

## **THE INTRODUCTION OF SYSTEMATIC CADASTRE IN ROMANIA. CASE STUDY: THE TERRITORIAL ADMINISTRATIVE UNIT CRICĂU, ALBA COUNTY**

*Cosmina Mariana CÎMPEAN, Ma. Stud. Eng., University „1 Decembrie 1918” of Alba Iulia, Romania, comy\_may\_23@yahoo.com*

*Andreea BEGOV UNGUR, Lect. PhD. Eng, University „1 Decembrie 1918” of Alba Iulia, Romania, andreeaungur@yahoo.com*

**Abstract:** *The implementation of the systematic cadastre is the entire responsibility of the Romanian State, through the National Agency for Cadastre and Real Estate Advertising.*

*The systematic registration works are carried out at the level of a cadastral sector or several cadastral sectors. The cadastral sectors are established by the OCPI together with the City Hall before to the start of the procurement procedure by the Acquirer. The the purpose of the cadastral works is to provide realistic and complete information about the real estate to the interested persons at all times and is finalizing with the registration in the Land book.*

*In order to enroll the real estate in to the Land book, the systematic cadastre refers to:*

*- identification, measurement, description and registration of the real estate in the technical documents of the cadastre, their representation on cadastral plans and the storage of data in digital format;*

*- identification of owners and other holders of real estate for registration in the Land book;*

*- public display of the results obtained after the execution of the systematic cadastre works, the correction of the errors reported by the owners and the opening of a new Land book.*

*At the end of the systematic cadastre works it will be prepared the technical documents of the cadastre: the cadastral register of the real estates, the alphabetical index of the owners of the real right, the cadastral plans and the CGXML files.*

*Through a case study, this paper aims to present the legal framework, the steps and the final documents of systematic cadastre.*

**Keywords:** *systematic cadastre, cadastral sector, cadastral register, land book, CGXML files*

### **1. Introduction**

In 2015, in Romania, in the field of cadastre, the situation was catastrophic: from the total number of buildings, 40 million (8 million in urban areas and 32 million in rural areas), there were recorded only 7.4 million, namely 3.6 million in urban area and 3.8 million in rural areas (figure 1).

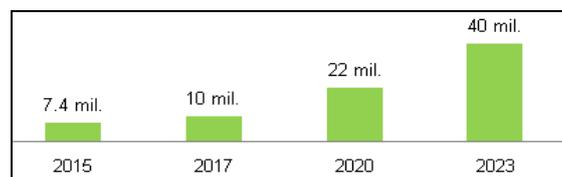


Fig. 1 Diagram of the number of real estates that will be registered in to the land book

In order to enroll the real estate in to the Land book, the systematic cadastre refers to [1], [2]:

- identification, measurement, description and registration of the real estate in the technical documents of the cadastre, their representation on cadastral plans and the storage of data in digital format;
- identification of owners and other holders of real estate for registration in the Land book;
- public display of the results obtained after the execution of the systematic cadastre works, the correction of the errors reported by the owners and the opening of a new Land book.

## 2. Case study

Through a case study this paper aims to present the legal framework, the steps and the final documents of systematic cadastre. The cadastral sector taken into consideration is situated in Cricău, Alba county (figure 2).



Fig. 2 The geographical location of Cricău territorial administrative unit

For the introduction of systematic cadastre in the territorial administrative unit Cricău, Alba County were passed the following steps.

1. The collection and integration of datas;
2. Performing topographical surveys;
3. The processing of the topographical surveys;
4. Drawing up the final documents of the systematic cadastre.

**2.1. The collection and integration of datas** - To accomplish this paper, we had at our disposal the data provided by OCPI and by the Local Authority (City Hall), namely: the boundaries of the territorial administrative unit and of the intravilans that compose it, orthophotoplans, cadastral plans (scale 1: 10000), parcel's plans in analog format, the legalized property titles, the location and delimitation plans (PADs) in analog format, data from the National Geodetic Network, agricultural register in \*.jpg format, public/private domain inventory in \*.pdf multipage files, containing the list of public/private domain inventory/land book extracts (CF extract), the street nomenclature - \*.tif files, other types of data: general urban plans and zonal urban plans (PUGs and PUZs) - \*.xls and \*.tif files.

The data presented above has been analyzed and it has been created a preliminary graphical database to start the activities specific to this paper.

**2.2. Performing topographical survey** – the topographical survey were performed using the GPS system Leica 900 and the total station Leica TCR 407.

For the determination of geodetic points coordinates was used a Leica 900 GPS system with double frequency. The used method was the static method with long observation times with connection to the permanent fixed stations ALBA and AIUD (ROMPOS). Thus, were determined four points (GPS 1000, GPS 2000, GPS 3000, GPS 4000) which were materialized in the field through the topographical terminals. Starting from points determined using GPS technology and taking into account the conditions from field and the configuration of the objective was performed a complete polygonal traverse, starting from point GPS 2000 with target on point GPS 1000 and closing on point GPS 3000 with target on point GPS 4000 (figure 3).

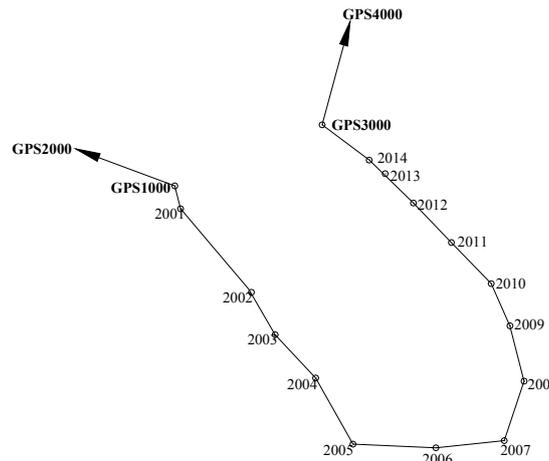


Fig. 3 The sketch of polygonal traverse

Downloading data from the total station was done using Leica Geo Office Tools software, resulting the field book (figure 4).

Station	Coordinates (X, Y, Z)	Measurements
1000	93.236 Hz, 333.5260 V1, 100.0010	
2001	112.307 Hz, 187.7685 V1, 100.0005	
2002	250.773 Hz, 188.6547 V1, 100.0030	
2003	257.613 Hz, 169.9849 V1, 100.0003	
2004	260.363 Hz, 172.7471 V1, 100.0035	
2005	116.321 Hz, 12.9873 V1, 100.0030	
2006	114.824 Hz, 11.7589 V1, 100.0036	
2007	108.958 Hz, 124.1527 V1, 100.0025	
2008	106.888 Hz, 125.4557 V1, 100.0015	
2009	103.444 Hz, 120.4620 V1, 99.9987	
2010	100.663 Hz, 139.6161 V1, 100.0009	
2011	84.342 Hz, 107.4824 V1, 99.9997	
2012	78.737 Hz, 130.3693 V1, 99.9998	
2013	92.367 Hz, 137.0763 V1, 99.9996	
2014	100.663 Hz, 139.6161 V1, 100.0009	

Fig. 4 Downloading data from the total station

**2.3. The processing of the topographical surveys** - The processing of the topographical surveys was done using the program TopoSys, version 7.0 (figure 5).

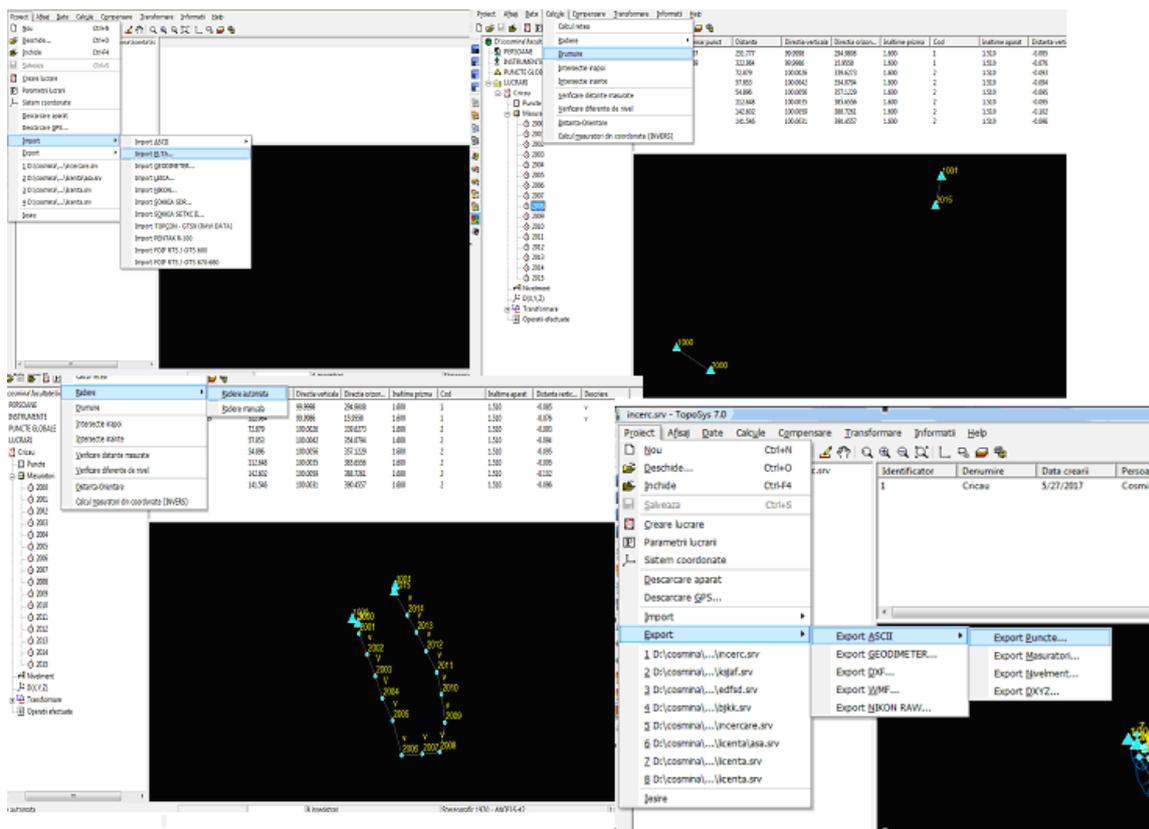


Fig. 5 The processing of the topographical surveys with TopoSys

After the processing of the topographical surveys were obtained the point's coordinates.

In order to achieve the contour of the measured objective, the coordinates of the points were imported into the AutoCAD with the help of the TopoLT program, then recourse to joining the points based on the codes used in the field and the sketch received from the City Hall (figure 6).

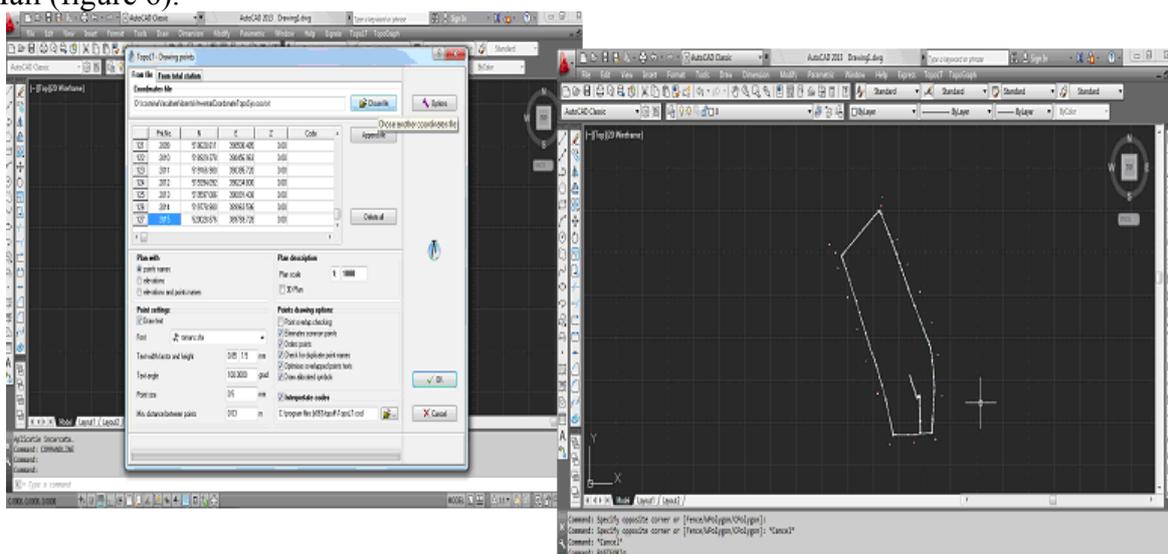


Fig. 6 The imports of the points coordinates and the representation of the measured objective

Based on the ownership sketch was done the division of the cadastral sector into the parcels, using "Multiple detachment" command of the TopoLT application. To each parcel it was assigned an ID (electronic identifier), unique for each parcel from the cadastral sector (figure 7).

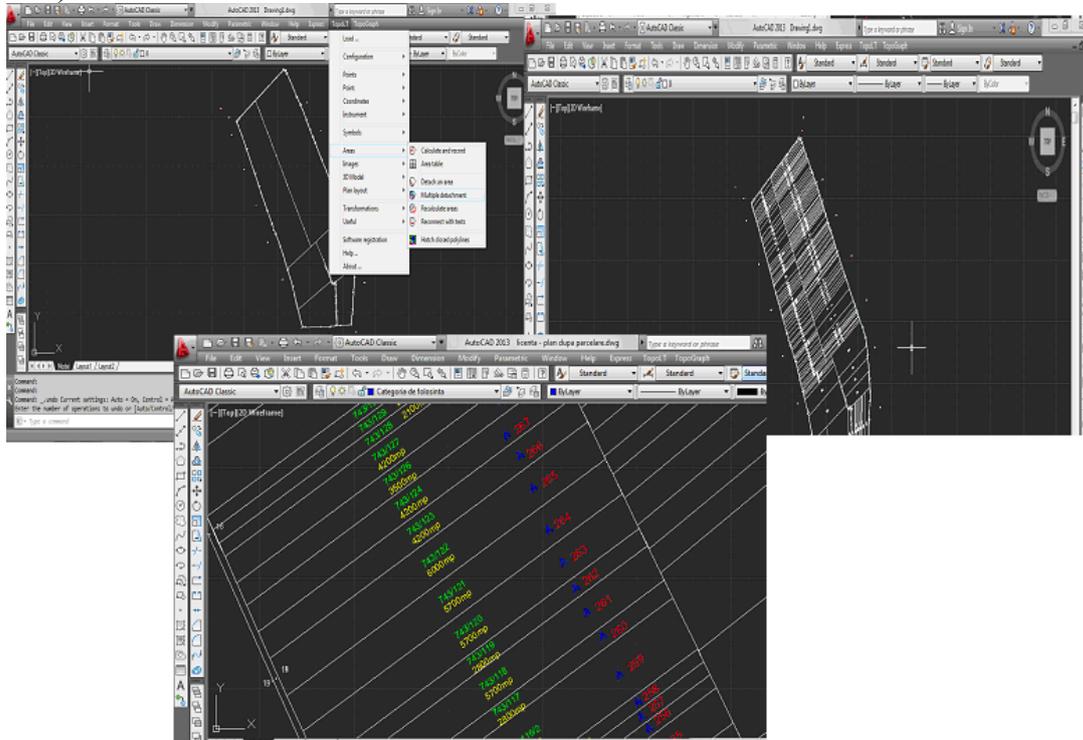


Fig. 7 The parceling of the cadastral sector and the numbering of the resulting parcels

## 2. 4. Drawing up the final documents of the systematic cadastre

The technical documents of the cadastre are drawn up for the cadastral sector which represents the subject to systematic registration and highlights the real technical and legal situation ascertained during the systematic cadastral work.

The final documents of the systematic cadastre are:

- the cadastral plan;
- the cadastral registry of the real estates;
- the data sheet of the real estate;
- the alphabetical index of the owners of real property rights;
- the CGXML files.

**2.4.1. The cadastral plans** - The cadastral plan (figure 8) was carried out with the program Autocad, version 2013. The overview cadastral plan at scale 1:2000 was achieved by "extracting" the items specified in the Purchaser's requirements from the database in which the entire UAT graphic is located (the UAT limit and neighborhoods, the limits and names of the intravilan, the boundaries and numbers of the cadastral sectors, the toponymy). All elements were created on separate layers. At the same time, elements such as title, grid, legend, name of the performer, etc. have been added. The cadastral plans were made and printed at different scales and formats so as to clearly distinguish the elements: ID, real estates limits, the owners, the category of use, the area, etc.

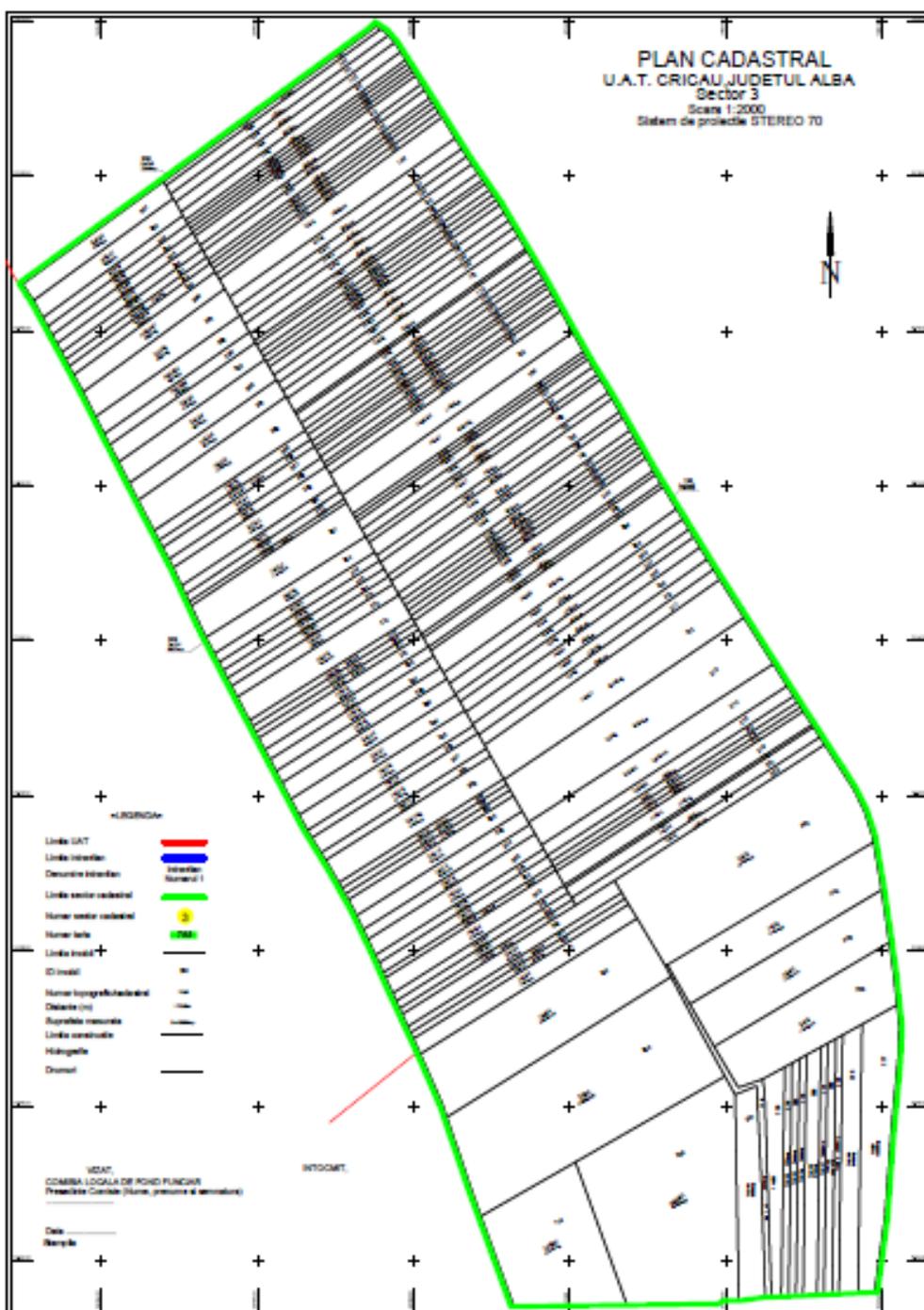


Fig. 8 Cadastral plan of UAT Cricău

**2.4.2. The cadastral registry of the real estates** - The cadastral registry of the real estates (figure 9) is drawn up on cadastral sectors and includes data related to: description of the real estates, data about the land, data about construction, property/possession, dismemberments of the property right, data about notaries/ processes/ prohibitions.

1. DESCRIEREA IMOBILULUI																	
DATE TEREN												DATE CONSTRUCȚII					
ID	Adresa imobil	Număr cadastral	Nr. CF	Supr. măsurată	Suprafață acte	Supr. deținută în plus	Intrav. / extrav. I/E	Nr. top.	Nr. tarla	Nr. parcelă	Categ. folosință	Identif. construcție	Cod grupă destinație	Suprafața construită	Nr. niveluri	Nr. CF	Constr. cu acte (DANU)
147				2071	2100	-29	E		65	1	A						

2. PROPRIETATEA / POSESIA													
Titularul dreptului / posesiei			Proprietar=1 / Posesor=0	Data nașterii / CUI	Domiciliu / Sediul	Cota parte	Entități asociate	Mod de dobândire	Act juridic			Preț	Obs. privitoare la proprietar
Nume / Den.	Inițiala tatălui	Prenume							Tip act	Nr. act / data	Emitent		
SUCIU		MARIA	1		Loc. Cricău, Jud. ALBA	1/1	Teren	Reconstituire	act administrativ	11406/1036 / 19.02.2001	CJPSDPAT ALBA		

3. SARCINI / DEZMEMBRĂMINTE						4. OBSERVAȚII ASUPRA IMOBILULUI			
Titular	Tipul sarcinii sau al dezmembrămintelor dreptului de proprietate	Tip act	Nr. act / data	Emitent	Valoarea ipotecă	Imobil împrejmuit / neîmprejmuit	Imobil, contestat / necontestat	Alte observații	
-	-	-	-	-	-	Neîmprejmuit			

5. NOTĂRI, PROCESE, INTERDICȚII	
Notare	Entități asociate
-	-

Fig. 9 The cadastral registry of the real estates

**2.4.3. The data sheet of the real estate** - The data sheet of the real estate (figure 10) includes data about the real estate and about the owner, namely: the UAT, the cadastral sector, the ID, the parcel number, the name and surname of the owner, the statement with the consent of the owner, the ownership/possession act.

**2.4.4. The alphabetical index of the owners** – The alphabetical index of the owners (figure 11) includes data related to: the name and surname of the owner, the date of birth/CUI, the ID of the real estate, the number of the cadastral sector, the address of the real estate, the area of the real estate, notifications.

**FIȘA DE DATE A IMOBILULUI**

UAT Cricău  
Sector cadastral 3  
ID imobil 147

**1. DATE TEREN**

Nr. Tarla/ stradă	Nr. parcelă/ nr. poștal	Suprafață măsurată	Nr. CF	Nr cad/ nr top	Împrejmuit/ Neîmprejmuit (Î/N)	Zona cooperativizată/ necooperativizată (Co/Nco)
65	743/6/4 A	2100				

Observații:

**2. DATE CONSTRUCȚII PERMANENTE**

Identificator construcție	Cod grupă destinație	Număr niveluri	Constr. cu acte (DA/NU)	Construcție condominiu (DA/NU)	Nr. bloc	Nr. total UI	Suprafață construită măsurată
CI							

Părțile comune:

Observații:

**3. PROPRIETATEA / POSESIA**

Nr. Crt.	Nume și prenume deținător/ Denumire persoană juridică	CNP/ CUI	Nr. act de proprietate/posesie	Observații
1	Suciu Maria	2701204011130	TP 11406/1036	
2				

Declarația titularului dreptului de proprietate:  
Subsemnatul **Suciu Maria** domiciliată în com. Cricău nr. 35 jud Alba posesor al CI seria AX nr 356012 eliberat de SPCLEP Alba la data 23.10.2012 declar că sunt de acord cu înregistrarea în cartea funciară a dreptului de proprietate asupra imobilului cu ID nr 147 Représentând imobilul cu suprafața de 0,2100 ha și cu amplasamentul stabilit conform înțelegerii dintre proprietarii imobilelor din sectorul cadastral nr 3.

Posezor/Titular drept de proprietate  
(nume și prenume, semnătura)

Reprezentantul Prestatorului  
(nume și prenume, semnătura)

Fig. 10 The data sheet of the real estate

Nr. crt.	Nume / denumire deținător	Data nașterii / CUI	ID	Planșa	Sector cadastral	Adresa imobilului	Supraf. in proprietate (mp)	Supraf. in posesie (mp)	Observatii deținător:
1	COMUNA CRICAU	4562508	303		3	;65-743/158	2800		
2	COMUNA CRICAU - DOMENIUL PUBLIC	4562508	138		3	;-744/2	7307		
3	COMUNA CRICAU - DOMENIUL PUBLIC	4562508	308		3	;-745	2245		
4	COMUNA CRICAU - DOMENIUL PUBLIC	4562508	309		3	;-741	5927		
5	COMUNA CRICAU - DOMENIUL PUBLIC	4562508	719		3	;65-742	3346		
6	PRECUP NICOLETA DIANA PERSOANA FIZICA AUTORIZATA	31544479	238		3	;-743/95/2	43933		
7	SENESAN NICOLETA DIANA "INTREPRINDERE INDIVIDUALA"	30517832	155		3	;743-743/14	10300		cu sediul in Galda de Jos
8	ADAM AURELIA		288		3	;65-743/145/1	2400		
9	ADAM PETRU		178		3	;65-743/36	3300		
10	ARDELEAN GLIGOR	06.12.1926	208		3	;65-743/63	5700		
11	ARDELEAN GLIGOR	06.12.1926	264		3	;65-743/121	5700		
12	ARDELEAN IOAN		261		3	;65-743/118	5700		
13	ARION AURELIA	07.04.1958	195		3	;65-743/51	3500		
14	ARION AURELIA	07.04.1958	241		3	;65-743/99	7000		
15	BABA ILEANA	28.12.1931	262		3	;65-743/119	2800		
16	BABA ILEANA	28.12.1931	263		3	;65-743/120	5700		
17	BABA STEFAN	06.08.1947	215		3	;65-743/69/2	5800		
18	BENICIAN ONISIM		151		3	;65-743/10	2400		
19	BOITOS PAVEL	22.05.1928	201		3	;65-743/56	2100		
20	BOITOS VALERIA		302		3	;65-743/157	2800		
21	CIOARA ELENA		218		3	;65-743/72	2500		
22	CIOAZA FLORINA-MARIA		251		3	;65-743/108	2800		
23	CIOCIU TEREZA ADRIANA	13.05.1938	239		3	;65-743/95/2	48600		
24	CIUBEAN GETA DOMNINCA	16.07.1952	156		3	;65-743/15	5700		
25	CIUBEAN GETA DOMNINCA	16.07.1952	304		3	;65-743/159	2800		
26	COMAN AURELIA		239		3	;65-743/95/2	48600		
27	COMANICIU ANA	30.09.1954	216		3	;65-743/70	3500		
28	COMANICIU SILVIA	06.03.1936	159		3	;65-743/19	5000		
29	COMANICIU VASILE	27.01.1975	216		3	;65-743/70	3500		

Fig. 11 The alphabetical index of the owners

**2.4.5. The integration of data and the generation of the CGXML file** - The “Generating CGXML” is an application developed specifically for the management of Systematic Cadastre data according to the requirements of the National Agency for Cadastre and Real Estate Advertising. To integrate data and generate CGXML files, data gathered from owners were entered into the CGXML application (figure 12). The insertion of alphanumeric data has been done in specialized cells for:

- general data relating to the real estates;
- general data relating to the parcels;
- constructions/ individual units;
- registration in the land book.

For the purpose of pre-validation of the input data, program creators added a special command to view the land book extract after completing the fields.

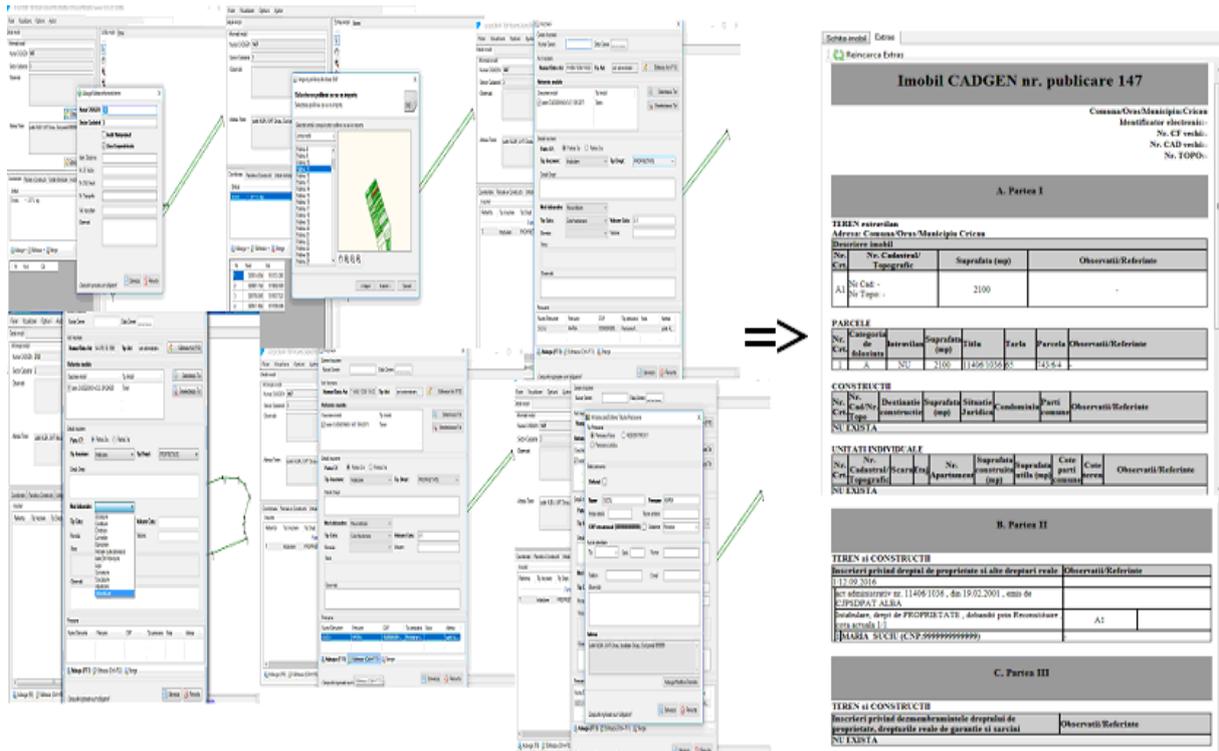


Fig. 12 Generating the CGXML files

### 3. Conclusion

Through a case study this paper aims to present the legal framework, the steps and the final documents of systematic cadastre. The cadastral sector taken into consideration is situated in Cricău, Alba County. For the introduction of systematic cadastre in the territorial administrative unit Cricău, Alba County were passed the following steps:

1. The collection and integration of datas;
2. Performing topographical surveys
3. The processing of the topographical surveys
4. Drawing up the final documents of the systematic cadastre (the cadastral register of the real estates, the alphabetical index of the owners of the real rights, the cadastral plans and the CGXML files).

Based the final documents of the systematic cadastre the real estate were registered in the land book.

### 5. References

1. \*\*\*, *Ordinul nr. 533/2016 privind aprobarea Specificațiilor tehnice de realizare a lucrărilor sistematice de cadastru în vederea înscrierii imobilelor în cartea funciară*;
2. \*\*\*, *Ordinul nr. 979/05.08.2016 Specificații tehnice de realizare a lucrărilor sistematice de cadastru pe sectoare cadastrale în vederea înscrierii imobilelor în cartea funciară finanțate de Agenția Națională de Cadastru și Publicitate Imobiliară*;
3. \*\*\*, *Ordinul nr. 700/09.07.2014 al Directorului General al ANCPI privind aprobarea Regulamentului de avizare, receptie și înscriere în evidențele de cadastru și carte funciară cu modificările și completările ulterioare*;

4. *\*\*\*, Legea cadastrului și a publicității imobiliare nr. 7/1996 cu modificările și completările ulterioare;*
5. *<http://www.ancpi.ro/pnccf/documente/ghid-utilizare-generare-cg.pdf>.*