

First phase of implementing geotagged photos in Croatia

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AGENCIJA ZA
PLAĆANJA U
POLJOPRIVREDI,
RIBARSTVU I
RURALNOM
RAZVOJU

Content

- Croatia / LPIS characteristics
- Business process & responsibilities
- Accuracy and spatial displacement
- Open questions
- Recommendation / SW requirements



Croatia / LPIS characteristics

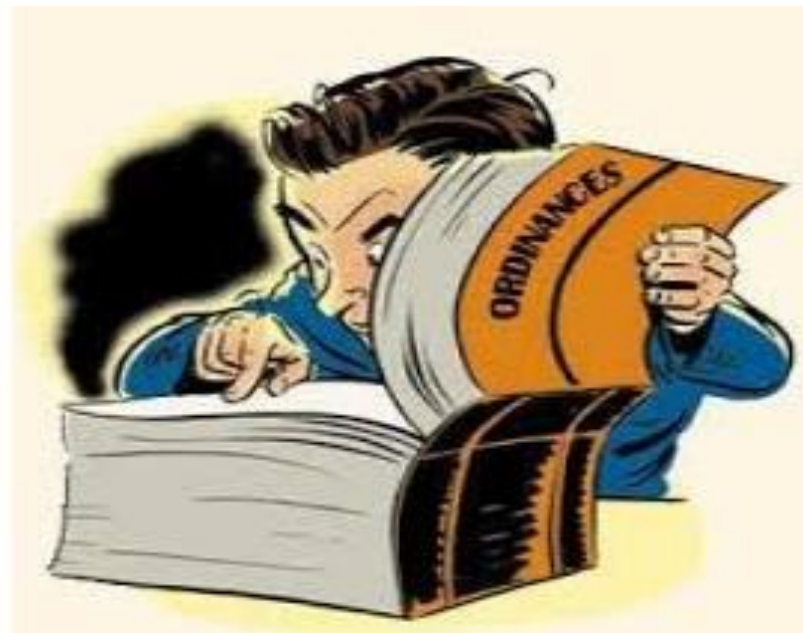
- Farmer block system
- 145.000 farms
- 1,35 mil reference parcels
- 1,13 mil ha total eligible area
- 7,8 ha average farm area
- 21 counties
- 47% of the territory – forest
- 3 typical regional landscapes -
Continental / Mountain /
Mediterranean



The new ARKOD/LPIS ordinance

- ☐ FEB 2018 – LPIS Ordinance prescribes possibilities for GT photo used for:
 - ✓ Private undocumented agricultural land
 - ✓ Temporally excluded land due to OTS results
 - ✓ Administration request from farmer additional GT photo evidence for land use clarification

- ☐ Farmer has strong motivation for GT photos usage



Plan B – principles and goals

- ☐ Since we didn't have enough time to develop application, manual approach was the only solution
- ☐ Should be as simple as possible
- ☐ Without cost for external contractor
- ☐ Ensure evidence that farmer has been informed about GT photo task
- ☐ Monitoring of the whole process
- ☐ Data compatibilities with
Phase 2 – when the application will be developed



Business process & responsibilities

1) ARKOD CONSULTANTS

- ✓ 200 employees
- ✓ Initial registrations
- ✓ First line in contact with farmers

2) ARKOD COORDINATORS & RFV CONTROLLERS

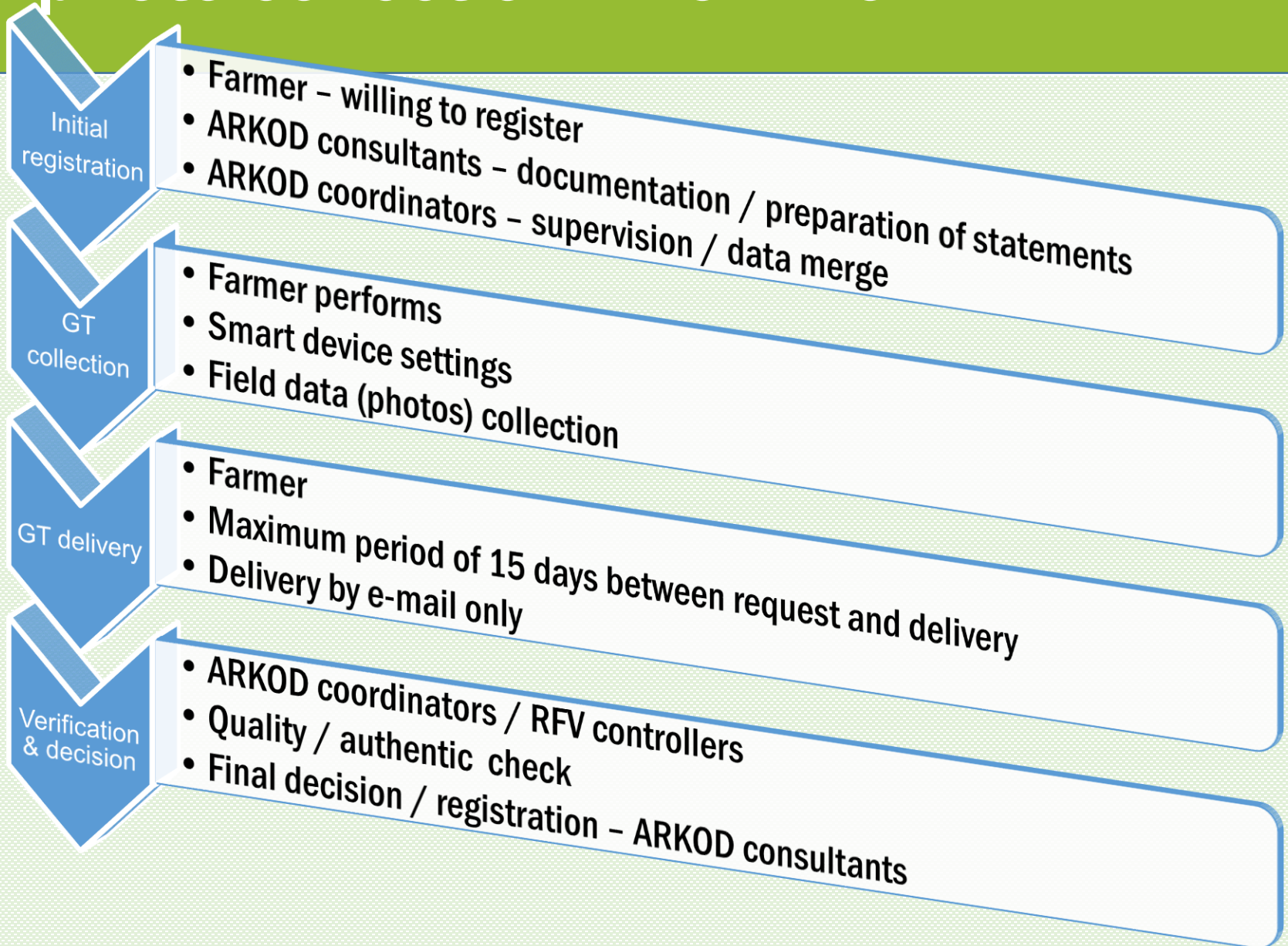
- ✓ 53 employees have been involved
- ✓ Receive e-mail data & quality control
- ✓ GT photo verification & import to the System

3) CENTRAL LEVEL

- ✓ 4 employees
- ✓ Monitoring
- ✓ Help desk support



GT photo collection - work flow



Notification of farmers / Statements

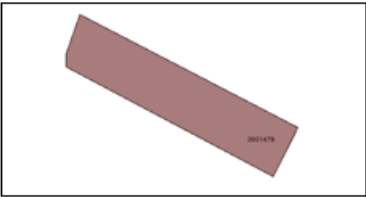
Notification

Obavijest korisniku

MIBPG	XXXXYYYY
Naziv	Petar Petrović

Sukladno članku 8. stavku 2. Pravilnika o evidenciji uporabe poljoprivrednog zemljišta (NN 17/2018) poljoprivrednik može pokrenuti postupak upisa u ARKOD onih površina poljoprivrednog zemljišta za koje ne posjeduje dokaz o vlasništvu ili posjedu ukoliko pruži dokaz da na njima obavlja poljoprivrednu aktivnost sukladno propisima koji uređuju područje poljoprivrede. Poljoprivrednik za takve površine mora Agenciji za plaćanja dostaviti geotagirane fotografije s prikazom obavljene poljoprivredne aktivnosti na ARKOD parceli i prepoznatljivim elementima u prostoru, koje nisu starije od 30 dana od dana pokretanja postupka upisa tih površina u ARKOD.

Za sljedeću ARKOD parcelu je pokrenut postupak upisa te je potrebno dostaviti geotagirane fotografije:

Nositelj poljoprivrednog gospodarstva:	Petar Petrović
Broj telefona:	091/22221111
Privremeni identifikacijski broj ARKOD parcele (ARKOD_ID):	XXXXXXXX
Domaće ime privremene ARKOD parcele:	TEST 123
Kod uporabe:	200
Površina privremene ARKOD parcele (ha):	0.25
Grafička skica privremene ARKOD parcele (ručno označiti najmanje 3 pozicije sa smjerom snimanja):	<div><div>SJEVER</div><div>ZAPAD</div><div>ISTOK</div><div>JUG</div></div>

Statement

Potvrda korisnika

Potvrđujem da koristim gore navedenu poljoprivrednu površinu bez dokumentacije o pravu na posjed, kao i da sam upoznat s odredbama Zakona o vlasništvu i drugim stvarnim pravima, Zakona o poljoprivredi, Zakona o obveznim odnosima, Zakona o poljoprivrednom zemljištu i Pravilnika o evidenciji uporabe poljoprivrednog zemljišta, te da ću za potrebe dokazivanja korištenja prije provedbe upisa u ARKOD sustav Agenciji za plaćanja u poljoprivredi, ribarstvu i ruralnom razvoju, dostaviti valjane geotagirane fotografije u roku od 15 dana elektronskom poštom na adresu gtl.xxx@apprrr.hr.

Mjesto:

Potpis poljoprivrednika,

Nositelj ili opunomoćenik

poljoprivrednog gospodarstva

Datum:

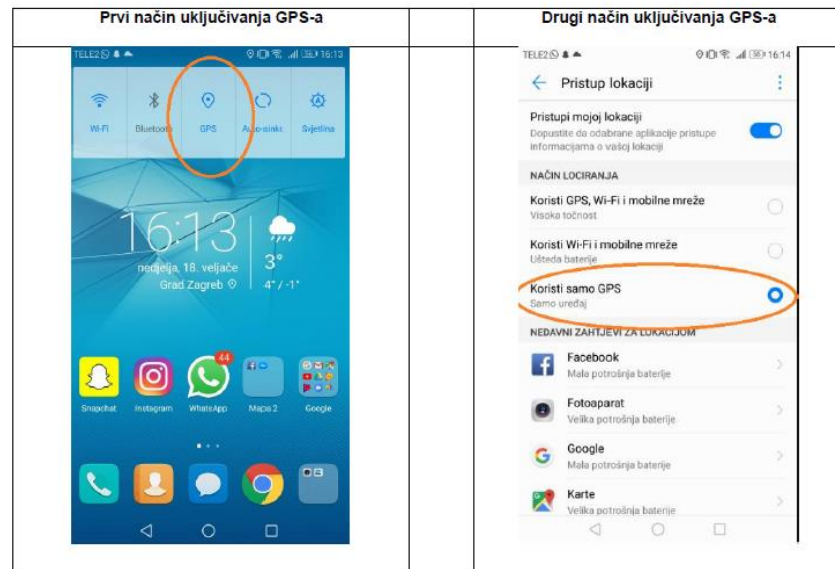
Upute za podešavanje uređaja i ispravan način prikupljanja geotagiranih fotografija možete preuzeti sa stranica Agencije za plaćanja u poljoprivredi, ribarstvu i ruralnom razvoju – <http://www.apprrr.hr/>



Instructions for farmers

- Farmer needs to set up parameters of smart device
- Available on the WEB site
- Simple explanations for Android & IOS users
- Farmer needs to make check-up before data collecting
- Reduced picture size and quality
- Object of interest must be captured according to PA instructions
- No of photos + Position & Direction

a) Uključenost GPS-a, što ovisi o uređaju, a u uređajima ga je najčešće moguće uključiti na više načina. Molimo provjerite korisničke upute za Vaš tip uređaja



Statistics – from 1 March to 28 May

No of FARMS	1.258
No of Ref. Parcels	3.923
Area (ha)	4.774 ha
No of GT photos	14.383
No of ARKOD Coordinators / RFV Controllers	37
Average photos per Operators	389
Working days	61



Monitoring and (meta)data collection

Manually through xlsx tables

1) Local level

- Consultants update their local table upon meetings with farmers
- At the end of the day/data set has been transferred to the ARKOD Coordinator

2) Central level

- ARKOD coordinator collects data from all consultants
- Once a week (Monday), updated table is being stored into the shared disc space

3) PA administration level

- Has access to all data



Excel – data base table (xlsx)

Centralna objedinjena evidencija ARKOD konzultanata za praćenja korisnika od kojih se traži dostava geotagiranih fotografija uz generiranje "Obavijesti korisniku" za: 1) Privatno bez dokumentacije (PBD) 2)Potrebno dodatno dokazivanje (PDD) * Napomena - Jednom tjedno (petkom ili ponedjeljkom) osvježiti centralnu tablicu na "Zajedničkom disku"												Status dostava: 1 - Uručena obavijest 2 - Dostavljene GT fotografije 3 - Potrebno ponoviti		Status ARKOD-a: A - U tijeku / čeka odluku B - Dodijeljeno korisniku C - Uklonjeno iz Sustava	
RB	PO	user_id	user_ime	Razlog	MIBPG	Naziv	ARKOD_ID	Kod_uporabe	Domaće ime	Datum obavijesti	Datum dostave	Status dostava	Status ARKOD-a	Naziv_datoteke	
1	1	1668	Mirjana Mađer	PBD	22038	KOSANOVIĆ NENAD	3598052	200	PRIVREMENA	7.3.2018		1	A	22038_3598052__datum_rb slike	
2	1	1668	Mirjana Mađer	PBD	22038	KOSANOVIĆ NENAD	3598052	200	PRIVREMENA		21.3.2018	2	B	22038_3598052__20180320_151727	
3	1	1668	Mirjana Mađer	PBD	22038	KOSANOVIĆ NENAD	3598052	200	PRIVREMENA		21.3.2018	2	B	22038_3598052__20180320_151747	
4	1	1668	Mirjana Mađer	PBD	22038	KOSANOVIĆ NENAD	3598052	200	PRIVREMENA		21.3.2018	2	B	22038_3598052__20180320_152055	
5	1	1668	Mirjana Mađer	PBD	22038	KOSANOVIĆ NENAD	3598066	200	PRIVREMENA 2	7.3.2018		1	1	22038_3598066__datum_rb slike	
6	1	1668	Mirjana Mađer	PBD	22038	KOSANOVIĆ NENAD	3598066	200	PRIVREMENA 2		21.3.2018	2	B	22038_3598066__20180320_153057	
7	1	1668	Mirjana Mađer	PBD	22038	KOSANOVIĆ NENAD	3598066	200	PRIVREMENA 2		21.3.2018	2	B	22038_3598066__20180320_153115	
8	1	1668	Mirjana Mađer	PBD	22038	KOSANOVIĆ NENAD	3598066	200	PRIVREMENA 2		21.3.2018	2	B	22038_3598066__20180320_153239	
9	1	10470	Anita Hinović	PBD	120682	RAĐA ANA	3301841	200	OGRADA IZA KUĆE	19.3.2018		1	A	120682_3301841__datum_rb slike	
10	1	1668	Mirjana Mađer	PBD	120682	RAĐA ANA	3301841	200	OGRADA IZA KUĆE		17.4.2018	2	B	120682_3301841__20180330_170730	
11	1	1668	Mirjana Mađer	PBD	120682	RAĐA ANA	3301841	200	OGRADA IZA KUĆE		17.4.2018	2	B	120682_3301841__20180330_172138	
12	1	1668	Mirjana Mađer	PBD	120682	RAĐA ANA	3301841	200	OGRADA IZA KUĆE		17.4.2018	2	B	120682_3301841__20180330_171425	



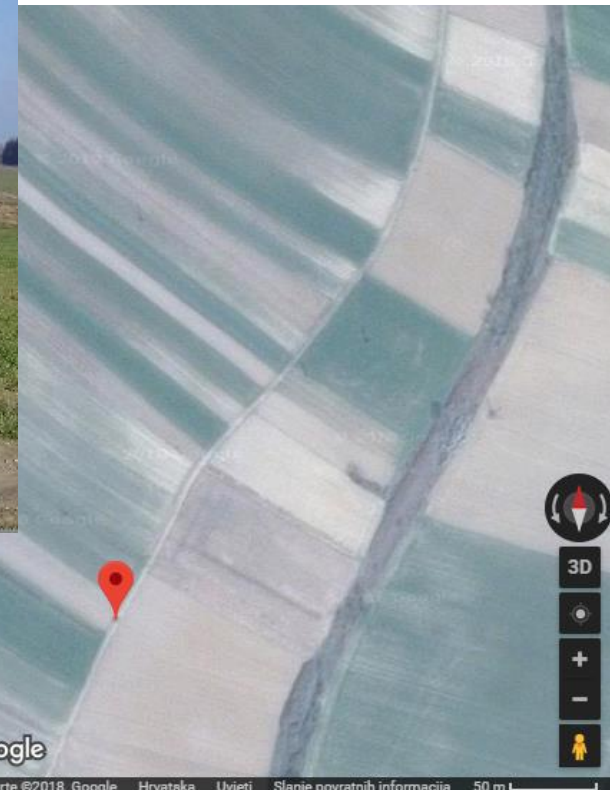
GT photo in the QC and Google Maps

Photo opens by double click on the GTF sign

lpis.LAND_PARCELS_PHOTOS 1495



Google Maps /
IrfanView



ARKOD graphic QC
application



Imported data into the QC application



Accuracy and spatial displacement

Distance could be from 10 m to a few kilometres

Various reasons:

1. Device „remembers” some previous location
2. External conditions influence for GPS signal
3. Power lines, GSM antennas, watercourse, keys in the pocket, satellites availability and position, etc.



Accuracy – displaced coordinates / possible solutions

- 1) Manual or automated indications in photo meta-data - where, when and how the point's coordinates have been displaced
- 2) Integrated tools for farmer to mark the correct position instead
- 3) If applicable some easily recognizable object should be located in the picture



Ipiis LAND_PARCELS_PHOTOS 16982

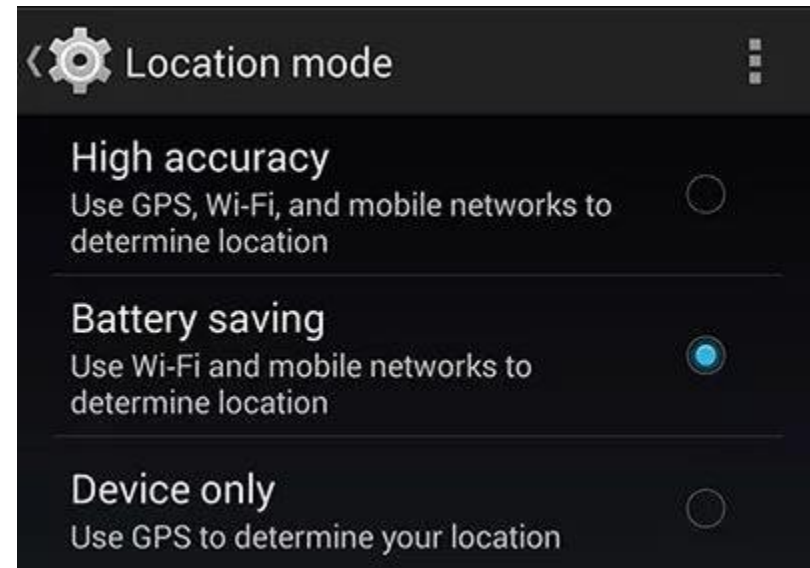


09.05.2018.
17:28



Accuracy/displaced coordinates / verification of the smart GPS device

- 1) GPS device verification before collecting of images start
- 2) Application tool for comparison between measured GPS signal from device and real position – Does it correspond with the background data?
- 3) Application will be able to detect devices with some critical defects and prevent using of non-quality photos and time wasting
- 4) Only farmer knows exactly where and how the signal has been shifted
- 5) Application should have pre-defined points with buffers where the photo collecting function will be enabled



Open questions

- 1) GT photo collection - farmer's motivation or obligation?
- 2) Verification and validation of GPS accuracy?
- 3) Managing the large amount of photos – how to use automation?
- 4) Efficient way how to store, maintain and archive the huge amount of GT photos?
- 5) Time consuming and needs for human resources during the whole process of photo verification / evaluation / administration?



Recommendation/SW requirements

- 1) Begins with the establishment of GT photo integration into the IACS as soon as possible
- 2) Fundamental application requirements:
 - 1) Manage through the „Farmer tool” application
 - 2) On-line share of information PA /Farmer (application / e-mail / SMS / WhatsApp / Viber / ...)
 - 3) Farmer's confirmation / feedback
 - 4) IACS data available (spatial layers & alphanumerical)
 - 5) GPS / Camera remote - settings
 - 6) Mode for GPS accuracy verification test
 - 7) Pre defined points of interest / data collection / and orientation of the camera



Thank you for your attention



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