



Effective GIS Solutions in Agribusiness

Stevan Džigurski, BsEE

Sava Rajkov, B.Sc.Agr.



Agenda

- About Victoria Group and Agroservis
- Project Goals
- Project Description
 - Business Logic
 - System Architecture
 - Data Analysis
- Conclusion



Victoria Group

- SOJAPROTEIN Soybean processor – Bečej
- Victoria Oil A.D. - Šid
- FERTIL Factory for production of mineral fertilizers – Bačka Palanka
- VETERINARIAN INSTITUTE SUBOTICA
- PORT BAČKA PALANKA – Bačka Palanka
- SP LABORATORIJA A.D. BEČEJ
- VICTORIA LOGISTICS – Novi Sad



Agroservis

- Consulting service for Victoria Group Business Partners
- Basic Tasks:
 - Soil sampling
 - Analysis of nitrogen, phosphorus and potassium level
 - Recommendation for NPK fertilizers
- Production Plan for “Fertil”



Agroservis

The results in last two years:

- 950 Business Partners
- 68880 ha
- 6429 samples
- 250 Field Parcels in GIS



Agroservis Equipment



Project Goals

- Support for Agroservis business processes,
- Better service for business partners,
- Creating a register of business partners,
- More efficient business process execution,
- Data analysis as support for decision making,
- Starting point of “Victoria GIS” project implementation.

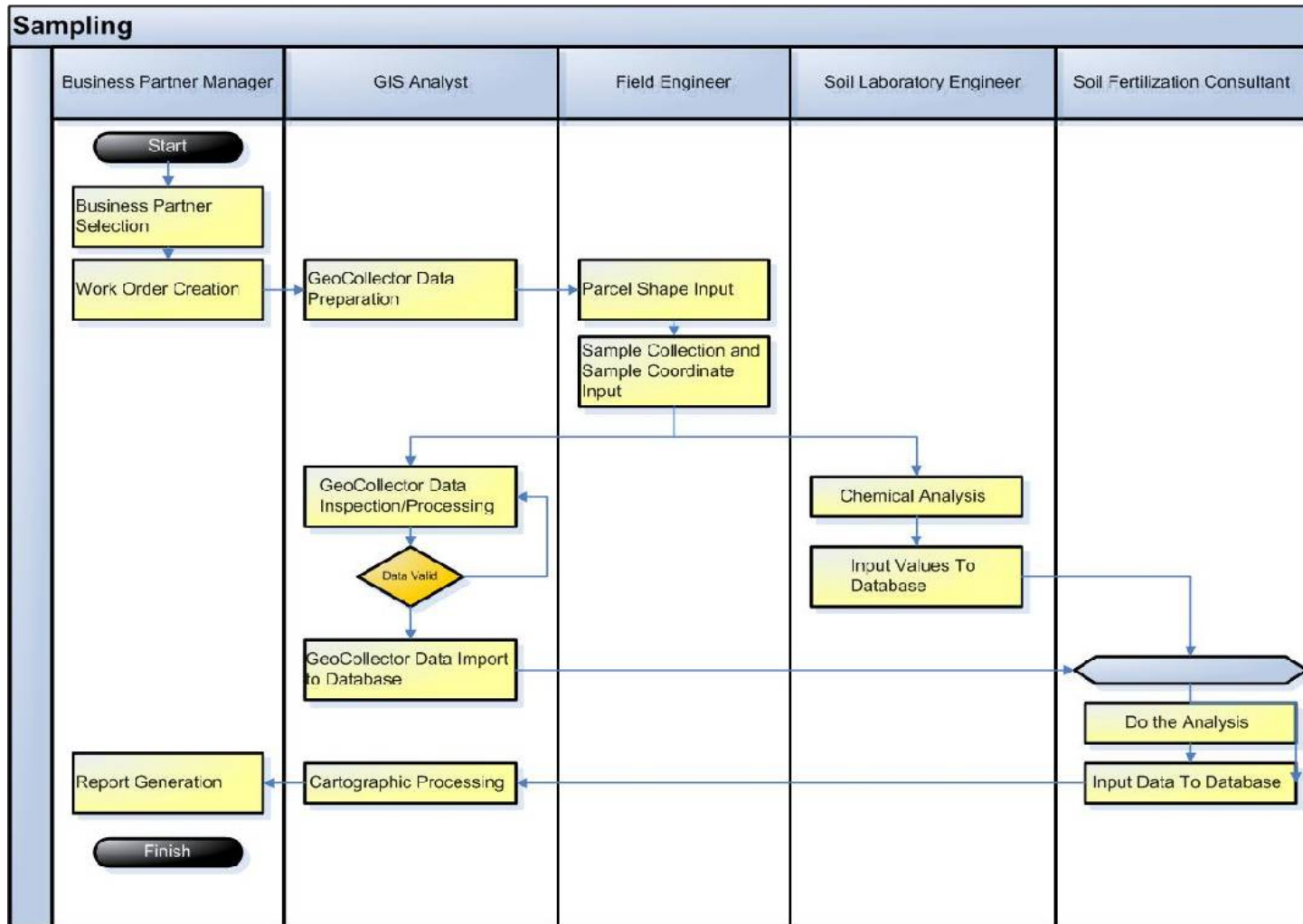


Business Process Roles

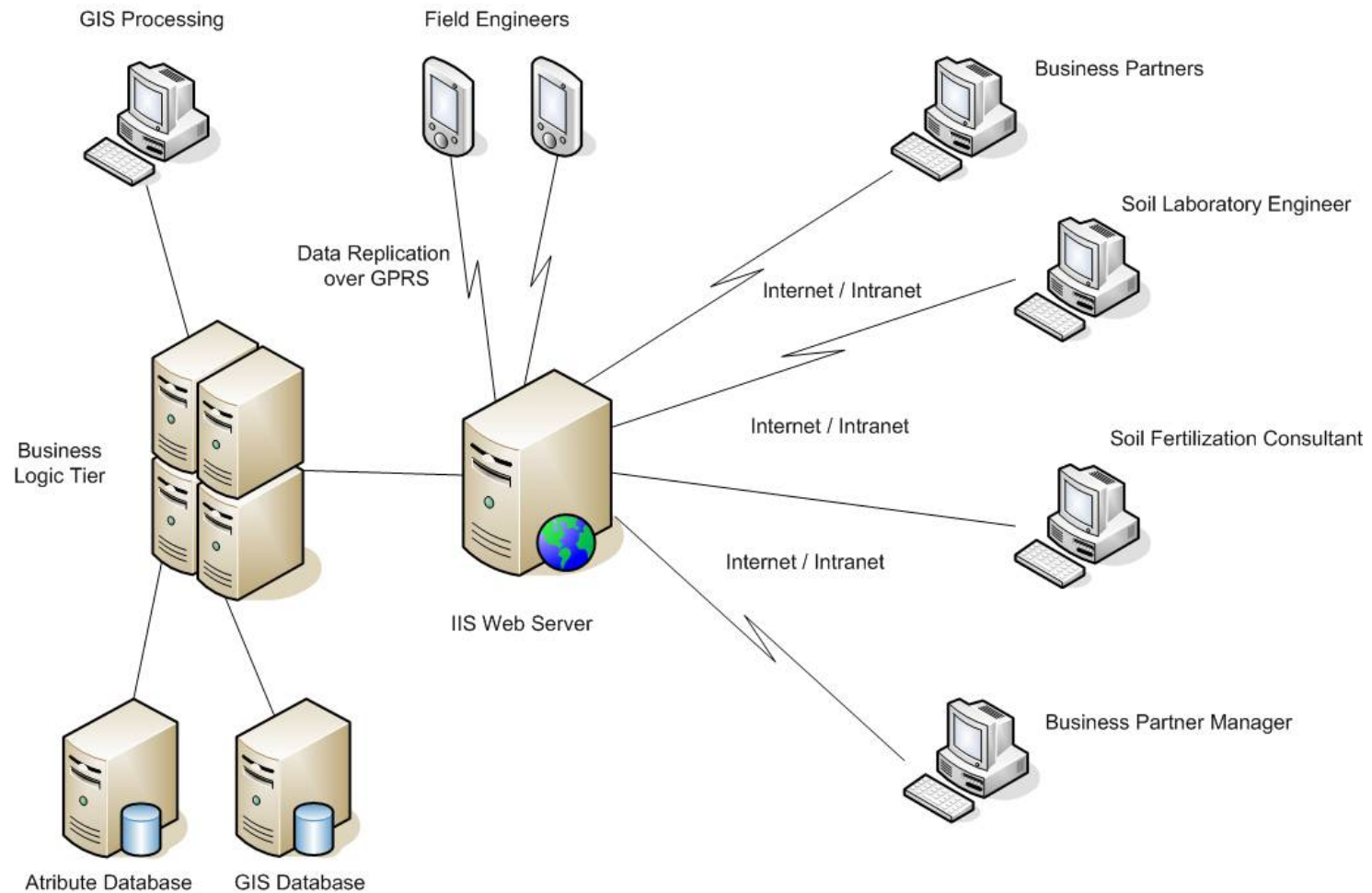
- Agroservis Manager
- Field Engineer
- Soil Laboratory Engineer
- GIS Analyst
- Soil Fertilization Consultant
- Business Partner



Business Process Model



System Architecture



Technology

- Microsoft SQL Server 2005 Standard Edition
- .NET Framework 2.0
- Microsoft SQL Server 2005 Compact Edition
- .NET Compact Framework 2.0
- ESRI ArcGIS Server
- ESRI ArcEditor



Web Application

Untitled Page - Windows Internet Explorer

http://server-dcl.0003/agroservis2000/Agroservis/BusinessPartner/BusinessPartnerFieldData.aspx?FieldId=16300ic=300

AGROservis VICTORIA GROUP

Logout

Početna Poslovni partneri Plan uzorkovanja Osnovni podaci Troškovi Logout

Sojaprotein Kindja AD

Edit | [Parcele](#) | [Kontakti](#) | [Komentari](#) | [Izvestaji](#) | [Registracija](#)

Parcela: 176
Tip: Oranca

Riljni Ostaci	Godina	Kultura	Plan Setve	Prinos	Org. đjub.	Datum Dubrenja	NPK	Datum Dubrenja	Az. đjub.	Datum Dubrenja	NPK 2	Datum Dubrenja	Az. đjub. 2	Datum Dubrenja	Operacije					
nema podataka	2005	Grašak	Šećerna rpa	5700	Nije bačeno	0,00	Nepoznat	15:15:15	350,00	Nepoznat	Nije bačeno	0,00	Nepoznat	Nije bačeno	0,00	Nepoznat	Edit Delete			
nema podataka	2006	Šećerna rpa	Grašak	52000	Nije bačeno	0,00	Nepoznat	MAP	200,00	Nepoznat	AN	200,00	Nepoznat	KCl	150,00	Nepoznat	Urea	0,00	Nepoznat	Edit Delete

[Dodaj nove podatke](#)

Datum: 1-coc-2006

Kultura:

Plan setve:

Organsko đjubrivo:

NPK:

Azotno đjubrivo:

NPK 2:

Azotno đjubrivo 2:

Biljni ostaci:

Prinos:

Količina: Datum đubrenja:

Količina: Datum đubrenja:

Količina: Datum đubrenja:

Količina: Datum đubrenja:

Količina: Datum đubrenja:

Calendar: april 2008

Done

Untitled Page - Windows Internet Explorer

http://server-dcl.0080/agroservis2005/WelGate/LogIn.aspx

VICTORIAGROUP

User management Symonvis

Agroservis

Ulog name:

Password:

Remember me next time.

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Done

Local intranet 100%

Web Application

Untitled Page - Windows Internet Explorer
<http://server-d:1:8080/agroservis2008/Agroservis/1/tasks/taskAnalysis.aspx?taskId> Live Search

AGRO Servis VICTORIA GROUP [Logout](#)

Početa Poslovni partneri Plan uzorkovanja Osnovni podaci Troškovi Logout

[Izmena](#) | [Uzorci](#) | [Analize](#) | [Preporuke](#)
 Poslovni partner: Sotaprotein Kruja AD
 Status: Data preporuka

Parcela	Površina	Datum uzorkovanja	Select
Aerodrom	47,62	3.2.2005 0:00:00	Select
122/125	160,40	3.2.2005 0:00:00	Select
175	70,50	3.2.2005 0:00:00	Select
ZP-3	141,89	3.2.2005 0:00:00	Select
ZP-1	182,20	3.2.2005 0:00:00	Select
ZP-2	213,97	2.2.2005 0:00:00	Select

Br. uzorka	Dubina	Lab. broj	N(%)	P2O5(mg/100g)	K2O(mg/100g)	Humus(%)	CaCO3(%)	pH
1	0-30	309	0,00	13,70	47,00	3,79	8,44	7,42
2	0-30	310	0,00	13,70	57,00	3,42	4,22	7,38
3	0-30	311	0,00	15,30	63,50	4,22	8,44	7,44
4	0-30	312	0,00	12,70	41,80	4,41	8,44	7,43
5	0-30	313	0,00	11,90	47,00	3,86	1,02	7,35
6	0-30	314	0,00	15,60	57,00	3,93	8,87	7,45
7	0-30	315	0,00	19,60	50,00	4,27	8,44	7,42
8	0-30	316	0,00	14,50	59,00	3,90	8,44	7,51
9	0-30	317	0,00	10,00	66,00	2,62	6,75	7,43
10	0-30	318	0,00	13,00	57,00	2,69	11,40	7,50
11	0-30	319	0,00	9,70	57,00	2,62	8,44	7,45
12	0-30	320	0,00	5,50	62,50	2,02	1,25	7,30

Local intranet

Untitled Page - Windows Internet Explorer
<http://server-dc1:8080/agroservis2008/Agroservis/1/tasks/TaskRecommen> Live Search

AGRO Servis VICTORIA GROUP [Logout](#)

Početa Poslovni partneri Plan uzorkovanja Osnovni podaci Troškovi Logout

[Izmena](#) | [Uzorci](#) | [Analize](#) | [Preporuke](#)
 Poslovni partner: Agrokombinat
 Status: Data preporuka

Parcela	Površina	Datum uzorkovanja	Select	Uzorci	Datum preporuke	Select	Delete
G-7,8	205,00	15.9.2006 0:00:00	Select	1,3,4,5,6,7,8,9,10	2.10.2006 0:00:00	Select	Delete
Š-1,4	110,00	15.9.2006 0:00:00	Select	2	2.10.2006 0:00:00	Select	Delete
G-3	76,00	15.9.2006 0:00:00	Select				
G-4	88,00	15.9.2006 0:00:00	Select				

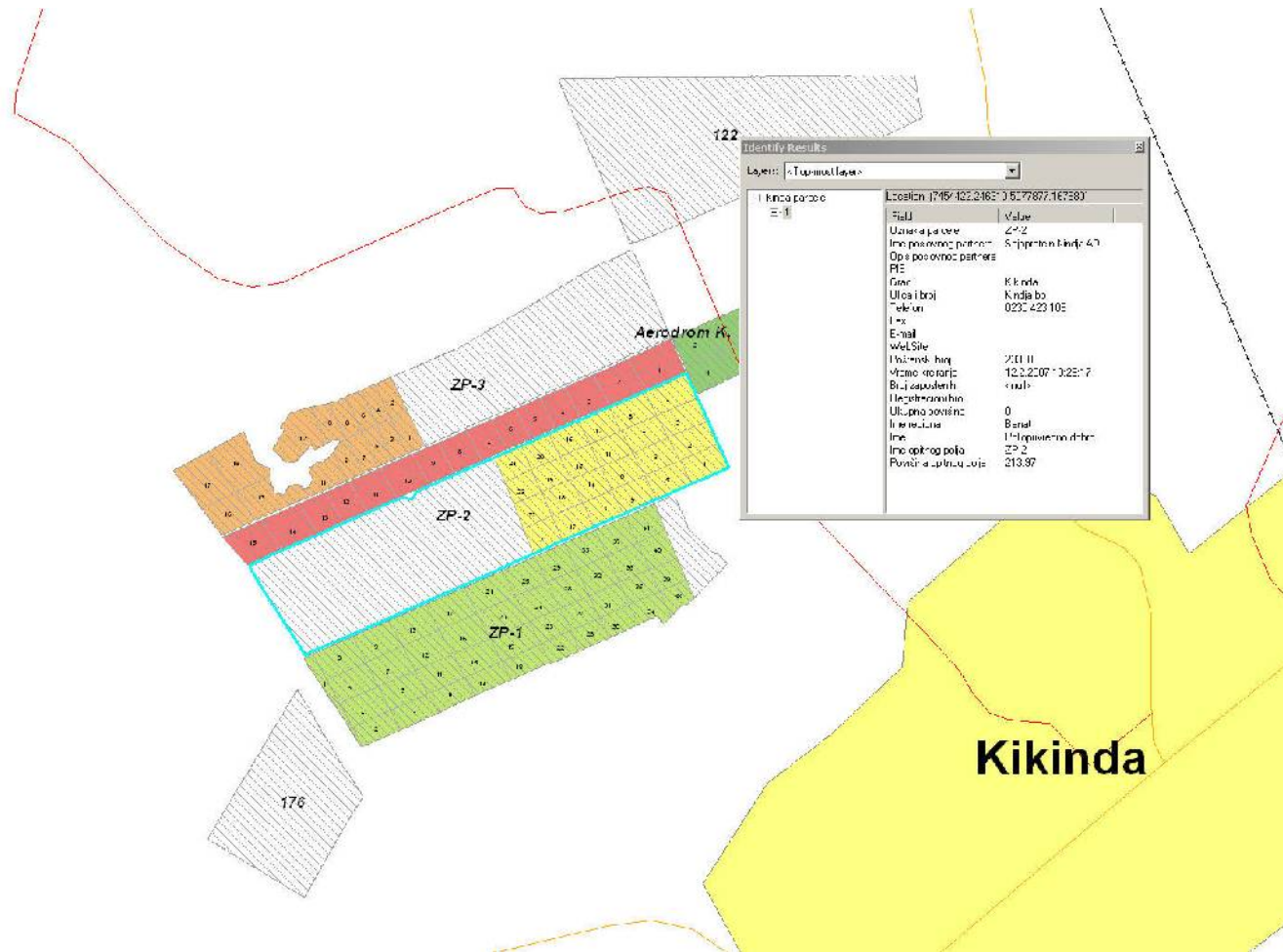
Biljna vrsta	Planirani prinos	N(kg/ha)	P2O2(kg/ha)	K2O	Vrsta NPK đubriva	Ukupno(kg/ha)	Napomena
Suncokret	max 3000,00	51,00	56,00	75,00	15:15:15	370,00	Delete
Suncokret	min 2000,00	32,00	35,00	44,00	15:15:15	230,00	Delete
Soja	max 3000,00	90,00	75,00	95,00	8:21:21	450,00	Delete
Soja	min 2000,00	60,00	46,00	58,00	8:21:21	280,00	Delete
Šećerna repa	max 55000,00	110,00	79,00	165,00	8:16:24	690,00	Delete
Šećerna repa	min 45000,00	84,00	57,00	130,00	8:16:24	540,00	Delete
Pšenica	max 7000,00	59,00	67,00	55,00	15:15:15	370,00	Delete
Pšenica	min 6000,00	50,00	56,00	47,00	15:15:15	310,00	Delete
Kukuruz	max 10000,00	86,00	132,00	93,00	8:24:16	580,00	Delete
Kukuruz	min 8000,00	66,00	96,00	70,00	8:24:16	440,00	Delete

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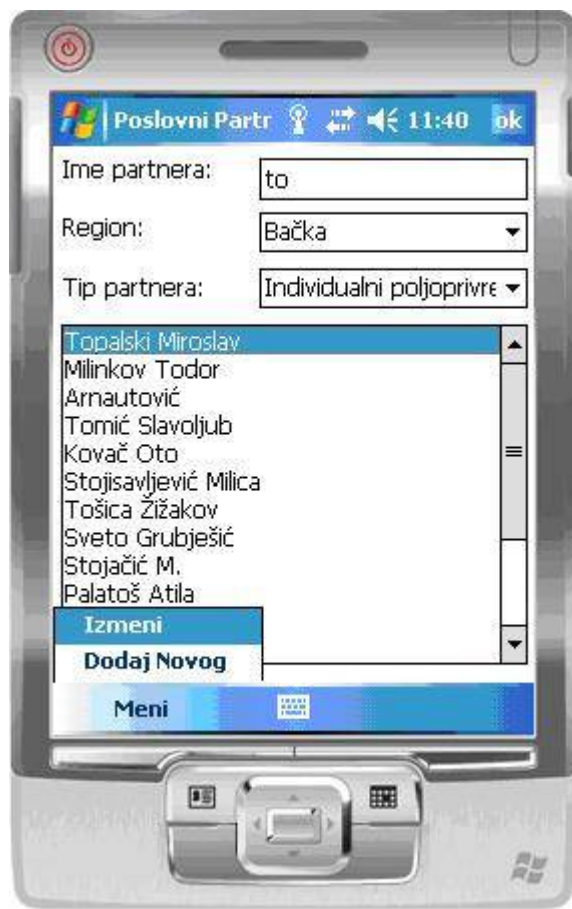
Local intranet 100%



ArcEditor



Mobile Application



Mobile Application



Trimble PDA with GPS



Web Interface

Microsoft Internet Explorer window showing a web interface for a GIS application. The address bar shows `http://localhost:1990/agrcservis_web/Default.aspx`.

The interface includes a legend on the left, a map in the center, and a data table at the bottom. The legend shows layers for 'Slojevi', 'Kontrolne parcelice', 'Aerodrom K', 'ZP-1', 'ZP-2', 'ZP-3', 'ZP-3 Usko dugacko', and 'Parcela'. The map displays a field layout with numbered plots and labels like 'ZP-3 Aerodrom K', 'ZP-2', and 'ZP-1'. The data table below the map provides details for selected fields.

Izaberi	Naziv polja	Površina	Tip polja	Karta	Izaberi	Datum	Broj Karta
>>	Aerodrom	47.62	Oranica		>>	2/3/2005 12:00:00 AM	1
>>	122	160.40	Oranica		>>	2/3/2005 12:00:00 AM	2
>>	176	70.50	Oranica		>>	2/3/2005 12:00:00 AM	3
>>	ZP-3	141.89	Oranica		>>	2/3/2005 12:00:00 AM	4
>>	ZP-1	187.20	Oranica		>>	2/3/2005 12:00:00 AM	5

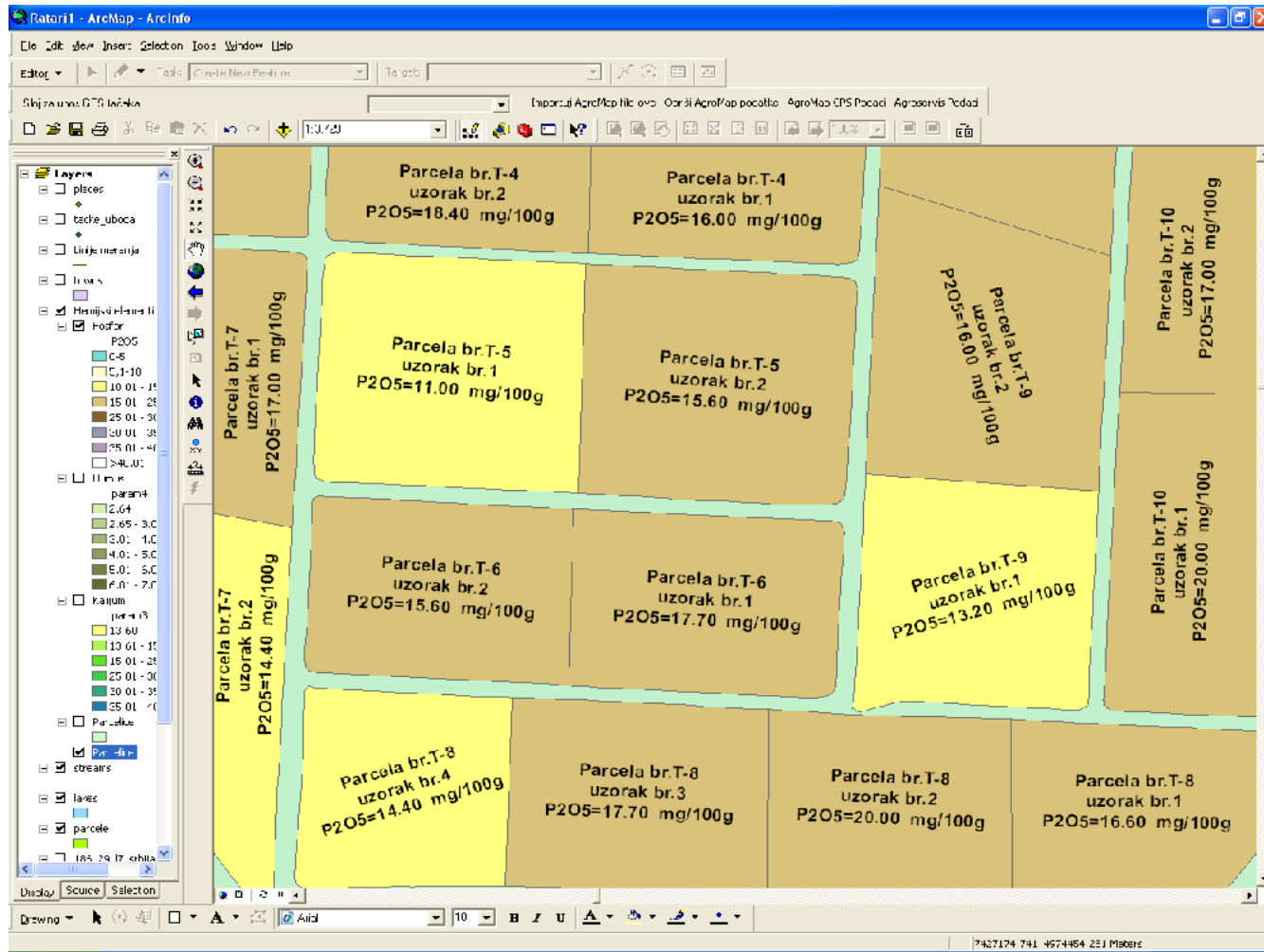
Parameters on the right side of the interface:

- Nivo Uzorkovanja: 0.30
- Parametar 1: 0.00
- Parametar 2: 6.50
- Parametar 3: 30.00
- Parametar 4: 2.72
- Parametar 5: 2.83
- Parametar 6: 7.14
- Parametar 7: 7.96

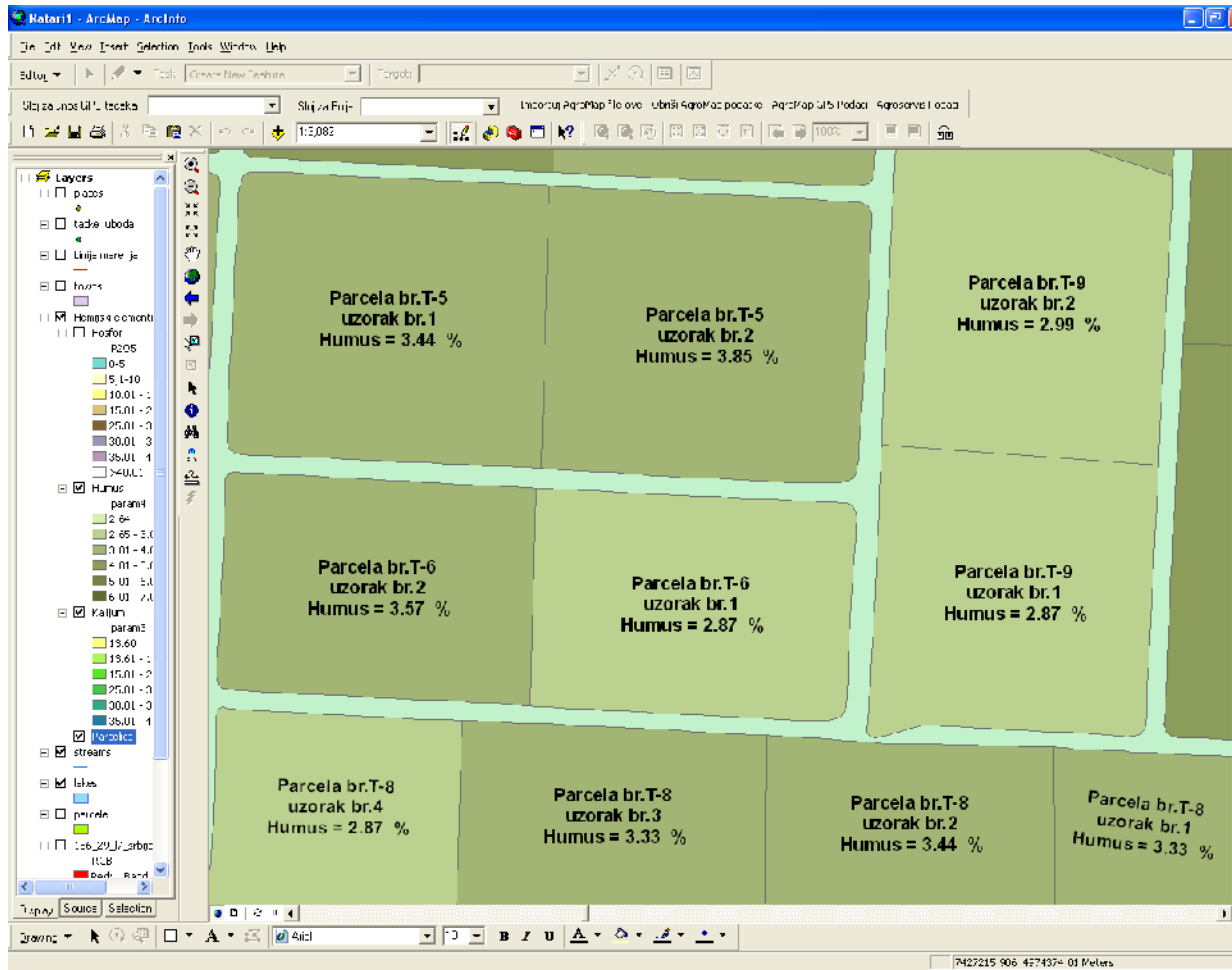
The taskbar at the bottom shows the Start menu, taskbar with open applications (Inbox, GeoCollector, Microsoft PowerPoint, agroservis_web), and system tray with the time 10:36 AM.



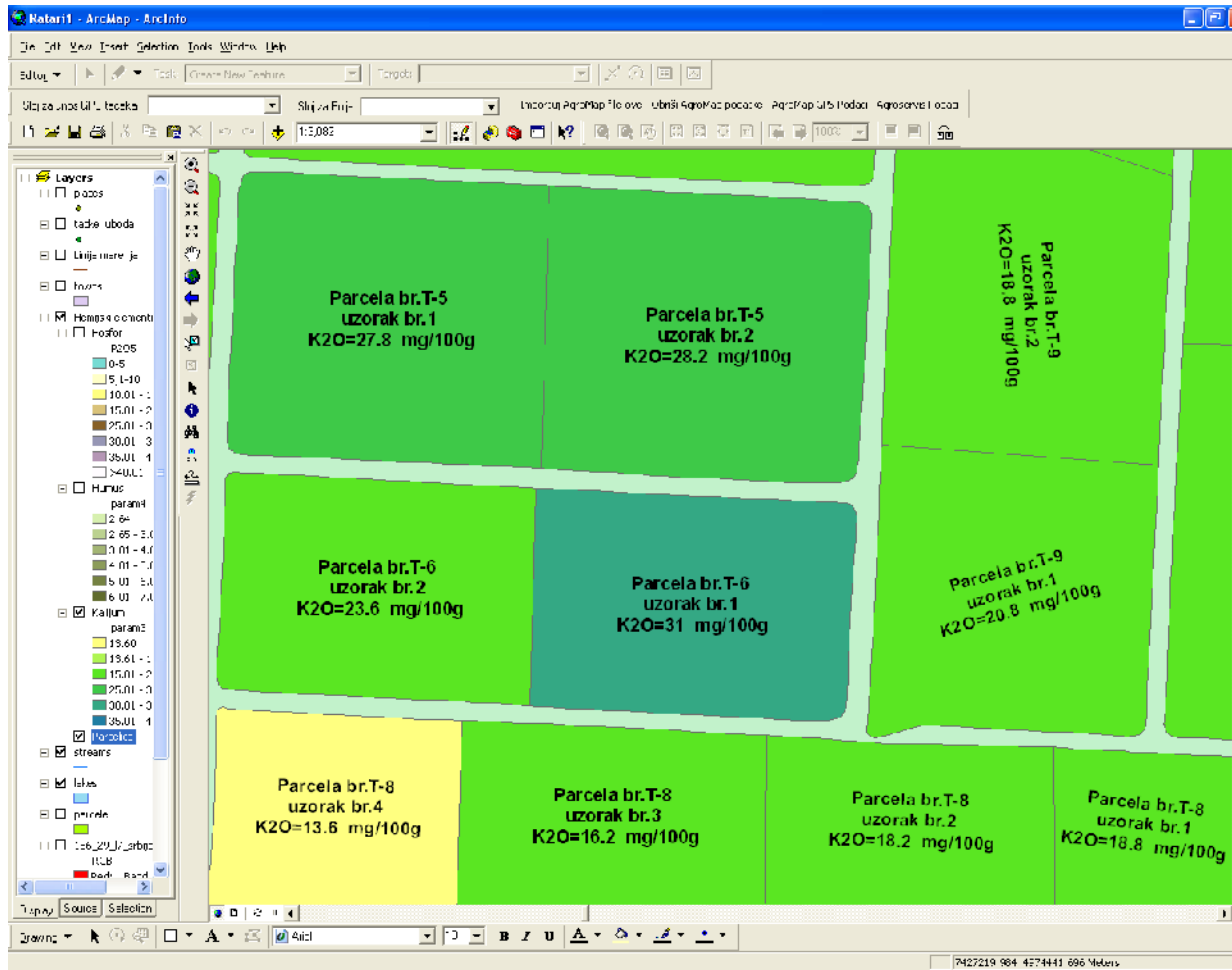
Data Analysis



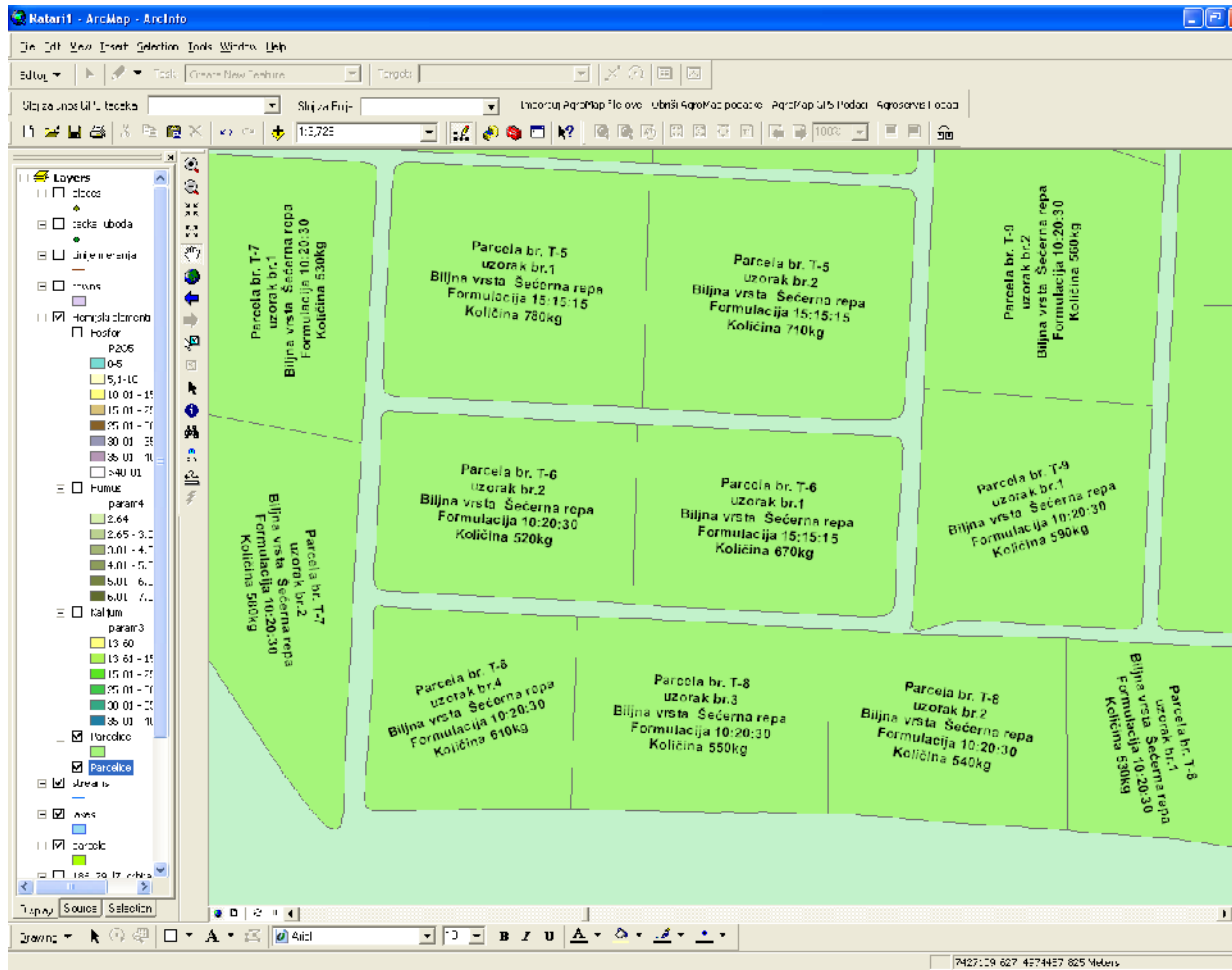
Data Analysis



Data Analysis



Recommendations



Reports

Doo Žito-mlin

Suma preporucene kolicine djubriva

formulacija

ukupna kolicina u kg
0

10:20:30
ukupna kolicina u kg
18720

15:15:15
ukupna kolicina u kg
7220

8:24:16
ukupna kolicina u kg
660

UREA
ukupna kolicina u kg
750



Conclusion

Precision agriculture technologies have great potential to improve soil fertility and crop management.



Thank You for Your Attention.

Stevan Džigurski

stevan.dzigurski@victoriagroup.co.rs

Sava Rajkov

sava.rajkov@victoriagroup.co.rs

