

Cooperation between the Municipality and Cadastre on Land and Housing Policy

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Key words: cadastre, physical planning, illegal construction

SUMMARY

In an organized community, the cadastre is a multi-purpose register: unavoidable foundation for the records in land registers, for the physical planning, agriculture and a system of agricultural subsidies, environmental and nature protection, transportation, statistics and other fields of human activities. The long-standing neglect of the cadastre and land registers has led to the difficulties that we face in the independent Croatia while the awareness of the need to renew and improve the obsolete, destroyed and outdated records has taken a long time to mature.

The Town of Koprivnica was among the first in Croatia to recognize the rationale for investing in the development of the cadastre and the related land registry records so, along with other participants, it has jointed in the numerous activities in order to carry out joint projects such as the cadastre map digitization and the development of GIS for the town of Koprivnica, implementation of cadastral surveys over several cadastral municipalities and production of topographic and digital orthophoto maps for the area of the Town of Koprivnica.

All these projects have helped the town to build an efficient and sustainable system of physical planning and environmental protection while the interaction between the cadastre and the physical planning systems is increasingly present in numerous segments of the activities of the Town of Koprivnica. This paper describes the afore-mentioned projects and offers example on the use of cadastral data in the documents related to the spatial management created in the Town of Koprivnica.

The new laws whose provisions are related to the physical planning and construction increasingly interlink the activities of the cadastre and the town professional services. The Law on Treating the Illegally Constructed Buildings aimed at completely removing the illegal construction from the social practices is the law most recently passed. It assigns the most important role to the cadastre, land registries and local government bodies. The paper describes the past cooperation between the Town of Koprivnice and the cadastre in the application of the afore-mentioned law as well as the sensitive nature of the legalization process, as can be seen from the described shortcomings of the afore-mentioned regulation or rather the problems cased in practice by these shortcomings, as encountered by the Town of Koprivnica and the cadastre.

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1. INTRODUCTION

The real property registration in the cadastre and title registration in land registers serve as the foundation for legal security and functioning of any State and its economy so today the efficiency of these systems worldwide is brought in direct correlation with the ability and level of the economic growth of a particular community. Since Croatia has inherited obsolete and destroyed cadastral and land registry records that have not been updated, in the past ten years the Croatian Government has had to invest heavily in the reform of these systems: over EUR 66 million from the State budget, about EUR 27 million from the World Bank loan, over EUR 17 million from the EU assistance funds and over EUR 40 million from the agreements between the State Geodetic Administration and counties, towns, municipalities and publicly owned companies. The result of these efforts is clearly visible today. Both registers, cadastre and land registry, are fully digitized and available to everyone over the internet in the form of web portals (katastar.hr, pravosudje.hr, geoportal.hr,...) while the digital cadastre is becoming the basis for numerous geo-information systems and portals of the most varied organizations. However, the reform process will be completed only once these two records are merged and enabled to serve all the needs of the State, economy and citizens.

The town of Koprivnica has recognized very quickly the purpose of the reform implementation and offered its contribution to many big projects. By realizing these projects, the State Geodetic Administration has provided its cadastre offices with a set of new, updated and digitized spatial datasets that were given to the town of Koprivnica, as a Project stakeholder, to be used for the production of spatial plans and other spatial overviews required for the sustainable development planning. Since life constantly brings changes, such spatial planning documentations are subject to change so their modifications continue to be implemented with the participation of the State Geodetic Administration or rather cadastral offices at the local level.

Apart from reforming the old system and thoroughly regulating the issue of the adoption of physical plans and issuing construction permits, the new laws, whose provisions are related to the physical planning and construction (Law on Physical Planning and Construction and its amendments, Official Gazette no. 76/07, 38/09, 55/11, 90/11 and the Law on Treating Illegally Built Constructions, Official Gazette no. 90/11), also regulate the issue of legalizing illegally built constructions. Since the issue in question is a complex one, further cooperation between the municipal services and cadastre remains necessary in order to create good practice in the implementation of the afore-mentioned regulations.

2. CADASTRAL REFORM THROUGH COOPERATION WITH TOWN OF KOPRIVNICA

The Real Property Registration and Cadastre Project was initiated in 2003 and represents the biggest reform initiated by the Croatian Government in the past ten years. It has instigated the development and modernization of the entire land administration but the current status of certain cadastral offices is also the result of long-standing efforts invested in this field even before the start of the reform itself. The majority of cadastral offices, depending on their legacy (status of records, jurisdiction) and the support and understanding of the local government units and other stakeholders at the local level, has tried to find their own solutions to improve the data, introduce the modern technologies and generally to develop the entire system and service. Each project at the local level involving the cadastre has contributed to its development. The cadastral office in Koprivnica benefited from the town of Koprivnica being amongst the first to become aware of the fact that no community can enjoy a fruitful development without a modern land administration and faster information flow. The town has recognized its interest in investing in the cadastre and become involved in many projects together with the cadastre i.e. State Geodetic Administration having the jurisdiction over the cadastre. The first project was initiated fifteen years ago with the purpose of developing the geographical and information system of the town of Koprivnica, followed by cadastral surveys and the production of topographic and orthophoto maps.

2.1 GIS of the Town of Koprivnica

Taking into account the number of inhabitants and the area, the town of Koprivnica belongs to smaller towns in the Republic of Croatia but it is amongst the leading when it comes to the interest and responsibility for the environment, community and the town overall development. Therefore, it is not difficult to gather and motivate the town leaders to join in a project aimed at developing the cadastre and spatial data with the objective of developing a geographic and information system (GIS) for the area of the town of Koprivnica: a system that will enable the adoption of better developmental decisions. The project started in the early 1997 when the agreement between the town of Koprivnica, State Geodetic Administration and Koprivnica-Križevci County was signed stating the realization plan, financial modalities and the execution dynamics. The digital cadastral plan was selected as the system foundation. At that time, Croatia had just started digitizing cadastral maps and many people were still unaware as to the meaning of the “GIS” abbreviation so the realization of this project was a very demanding job. The lessons learned during the realization of this project have shown that, apart from ensuring the funds, great support is required from the highest ranking responsible persons in the community where the system was being introduced as well as great will and expertise of the team of people leading the project.

Today, this system is jointly used by the cadastre, town of Koprivnica, County Physical Planning Institute, electrical and utility companies of Koprivnica exploiting the ArcInfo program solution while some new applications have been created in the cadastre such as ArcGIS to maintain the digital cadastral map and ArcView to search the graphics according to the queries from the alphanumerical part of the cadastre.

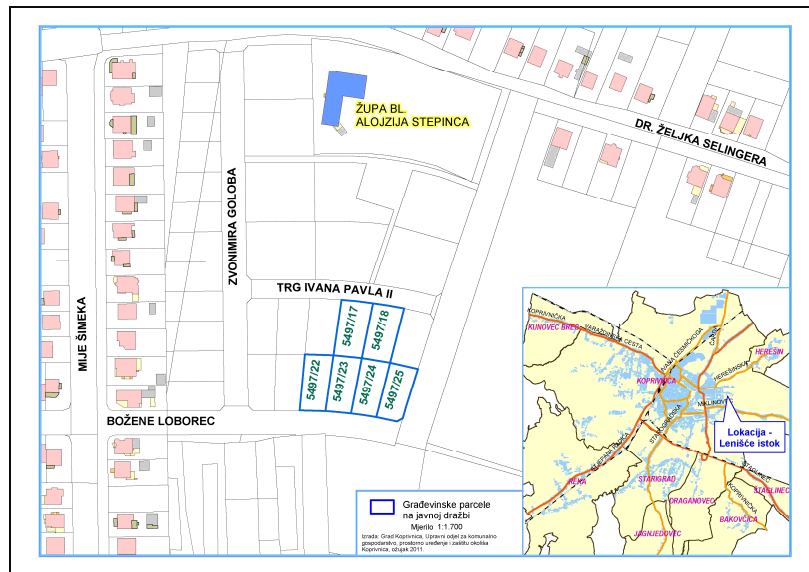


Figure 1 – overview of cadastral parcels owned by the town intended for auction

Figure 1 shows an example of how the system is used in the town of Koprivnica. By developing this system, new technological solutions have been introduced in the cadastre and with the system end users. Better and more efficient spatial data management has been enabled and professional education of many experts has been initiated so inventive and diligent experts are offered new chances.

2.2 Cadastral surveys in the area of the Town of Koprivnica

The town of Koprivnica is the regional centre of the Koprivnica-Križevci County covering the area of 9,150 hectares, divided into approximately 32,500 cadastral parcels and eight cadastral municipalities – Bakovčica, Glogovac, Herešin, Jagnjedovec-grad, Koprivnica, Koprivnički Bregi, Kunovec Breg and Reka.

Cadastral surveys in Croatia are, as a rule, carried out in the areas with over 30% of the cadastre and land registry data mismatching and not reflecting the status in the field. However, the cadastral survey project in the area of the town of Koprivnica has encompassed all cadastral municipalities having cadastral maps created on the basis of graphical surveys performed over hundred years ago, regardless of the percentage of the mismatching data. The cadastral municipalities of Koprivnica, Herešin and Koprivnički Bregi do not fall under this category because they already had cadastral maps created in the Gauss-Krüger coordinate system. The project of implementing cadastral surveys in the area of the town of Koprivnica started in 2003. Cadastral survey of the Jagnjedovec-grad cadastral municipality totalling 1,373 hectares was financed from the World Bank loan while an agreement between the town of Koprivnica, State Geodetic Administration and Koprivnica-Križevci County was concluded in order to finance the surveys in the remaining area, in the financing ratio defined by the State Survey and Real Property Cadastre Program for the 2001-2005 period adopted by the Croatian Parliament in 2001 for the entire territory of the Republic of Croatia. The area of the town of Koprivnica and the division into cadastral municipalities are shown in Figure 2.

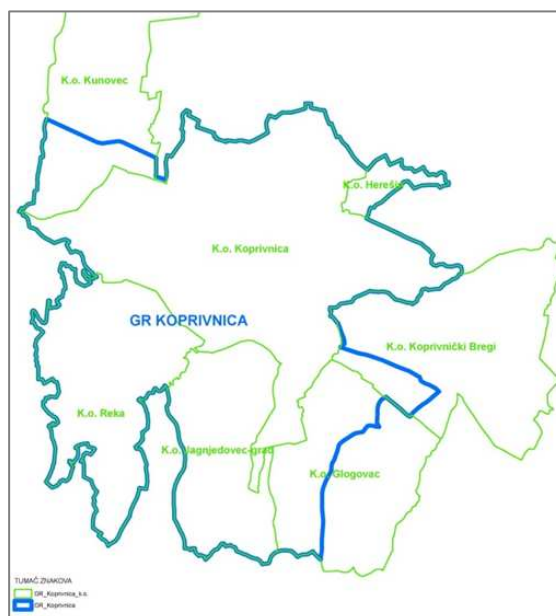


Figure 2 – Area of town of Koprivnica and division into cadastral municipalities

The supervision of the projects has been performed by the State Geodetic Administration and Regional cadastral office in Koprivnica. The result of the performed survey is accurate and reliable data on the area, form and position of cadastral parcels and the titles throughout the area of the town of Koprivnica while new boundaries of cadastral municipalities have also been determined and are now conformant with the border of the town of Koprivnica. Although the cadastral surveys in Croatia continue to be a laborious, protracted and very expensive process, it is, in the end, a profitable project, especially in the areas with highly developed management and real property markets such as the town of Koprivnica. Only such efforts result in the systematic cadastral and land register data renewal. The data obtained by resurveys reflects the actual property situation and the data in the cadastre and land registers is fully compliant. Schedule 1 provides clear indicators of the benefits. After the resurveys, the number of cadastral parcels and the fragmentation of the land were reduced but the number of registered buildings and the security in land transactions increased. (Unger, 2010)

Cadastral municipality	Area (ha)	Number of cadastral plots before resurveying	Number of cadastral plots after resurveying	Number of recorded buildings before resurveying	Number of recorded buildings after resurveying
Jagnjedovec-grad	1373	5953	3053	940	2600
Reka	1826	5251	2540	971	1921
Kunovec Breg	474	4067	2500	762	1510
Bakovčica	108	612	300	153	440

Schedule 1 – Illustration of cadastral resurvey results in the area of the town of Koprivnica

2.3 Production of topographic and orthophoto maps in the area of the Town of Koprivnica

Topographic and cadastral data is the basic data on space and serves to develop zoning plans and other spatial records. All such data cumulatively is decisive for the adoption of good decisions on the interventions into space and furthermore enables legal security in real property transactions, market development and overall economic development. Apart from the population, space represents the biggest treasure of any State so it has to be described in a high quality manner. For this purpose, the State Geodetic Administration has produced the following maps:

- Topographical map in the scale of 1:100000 (TK100)
- Detailed topographical map in the scale of 1:25000 (TK25)
- Digital Orthophoto map in the scale of 5.000 (DOP5)
- Croatian Base Map in the scale of 1:5000 (CBM5)
- Digital Orthophoto map for built areas in the scale of 1:2000 (DOP2)
- Spatial unit register (to the level of streets and house numbers)
- Digital cadastral maps in raster form
- Digital cadastral maps in vector form

In cooperation with the local and regional government units, the production of topographic and orthophoto maps has been envisaged as part of the State Survey and Real Property Cadastre Program for the 2001-2005 period adopted by the Croatian Parliament in 2001 for the entire territory of the Republic of Croatia. However, for its own purposes, the town of Koprivnica financed the production of digital black-and-white orthophoto maps in 1999, even before the adoption of this program. Thereafter, in accordance with the Program and in agreement with the State Geodetic Administration, it financed the production of the topographic map in the scale of 1:25,000 and thus obtained a topographic database for the entire area of the town.



Figure 3- DOP offering an overview of the existence of constructions prior to 21 June 2011

Furthermore, it purchased digital orthophoto maps in colour (35 sheets) in 2010 and in 2012 new digital colour orthophoto maps for the entire area under its jurisdiction. These maps were produced primarily for the purpose of enforcing the Law on Treating Illegally Built Constructions (OG 90/11) whose provisions introduced the possibility to legalize illegally built constructions that existed in the field prior to 21 June 2011. Since these maps are of recent date, they will be very useful for updating the entire physical planning documentation.

3. DEVELOPMENT OF AN EFFICIENT AND SUSTAINABLE PHYSICAL PLANNING SYSTEM

Croatia has a long-standing physical planning tradition but the approach to planning along with the political climate and the guidelines and objectives have experienced a thorough modification only after the change of the political system in 1990, and especially when the administrative physical planning and construction areas merged into a single system with the adoption of the new Physical Planning and Construction Act in 2007 and its amendments of 2009 and 2011 (hereinafter: PPCA - OG no. 76/07, 38/09, 55/11, 90/11). PPCA regulates the basic objectives, principles and role of the physical planning system and construction administrative area as well as the basic terms and spatial indicators used in a physical planning and construction administrative system. It defines the physical planning subjects and their rights and obligations with respect to ensuring the physical planning, monitoring and reporting system about the situation in the field (spatial data information system) as well as protected areas of special interest for the State and the basic requirements for their protection. The physical planning document system (levels, intention, content, significance, production financing, mutual compliance, production and adoption procedure, and modalities of public participation, availability) has been defined in particular. Physical plans determine the conditions of spatial regulation, define rational use, purpose, design, renewal and reconstruction of the construction and other zones, determine the conditions for improved urban reconstruction of developed areas, environmental protection and preservation of the environmental quality, cultural property and especially valuable parts of nature. The physical planning activity defined by PPCA is carried out by the Croatian Physical Planning Institute at the level of the State and physical planning institutes of counties and the City of Zagreb, set up as public institutions. Physical plans at the local level are adopted by local government units or rather towns and municipalities. Thus, the physical planning system fully reflects the national, regional (county) and local level with the obligation and need of the afore-mentioned institutions to cooperate vertically and horizontally.

3.1. Physical planning documents in the area of the town of Koprivnica

The physical planning documents at the local level are: physical plan related to a large city, town or municipality, physical urban plan and detailed zoning plan. A zoning plan is the basic physical planning document of any local government unit. The physical development of a large city, town or municipality or a part of the settlement is regulated in more detail by the physical urban plan or detailed zoning plan that must be developed in accordance with the

physical plan. All plans must contain the textual part with the provisions on implementing physical plans as well as the graphical part. The graphical part of physical plans is produced by using official datasets of the State Geodetic Administration. The more detailed the plan, the larger the scale in which the datasets are used. Thus, digital cadastral maps are often used in the production of the detailed urban plans or their parts. Figure 4 illustrates the detailed urban plan developed over the digital cadastral map (DCM).

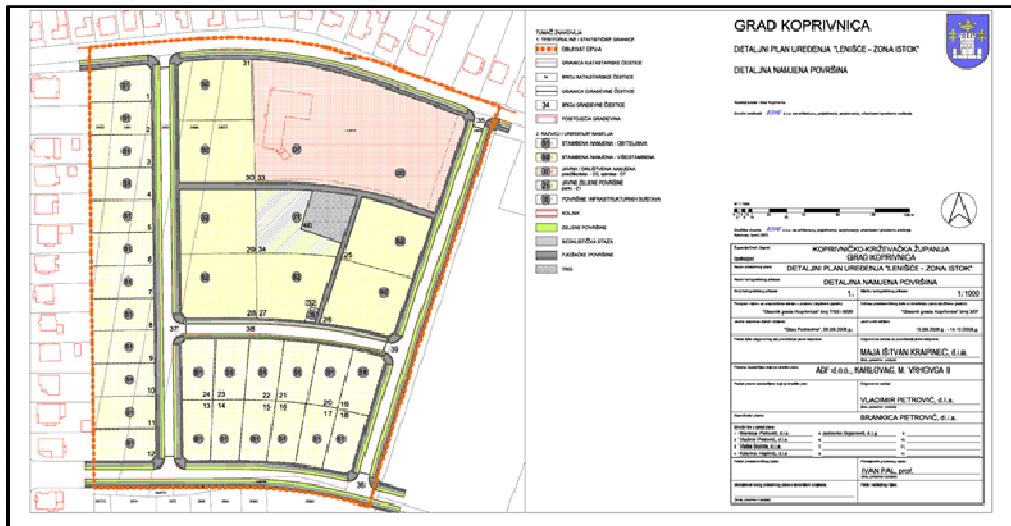


Figure 5 – Detailed urban plan on DCM

Due to the projects in which it has participated for a number of years together with the cadastre i.e. the State Geodetic Administration, the town of Koprivnica was well prepared for the adoption of its physical plans because it had relevant datasets.

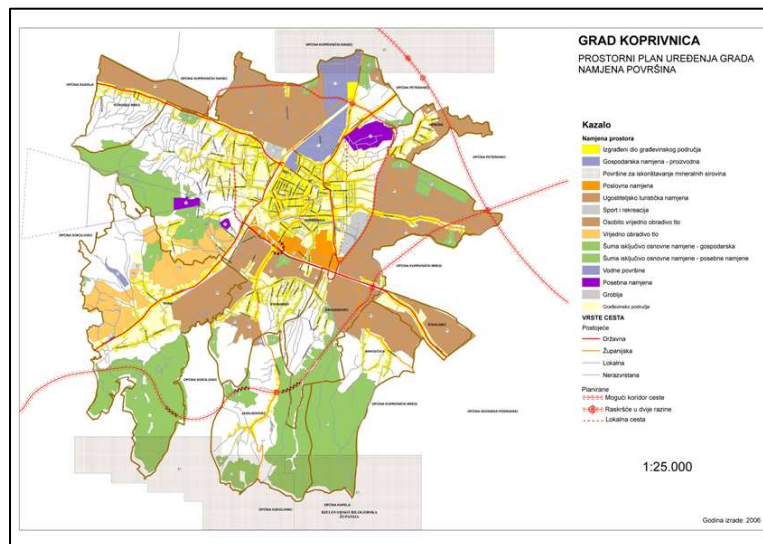


Figure 4—Detailed urban plan over the topographic map – TM25

Figure 5 illustrates a part of the physical urban plan and the land use produced in the topographic map in the scale of 1:25,000 (TM25).

In accordance with the PPCA, the town of Koprivnica has passed the physical urban plans (PUP) and plans for smaller areas i.e. detailed zoning plans (DZP). According to the old Physical Planning Act of 1994, it was possible to pass a general urban plan (GUP) for the entire area that, according to the new PPCA, may remain in force ten years after the adoption, although it has not been envisaged by the new PPCA. Schedule 2 shows which plans in the area of the town of Koprivnica are in force, when they were passed and where they were published.

PUP	Physical urban plan of the Town of Koprivnica	Town of Koprivnica Journal no. 4/06
GUP	General urban plan of the Town of Koprivnica	Town of Koprivnica Journal nos. 4/08 and 5/08 4/08. i 5/08.
DZP	Detailed zoning plan of urban block "Pri. St. Magdalena"	Town of Koprivnica Journal nos. 4/08 and 5/08 5/99. and 2/04).
DZP	Detailed zonong plan of the central urban block "Dubovac"	Town of Koprivnica Journal nos. 1/00. and 2/05,
DZP	Detailed zonong plan of "Lenišće-zone B-5"	Town of Koprivnica Journal nos. 4/08 and 5/08 4/04. and 3/07,
DZP	Detailed zoning plan "Zone A-11"	Town of Koprivnica Journal nos. 4/08 and 5/08 4/04.
DZP	Detailed zonong plan of "Lenišće-zone South"	Town of Koprivnica Journal nos. 4/08 and 5/08 2/05.
DZP	Detailed zonong plan of "Lenišće-zone East"	Town of Koprivnica Journal nos. 4/08 and 5/08 3/07.
DZP	Detailed zoning plan of "Cvjetna"	Town of Koprivnica Journal nos. 4/08 and 5/08 3/11.
DZP	Detailed zoning plan "Zone of central functions"	Town of Koprivnica Journal nos. 4/08 and 5/08 3/11.

Schedule 2 – Zoning plans adopted for the area of the Town of Koprivnica

3.2. Legalization of illegally built constructions

By adopting the Law on Treating Illegally Built Constructions – hereinafter: Law (OG 90/11), the Government has tackled the unpopular issue that has remained to be solved i.e. the issue of legalization of illegally built constructions. In the past period of the application of the Physical Planning and Construction Act, according to the data of the corresponding Ministry, 8,452 documents in total were issued about the developments until the end of 2010, out of which 78.8% involves the buildings whose area does not exceed 400 m² and the buildings for the performance of exclusively agricultural activities whose (gross) construction area does not exceed 600 m². Today it is estimated that the number of illegal construction in the Republic of Croatia totals over 150,000. The intention of the law makers was to facilitate with the Law

the legalisation of illegally completed residential buildings as well as agricultural commercial buildings. The conditions and procedures stipulated by the Law open up the possibility to legalize illegally built constructions that are, with regards to their purpose, size and location on the parcel, in line with the physical plan enforced on the date of enforcing this Law but also legalizes the buildings that are in contravention to the physical planning documentation provided that they existed prior to 21 June 2011. The provisions of this Law stipulate also the areas where the illegally completed building cannot be legalized under any conditions such as national parks, area of special water protection regime, agricultural lands marked as „particularly arable“ etc. The Law also regulates that, in order to keep the illegally completed building in space, it is necessary to pay the remuneration and a part of the remuneration will be allocated to implement a special program that would further regulate the land administration issue i.e. complete the initiated surveys and renewals of land registers and implement new ones in the areas where, due to poor state of cadastral and land registration records, have more obstacles in implementing numerous investments.

Great responsibility for implementing the Law resides with the cadastre, bodies in charge of urban planning and land registries. Very rigorous are also the legal consequences of enforcing the Law because the recording of a flag in the land registers on the existence of a construction document or a document legalizing a building proves its legality and prohibits title transactions for illegally built constructions. At the outset of the Law enforcement, all of the afore-mentioned services faced problems because of gaps in the Law so it was necessary to pass procedural guidelines for the bodies in charge of the cadastre, urban planning and judiciary. The procedure to legalize a building is initiated by a request to pass a decision on the development that a party submits to the body in charge of urban planning, supplemented by a geodetic report recording the data on the building. After the decision on the development has been passed, the cadastre records the building in the cadastre municipal documentation and informs the land registry about it.

3.2.1. Geodetic report to record buildings for the purpose of obtaining as-built decisions – gaps in the Law

Geodetic reports to record the data on buildings enclosed to the request for issuing an as-built decision, according to Article 8 of the Law on Treating Illegally Built Constructions, are performed by the persons authorized to perform the State survey and Real Property Cadastre operations, according to the Law about the Performance of Geodetic Operations (OG 152/08), while the cadastre performs a review and authentication of such a report according to the Law on State Survey and Real Property Cadastre (16/07 and 124/10). The content and form as well as manner of producing, reviewing and authenticating a geodetic report to record the data on buildings are stipulated by the Rules and Regulations on Subdivision and Other Geodetic Reports (OG 86/07, 25/09 and 148/09) which apply during the processing of geodetic reports to record the data on buildings, as stipulated by the Law on Treating Illegally Built Constructions. The purpose of such reports is to obtain an as-built decision, records a building in the cadastral municipal documentation, records a building in the land registers and a flag in the land registers marking that the as-built decision has been enclosed for the registered building.

However, upon the enforcement of the Law on Treating Illegally Built Constructions, it became obvious that the decision on the development would not be passed only for the buildings not registered in the cadastre and land registers so the question was put forth with regards to the content and form of the geodetic report for the purpose of obtaining the as-built decision for the buildings already registered in the cadastre but not in the land registers or for the buildings already registered both in the cadastre and land registers. In order to standardize the practice, it was necessary for the State Geodetic Administration to pass instructions on the content of such reports. According to obtained instructions for the afore-mentioned situations in which a building is already registered in the cadastre, a survey sketch and area calculation must be enclosed to the geodetic report to obtain an as-built decision, for the purpose of being able to determine whether the building already registered in the cadastral municipal documentation fits the building that exists in the field. If the survey sketches and area calculations indicate that the building is already registered, it is not necessary for the geodetic report to contain the parts (application reports) serving to register the building in the cadastre or land registers.



Figure 6 – Illustration of identical building in the cadastral map, survey sketch and DOP

Figure 5 illustrates a digital cadastral plan put over a digital orthophot map indicating that the building, for which the as-built decision is being issued, existed in the field prior to 21 June 2011 (a precondition stipulated by the Law on Treating Illegally Built Constructions) and the survey sketch which is an integral part of the geodetic report to record the building in the cadastre and serving to draw the situation on the cadastral map.

3.2.2. As-Built Decision –gaps in the Law

The present legalization of buildings has been implemented in accordance with the Physical Planning and Construction Act, stating as a precondition that the completed building is in line with the physical plan implemented in the area in which it is located and that it has access to public areas. The Law on Treating Illegally Built Constructions enables legalization of buildings that are in contravention to the physical planning documentation but the ensured road access remains a requirement. The most frequent problem that arises in practice is the issue of ensuring the road access of unstipulated width or not having a public status. It is not necessary that the access to the construction parcel is public but it is important how the area in question is recorded in the cadastre. The gaps in the Law have been noticed when determining whether the built construction is in accordance with the physical plan provisions and the evidence of technical resistance and stability. It is not clearly determined what happens if it turns out that it is necessary to perform certain interventions on the building in order to meet the condition of mechanical resistance and stability. No works are allowed on illegally built constructions so it is not possible to conduct in parallel the procedure of issuing an as-built decision, and to carry on the works in order to ensure mechanical resistance and stability. When determining whether the intervention is conformant, it is double-checked whether the purpose, size and location of the building on the parcel match. It is not double-checked whether there are sufficient parking lots, percentage of green areas, roof tilt. It is important to underline that illegal construction also goes hand in hand with unproven quality, lacking design of the buildings, take-over and subdivision of agricultural parcels as well as illegal utility lines to the infrastructure.

4. CONCLUSION

Updated and efficient registers on the real property and titles represent the basic precondition for the smooth functioning of the real estate market and realization of projects without administrative obstacles. It is encouraging that today we do not need to convince anyone in Croatia about the need to invest in the regulation of land records and in the fact that such investments represent a profitable move. Towns, municipalities, State and all economic stakeholders need better spatial datasets for their development projects. The example of a small-town community such as the town of Koprivnica illustrates that the selected development pattern, based on high quality spatial data to be maintained by an efficient and modern land administration, is the best foundation for the overall town economic development. The land administration reform continues with the implementation of the special program for the real property cadastre establishment to be passed pursuant to the Law on Treating Illegally Built Constructions. Croatian economy carries a great burden of recession and financing of an expensive public sector but, despite of this, the State and especially the local communities book increased interest and responsibility for the cadastre and land registers as well as for further implementation of systematic measures to improve these two records. The future goal of the State Geodetic Administration is to update, merge and standardize the presentation of topographic and cadastre data and products and to extend the availability of its services and data, taking into account that the geodetic and cadastre data and works are alpha and omega of every spatial development and progress..

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Since 1990 Croatian Geodetic Association, memberim

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Conferences

TS04J - Land Policy and Reform I, 5653

13/13

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Cooperation between Municipality and Cadastre on Land and Housing Policy

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statement:

Warsaw, Poland	GIS Polonia, Geographical Information Systems International Conference, 15 - 17.10.2001. (author, theme of papers: Cadastre in the Project Gis for the Town of Koprivnca)
Zagreb, Croatia	Second Croatian Congress about Cadastre, 24 - 26.10.2001. (co author, theme of poster: The Role of Cadastre in the Developing of GIS)
Split, Croatia	Gis Odyssey 2002, Geographical Information Systems International Conference, 2 - 6.9.2002. (co author, theme of poster: Four Years of Running GIS in Koprivnca)
Zagreb, Croatia	Third Croatian Congress about Cadastre, 7 - 9.3.2004. (co author, theme of papers: The Cadastres Role in Geodesy)
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Sibenik, Croatia	Gis Odyssey 2006, Geographical Information Systems International Conference, 3 - 7.9.2006. (co author, theme of poster: Efficient GIS Solutions)
Opatija, Croatia	Regional Conference on Cadastre and Land Administration, 8 - 10.6.2008. – participant
Becici, Montenegro	Impact of EU Legislation on Cadastral Operations, 20 – 22.10.2008. – participant
Sydney, Australia	FIG Congress 2010, Facing the Challenges Building the Capacity 11-16.4.2010. (author, theme of papers: Cadastre Involvement in Sustainable Development as an Essential Component)
Becici, Montenegro	3rd ^h Regional conference for Cadastre, 28.9. – 30.10.2008. – participant
Bled, Slovenia	4 th Regional conference for Cadastre and Spatial Data Infrastructure 8 – 10. 6.2011; participant by presentation: NMCA implementing Cadastre 2014 - where is Croatia?
Ilida, Bosnia and Herzgovina	2nd Congress on Cadastre in Bosnia and Herzegovina 28.9 – 30. 9.2011. - participant

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June 2002 - Town of Koprivnica, Head of Department

Memberships:

Since 1998 Croatian Architect Association, member

Conferences statement:

Split, Croatia Gis Odyssey 2002, Geographical Information Systems International Conference, 2 - 6.9.2002. - participant

Sofia, Bulgaria “Old town, city models with sustainable development in cities”- Conference organized by Association of Town and Municipalities of Bulgaria, Center for Culture and French Institute of Sofia.- presenter, theme: European Mobility Week Award

Opatija, Croatia Second Congress of Architect, 2008. - participant

Split, Croatia Third Congress of Architect, 25-27.11.2010. - participant

Zagreb, Croatia National workshop of project „From Estonia till Croatia: Intelligent Energy saving Measures for Municipal Housing in CEE – INTENSE“
2010 - presenter, theme: Technical aspects of energy saving in buildings.

Pecs, Hungary Conference on Operational urban development, 19.05.2011. – participant

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