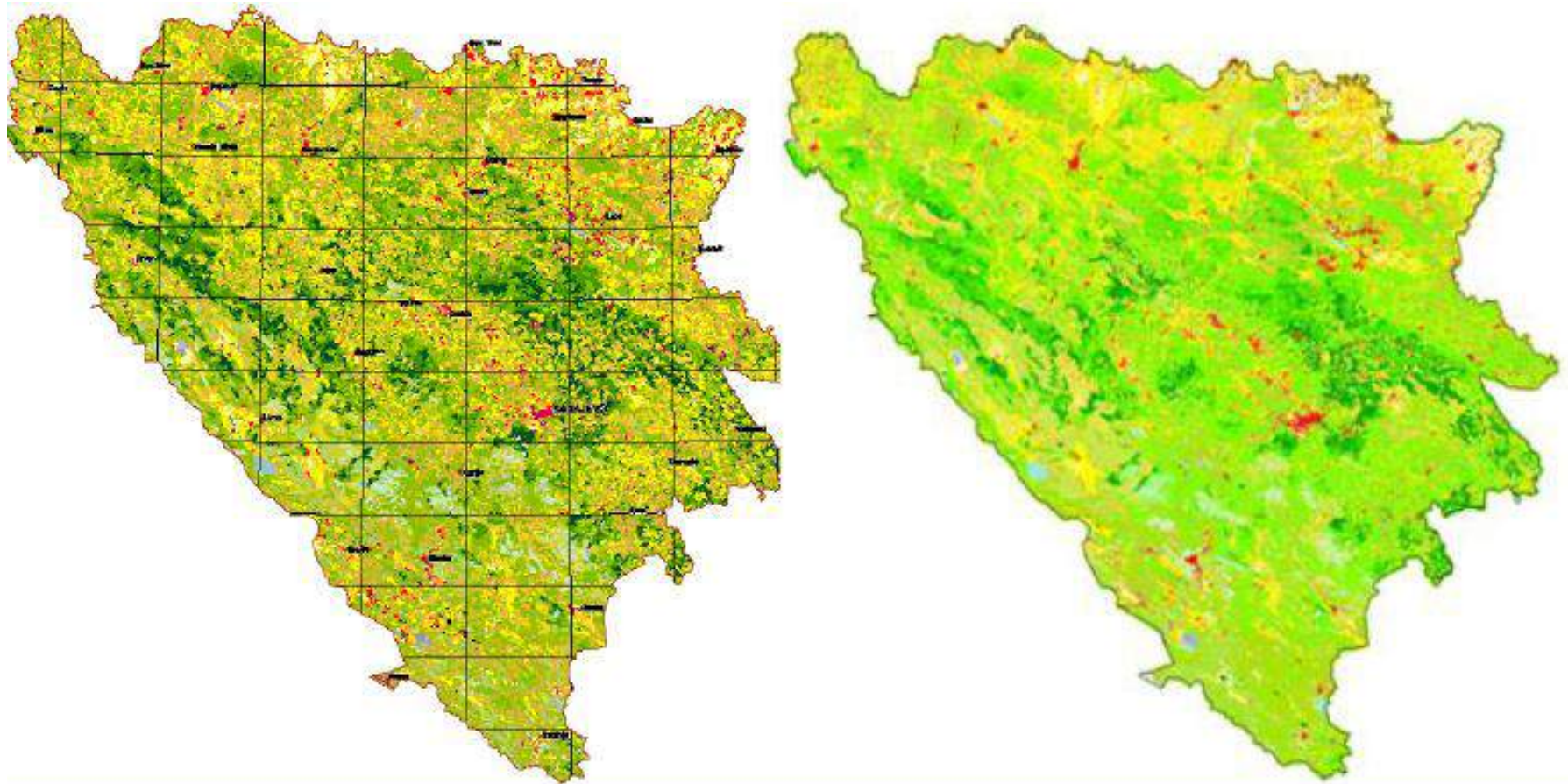
Main characteristics:

- great performance of central system
- geometry editing (points, lines and polygons)
- querying attributes and graphical data
- recording of historical data
- unique identification of land parcel
- statistical analysis and thematic mapping



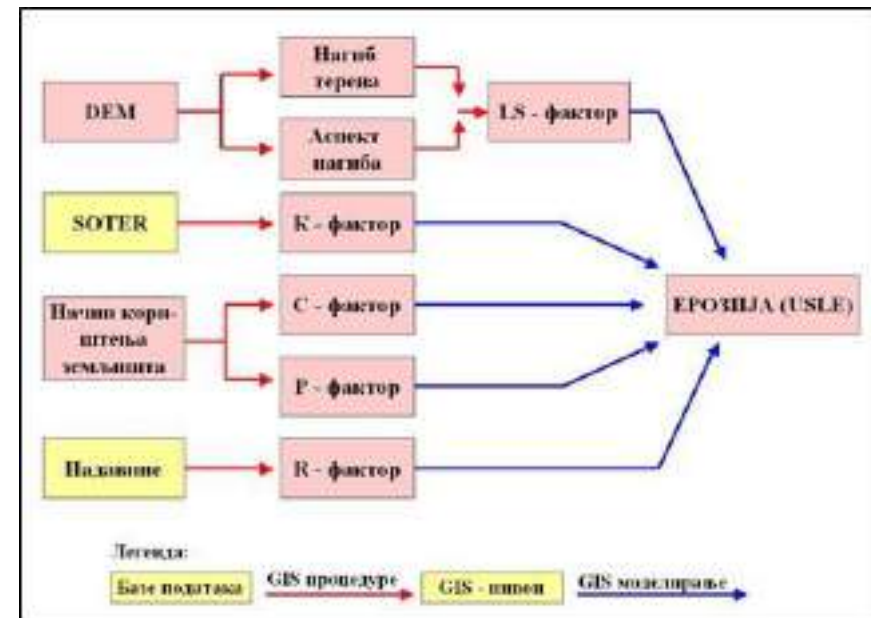
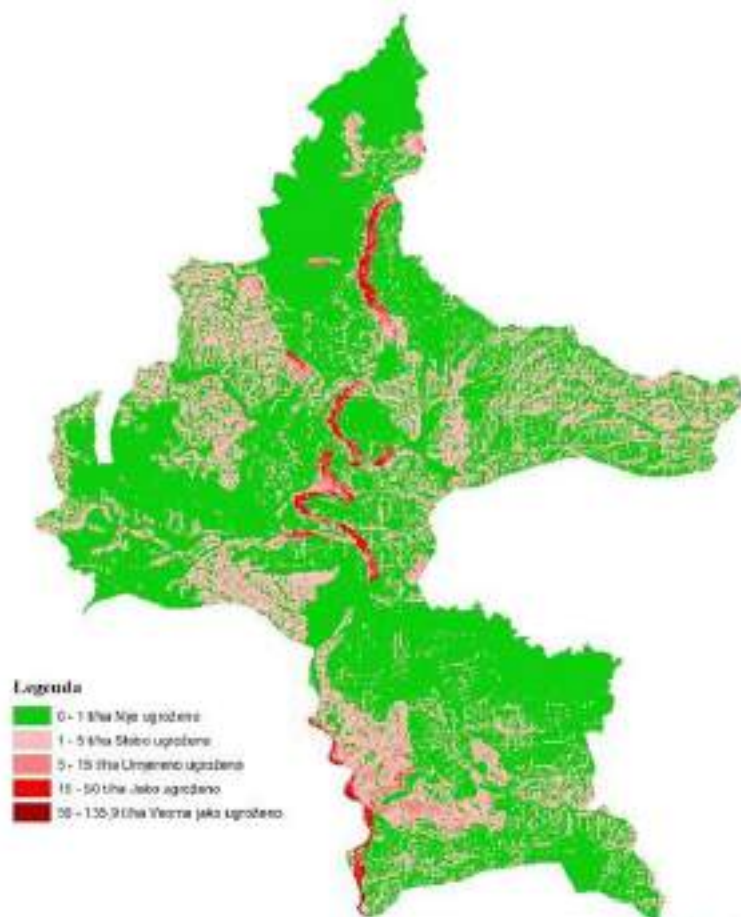
<https://www.sinergise.com/>

CORINE Land cover Land use (Bosnia and Herzegovina)

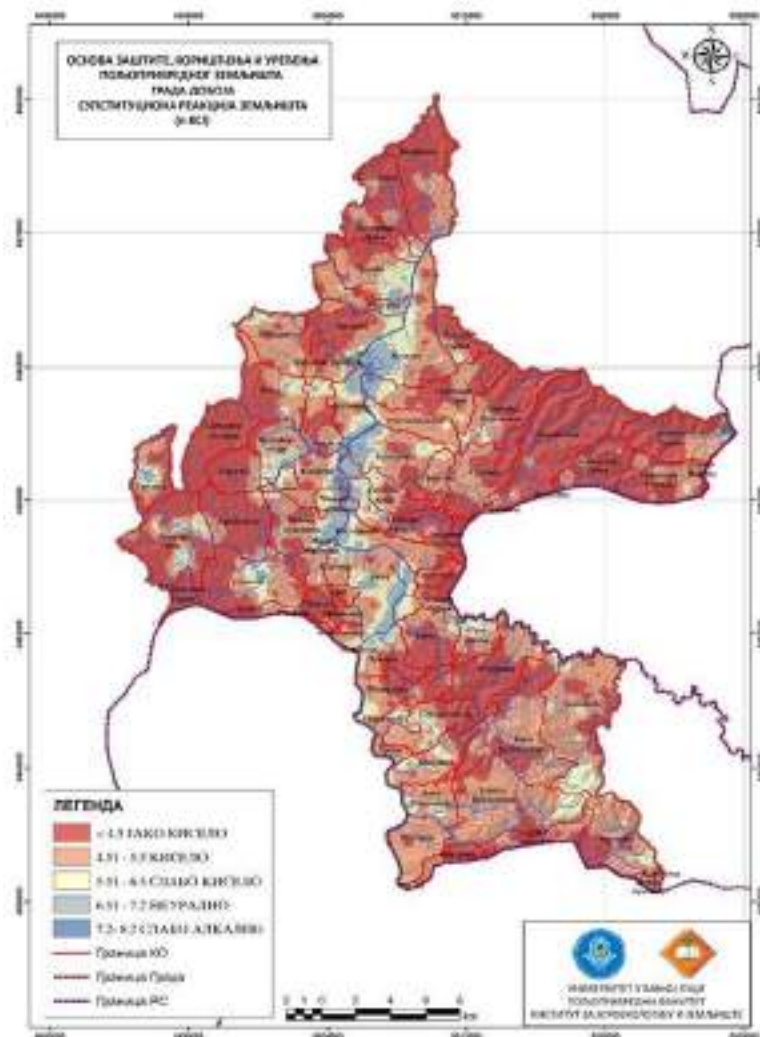
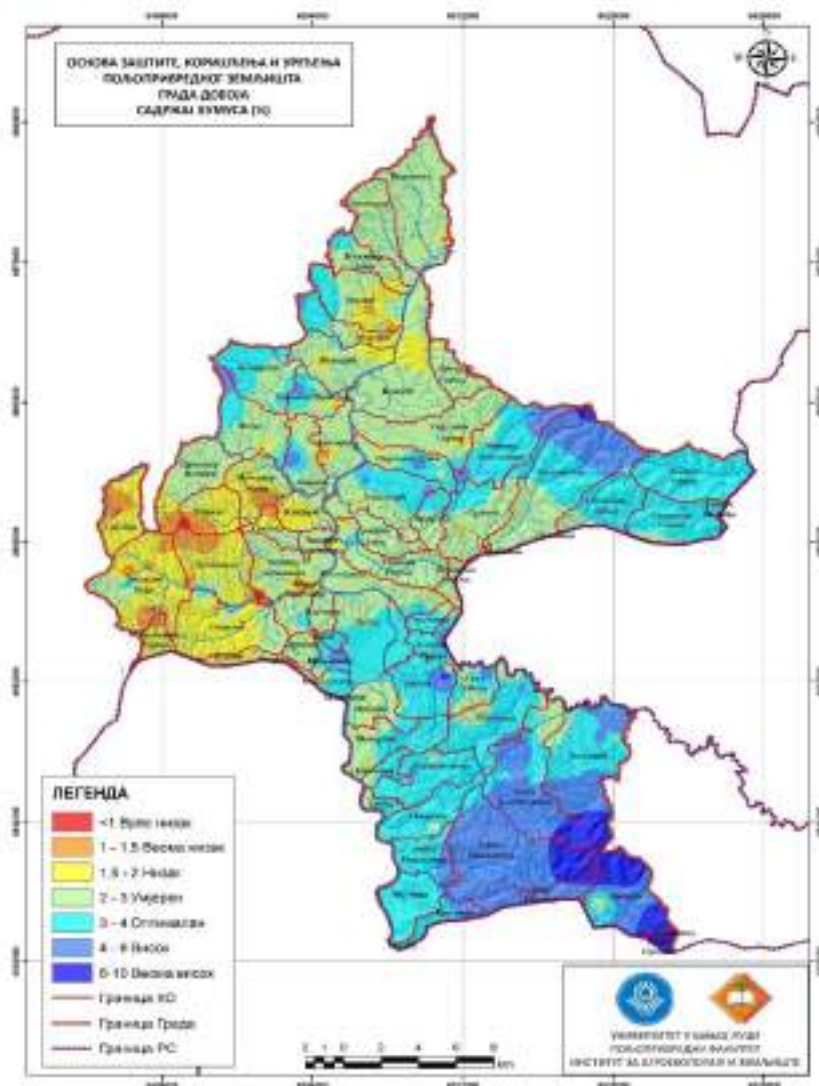


Prof.dr. Hamid Čustović
Poljoprivredno-prehrambeni fakultet

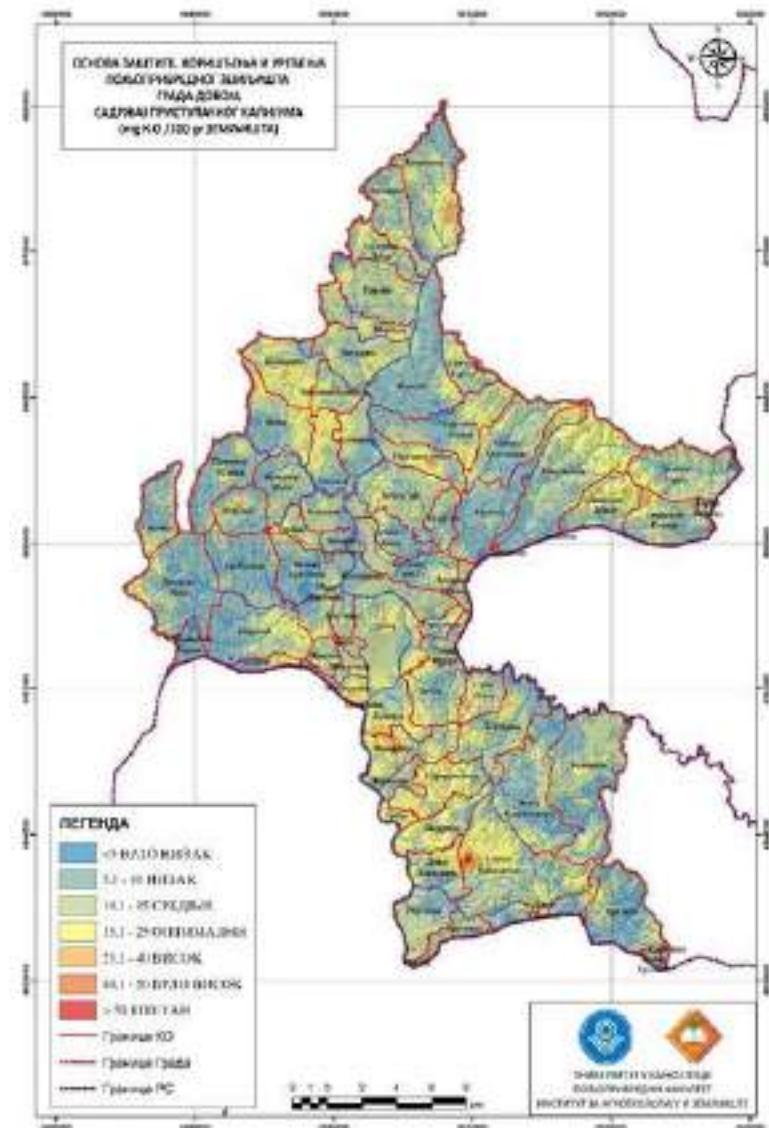
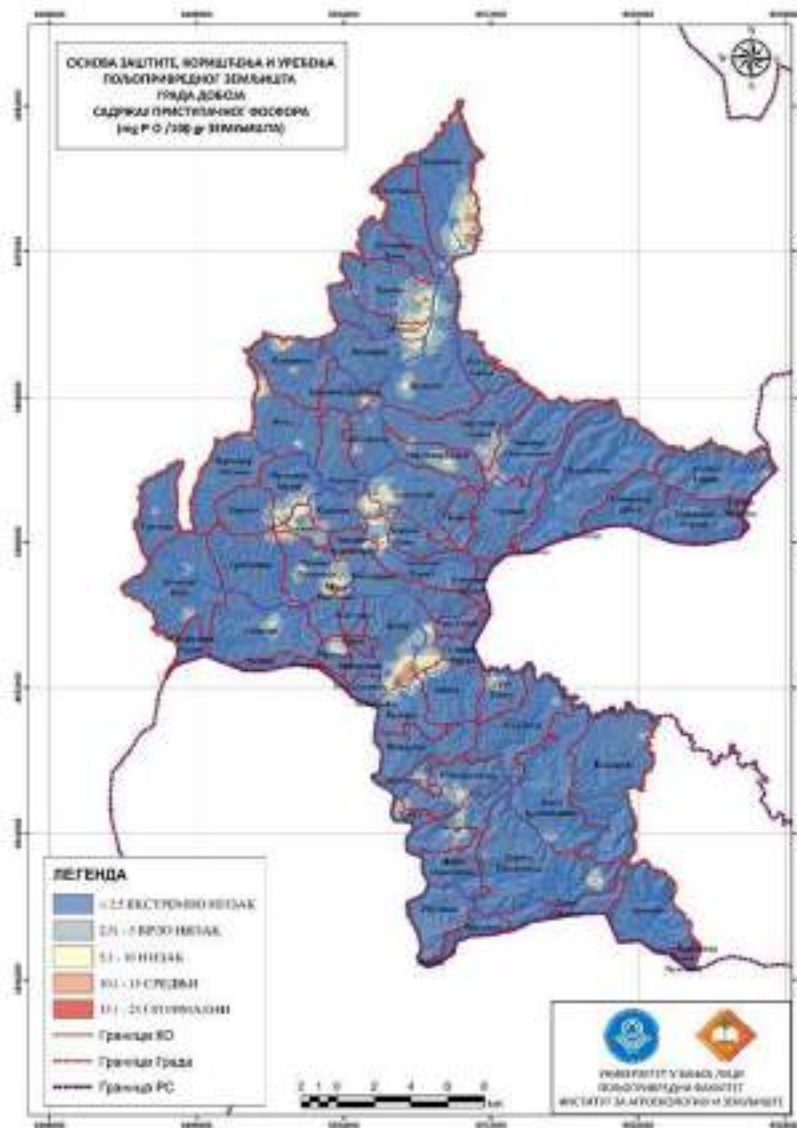
Soil erosion



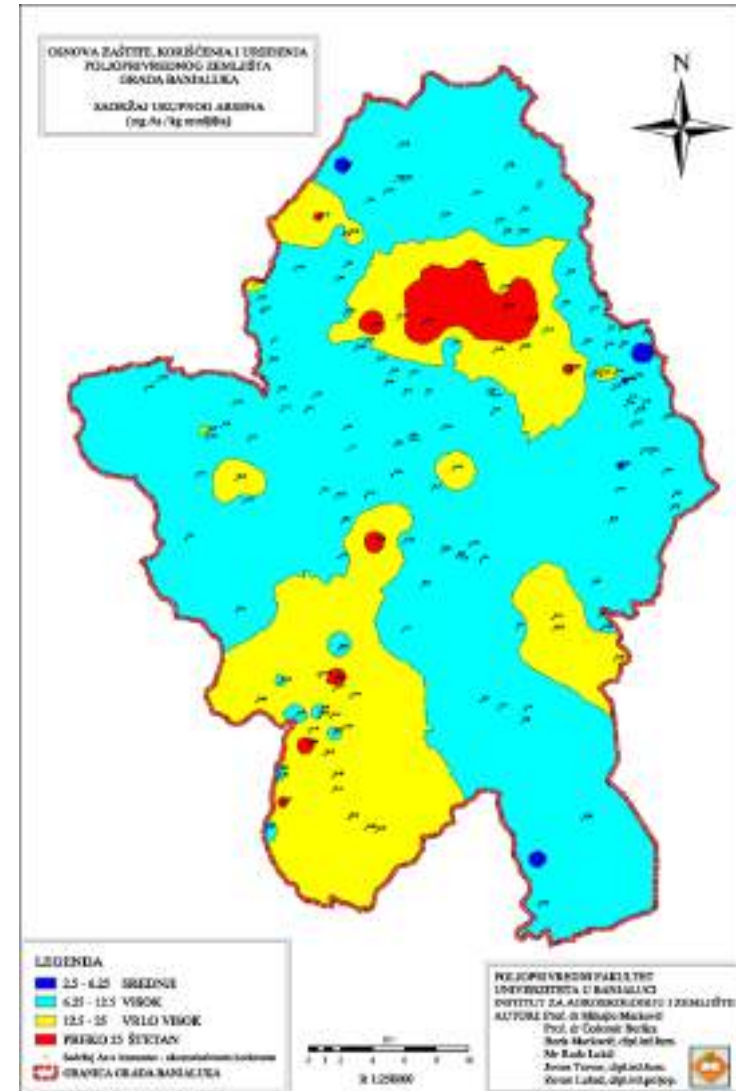
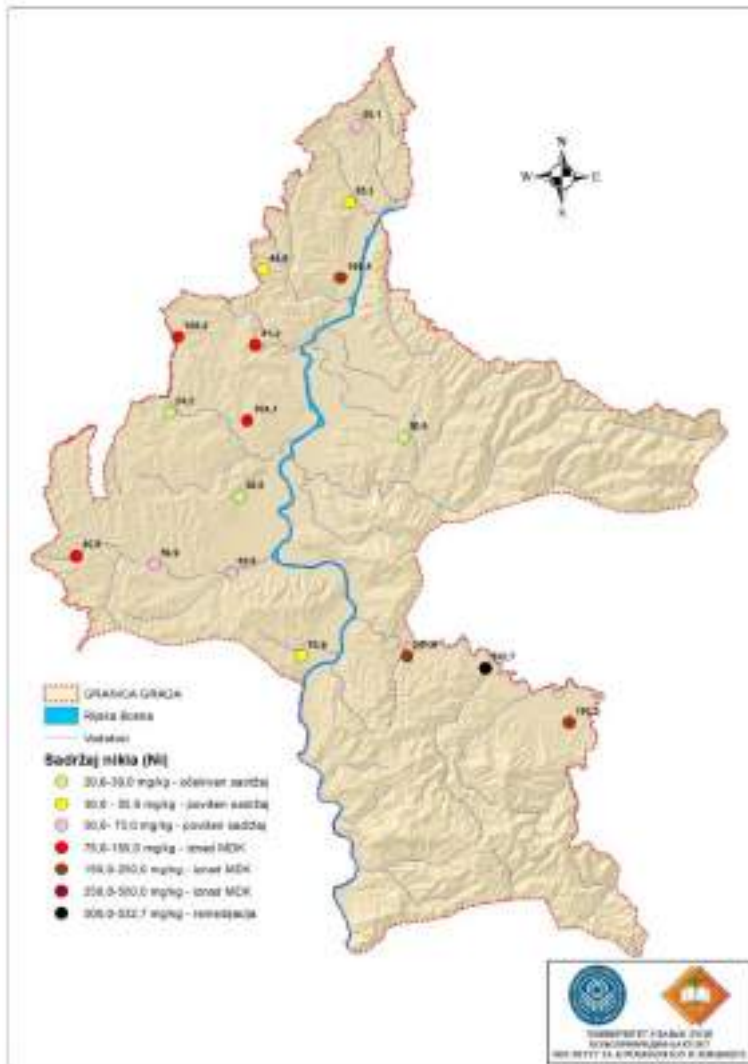
Content of humus in soil and pH reaction of soil



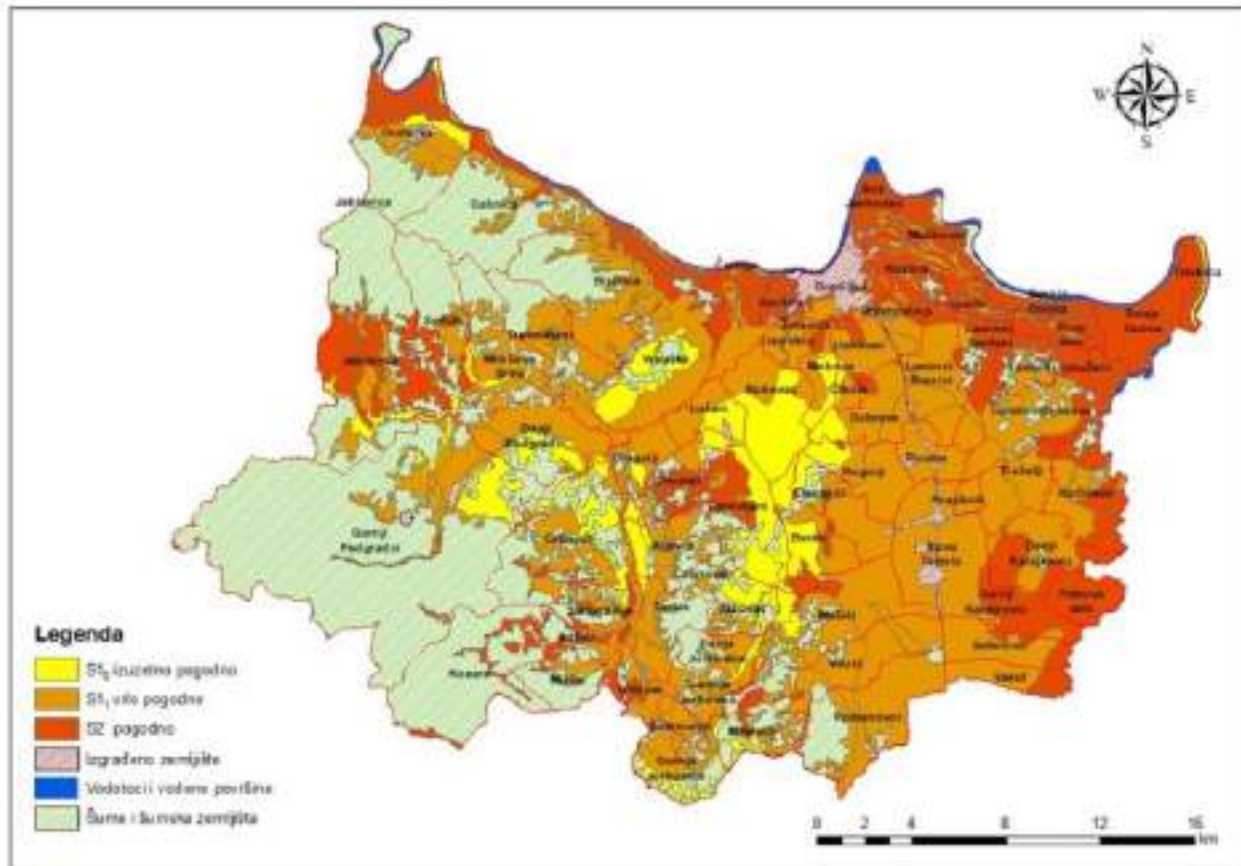
Content of P and K in soil



Content of heavy metals in soil

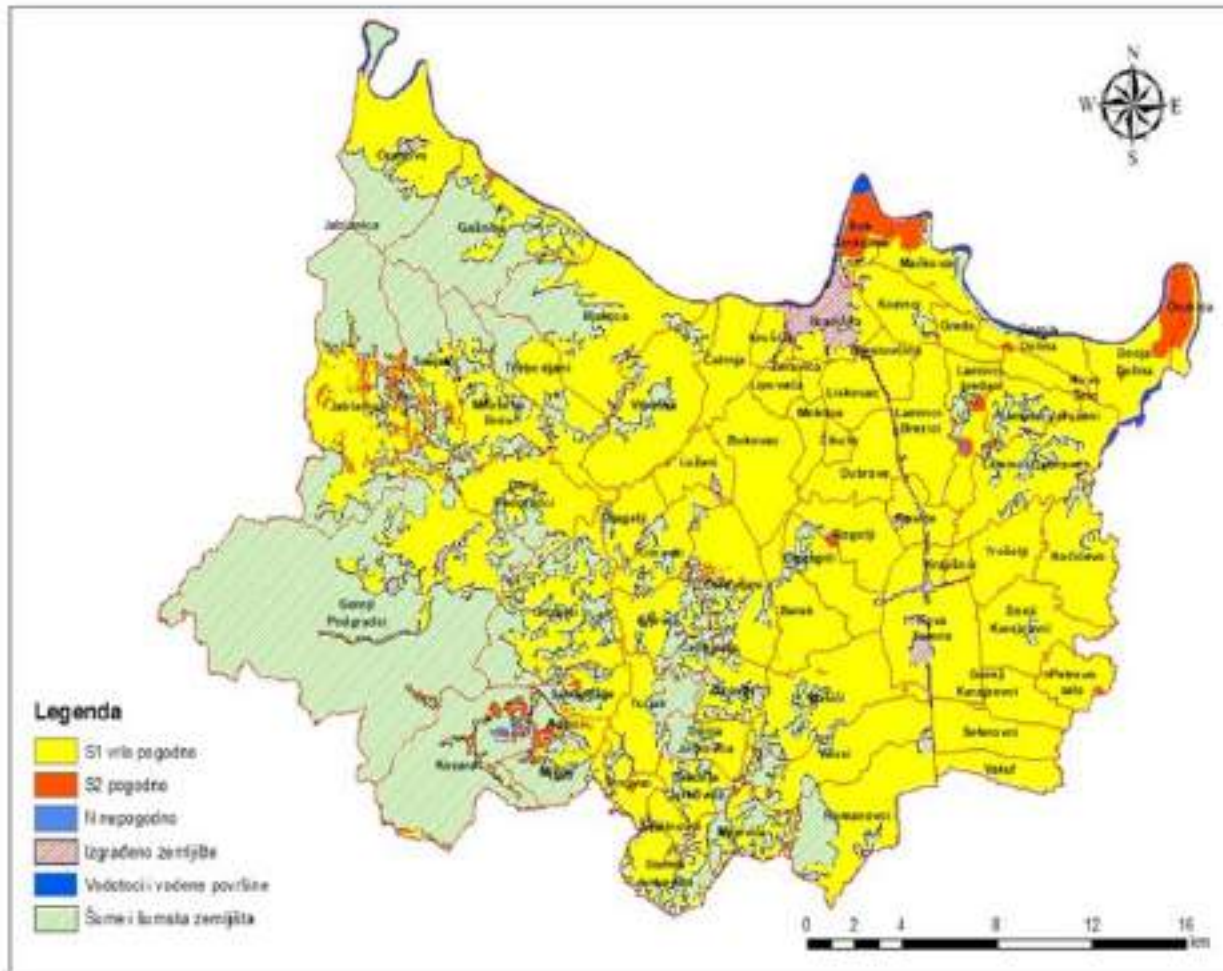


Soil suitability for crop production soil texture parameter - city Gradiska



Class	%	ha
P1 ₀	13,0	6720,0
P1 ₁	59,0	28948,0
P2	28,0	13673
	100	49340

Soil suitability for fruit growing - city Gradiska



Class	%	ha
P1	96,3	47497,4
P2	3,6	1792,3
N	0,1	50,3
	100	49340

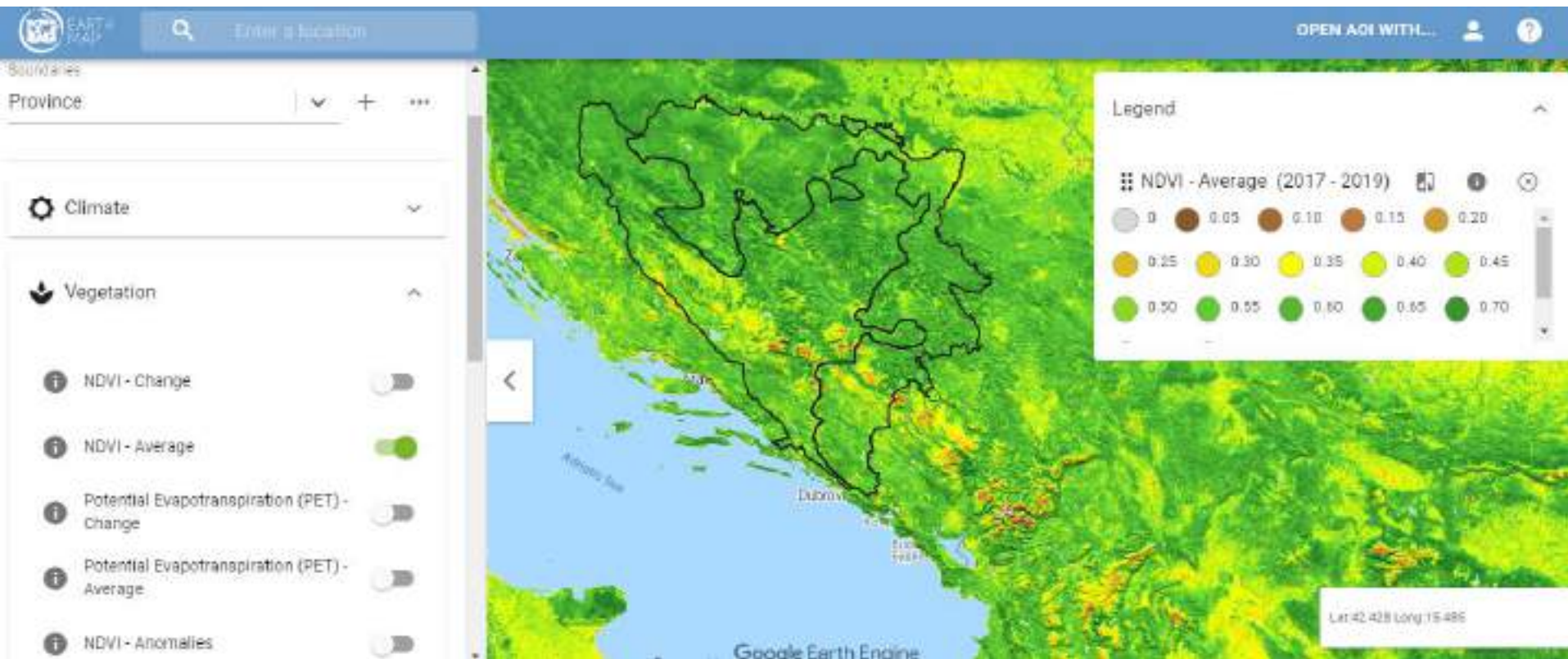


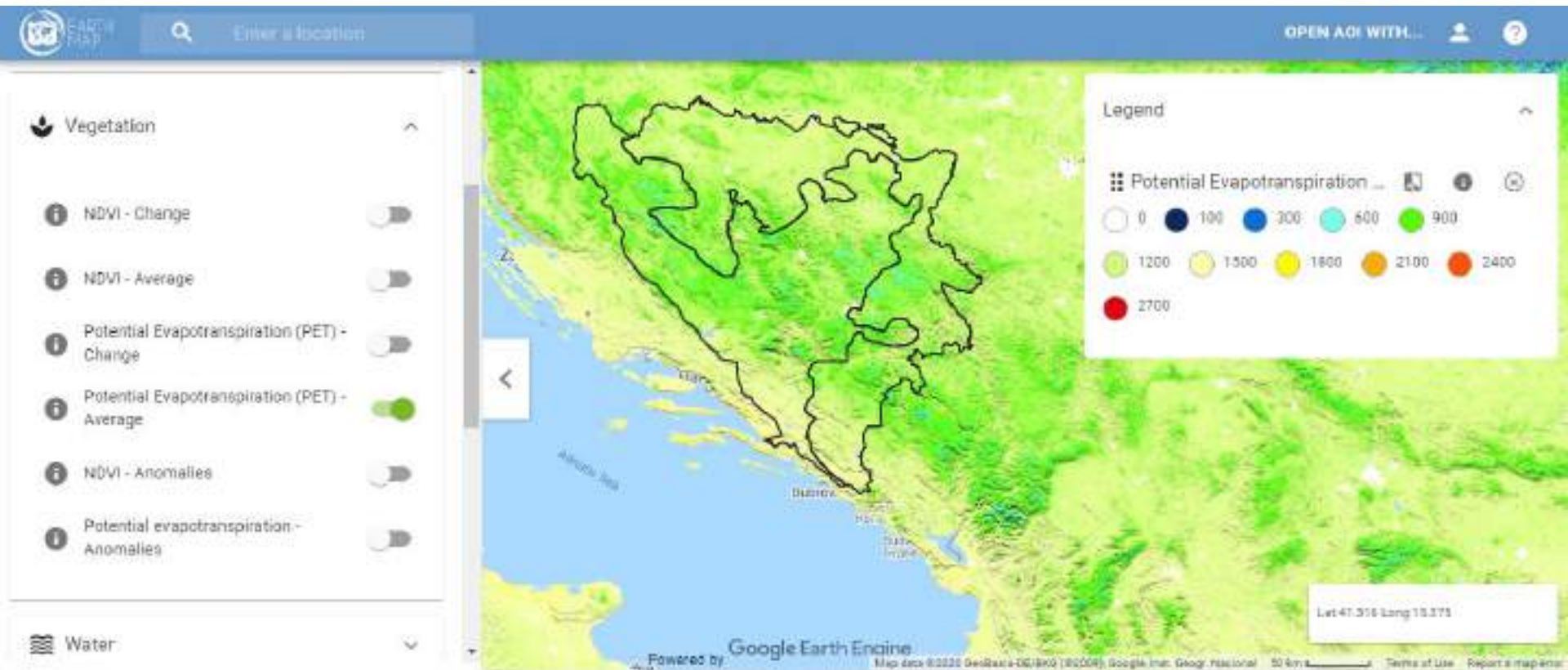
Open source tools and database

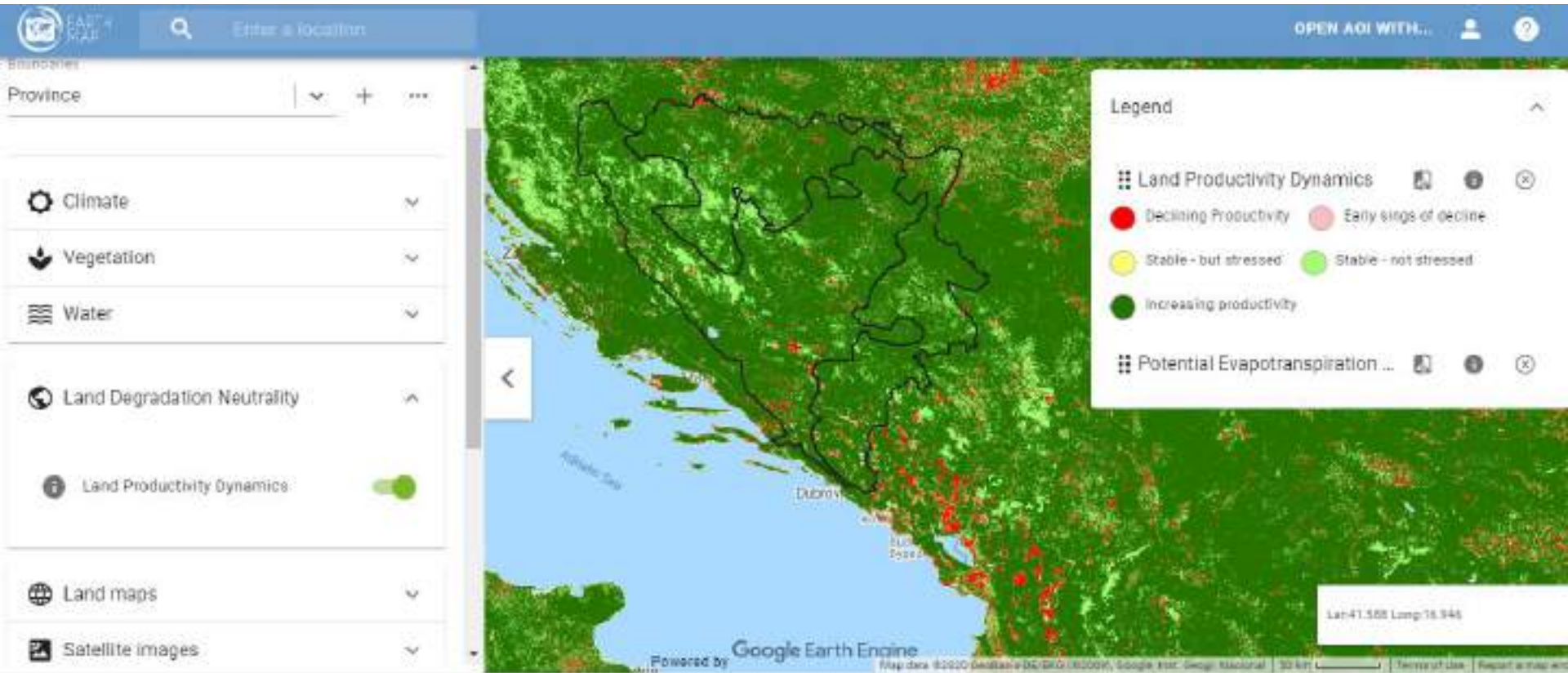
Open Foris is a set of free and open-source software tools that facilitates flexible and efficient data collection, analysis and reporting.

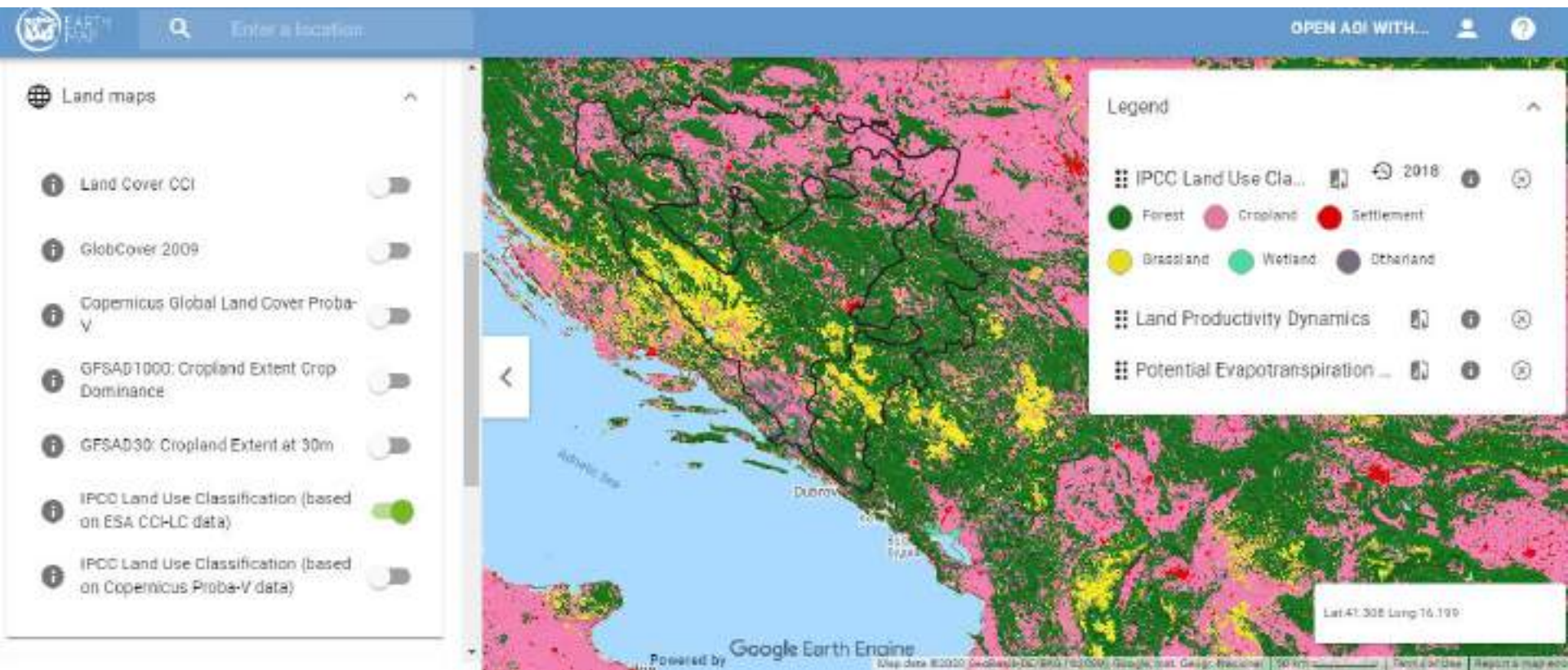
Government, research institutions and NGOs use these tools for a wide range of monitoring purposes such as:

- Forest Inventories
- Climate Change reporting
- Socio-economic surveys
- Biodiversity assessment
- Land Use, Land Use Change and Forestry measurement
- Deforestation monitoring with remote sensing
- Detecting desertification and trees outside of forest

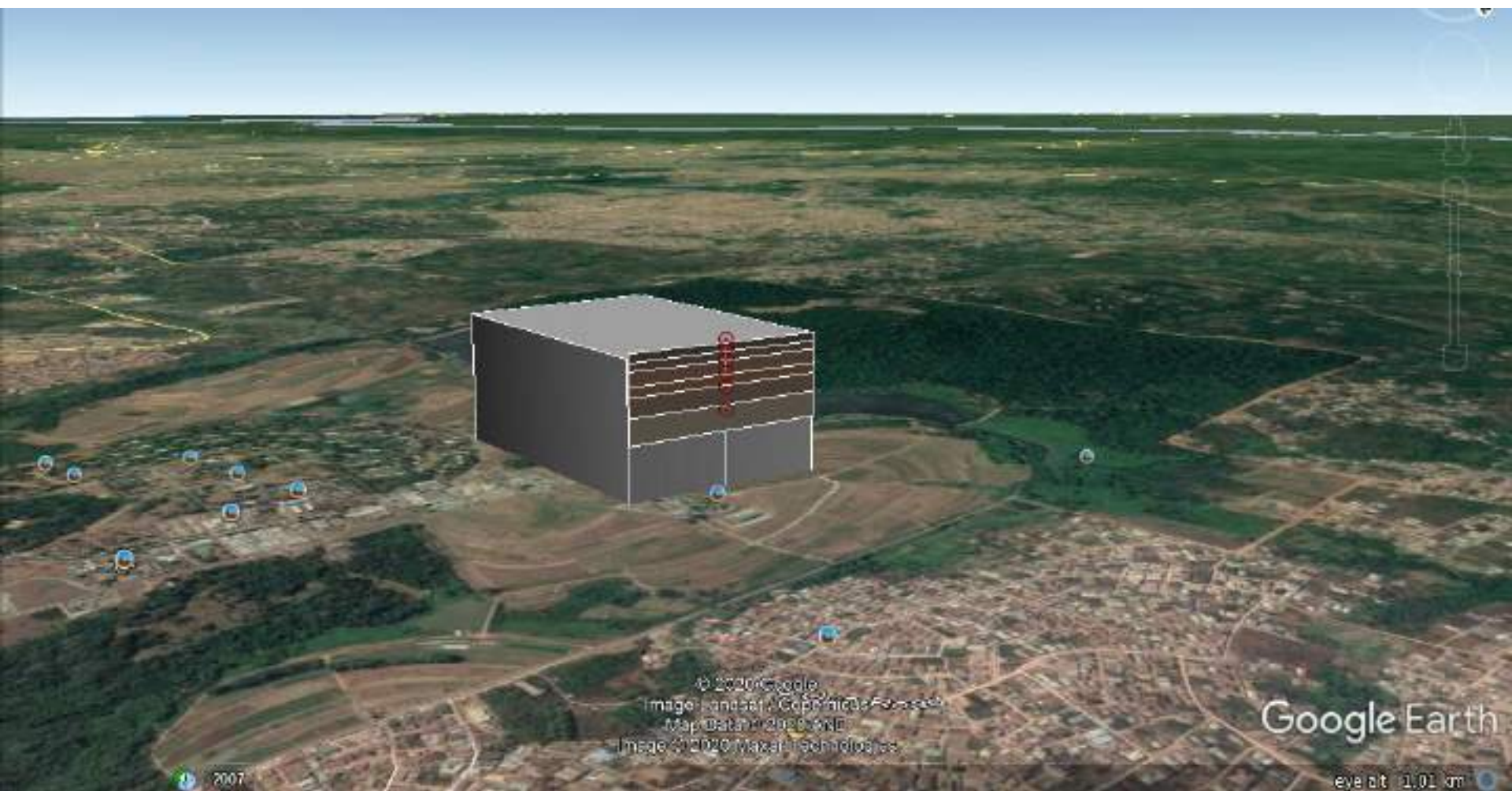








R + SAGA + Google earth



Practical exercises Hands on Global Soil Information Facilities ISRIC Netherlands 2016



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Thank you for attention!!
Hvala na pažnji !!!!!



VIRAL

VITALISING ICT RELEVANCE IN
AGRICULTURAL LEARNING

