Effects of e-Cadastre in Land Administration in Kosovo and in Other Post Conflict Countries

Murat MEHA, Kosova

Key words: Land cadastre, land registry, WebGIS, post conflict area. KCLIS

ABSTRACT

The aim of this article is the short analyze of cadastre situation before the war in Kosovo, while the main aim of analyze will be cadastre establishment and functionality.

The cadastre importance for the civil society all over the world is too important.

The post conflict countries usually are from socialist system, communist and from undeveloped countries. This understands that these are countries in transition process where is certainly necessary cadastre reform. Hereupon these are countries that were not in the democratic system, and the treatment of property was not in the adequate level.

The main role of e-cadastre in Kosovo is the process of cadastre reconstruction of data system for cadastral units. These data gives different opportunities of use for stable and resistant development.

The article should analise and give answers in some issues regarding the progress and stabilization of cadastre in Kosova and in post conflict countries. There is important to identify how is the situation of Laws on Cadastre in the countries before and post conflict, how these could be changed and how much they will be applied (implemented) short or long term period, how long did it take to register formal and informal transactions in cadastre, if it is possible, which is an actual status of cadastral data immediately after the conflict, why we should insist for development of e-cadastre in the post conflict areas, how to avoid misuse property and corruption.

Maintenance and development of e-cadastre is with the multipurpose values in post conflict countries, in the privatization process. The digital cadastral data and access in the Kosovo Cadastral Land Information System (KCLIS) through internet (certainly based on approved laws) and for the interested parties wherever they are creates insurance, stability and possibility for the interested parties to return in their birthplace.

While analogue cadastre offers possibility of data use for one case, e-cadastre offers citizens possibility of use in many ways. The principles of modern digital cadastre are with a lot of priorities from traditional one. In the same time e-cadastre creates important benefits for state and for the owners. Modern technology and WebGIS for development of e-cadastre is not so high costs and it is acceptable also for the lower budget for the countries in development or this technology is provided from the support of different donators.

The earned experience for cadastre from the countries in post conflict period should be used for the future where except the above-mentioned elements there will be lower costs and short time for stabile e-cadastre.

TS 50 – Conflicts and Land Administration   1/11
Prof. Meha Murat
Effect of e-Cadastre in Land Management in Kosovo and in Other Post Conflict Countries

Shaping the Change
XXIII International FIG Congress
Munich, Germany, October 8 – 13, 2006

Effects of e-Cadastre in Land Administration in Kosovo and in Other Post Conflict Countries

Murat MEHA, Kosova

1. INTRODUCTION

Kosovo is a territory with 10 988 km^2, with about two million inhabitants, in central part of Balkan region see fig.1. Status of Kosovo is not yet defined but since 1999 Kosovo territory is under UN administration.

United Nations and its organizations find important to support and develop undeveloped world as it is in Africa, Asia, Latin America and in post conflict countries. This is in order to accelerate their economic growth and social development. As a result of UN/FIG working relations several joint events, conferences, symposiums, workshops, were organised and many publications were issued in the past dealing with land management activities, land administration etc.

As one of the most important events, Commission 7(Cadastre & Land Management) with author of this article together with Kosovo Cadastre Agency and UN/HABITAT organised a joint symposium in Geneva, Switzerland in 2004, see *FIG/Commision 7, Proceedings "Land Administration in Post Conflict Areas" Geneva 2004.*

Fig. 1. Position of Kosova in region

TS 50 – Conflicts and Land Administration   2/11
Prof. Meha Murat
Effect of e-Cadastre in Land Management in Kosovo and in Other Post Conflict Countries

Shaping the Change
XXIII International FIG Congress
Munich, Germany, October 8 – 13, 2006

The United Nations Interim Administration Mission in Kosovo (UNMIK) was established on June 10th 1999 by United Nations (UN) resolution 1244, which was tasked with rebuilding the administrative framework and assuming responsibility for the promotion of peace and democracy as well as the provision of justice and security

Main objectives of UNMIK and Provisional Institutions of Self Government of Kosovo (PISG) were to establish and achieve:

- ❖ Consolidating the democratic structures of Kosovo;
- ❖ Increasing the transparency and efficiency of the administration;
- ❖ Improving educational standards for inhabitants of Kosovo;
- ❖ Improving the quality of the health services for inhabitants of Kosovo;
- ❖ Promoting economic development and international economic cooperation;
- ❖ Increasing employment;
- ❖ Establishing pension insurance & social assistance for vulnerable groups;
- ❖ Integrating all ethnic communities into Kosovar society.

Obviously achieving those targets is alleviated by using new ICT tools and potential on harnessing the efforts of all concerned institutions and individuals

2. CURRENT STATUS OF e-GOVERNANCE IN KOSOVA

First of all is important to explane current status of e-governance in Kosova as post conflict area than to pass to e-cadastre. Electronic governance or e-governance is an instrument of the information society in the form of governance principles, strategies, systems and means that enable usage of ICT (Information and Communication Technology) in a reciprocal activity between the main society actors – state, citizens and businesses – in empowering of democracy and support to development. Communicating with citizens through ICT, means they are considered government clients and not objects that are being governed. This brings governments closer to the citizens and empowers democratic governance as a whole.

In the Public Administration system in Kosovo, introduction of information technology, especially at the central level, was quite surged after 1999 and especially after establishment of first government institutions. However, lack of a unique strategy for ICT development in country was a weakness, effects of which are very apparent now.

According to the UNMIK Regulation no. 2001/19, Department of Information Technology (DIT) within Ministry of Public Services (MPS), sets the standards and services that should be used by the Provisional Self - Government Institutions in Kosovo and coordinates the security of information technology services.

Government telecommunications network that is being run by the DIT at the MPS includes government institutions in Prishtina, a number of agencies and Municipal Assemblies, Prime minister's Office, all ministries and a number of other government agencies. This network is mostly based on an optical network, while two Ministries are connected through microwave

Prof. Meha Murat
Effect of e-Cadastre in Land Management in Kosovo and in Other Post Conflict Countries

Shaping the Change
XXIII International FIG Congress
Munich, Germany, October 8 – 13, 2006

network. Also, in the microwave network of 2MB capacity, are connected five municipalities, while of 64Kbps another 12 municipalities.

DIT has at its disposal internet access with a band of 10 Mbps. Internet access is centralized for all institutions connected to the government network (more than 3.200 computers), Government telecommunications network at the central level offers good opportunities for development of e-services, while it remains imperative its expansion to all government institutions. Some of the services that function in the liaison infrastructure Municipality – Centre are as follows: Internet, government e-mail, cadastre, the application of the Ministry of Finance and Economy (free balance), etc.

According to the DIT – MPS standards, in the Kosovo government, as standard software are considered Microsoft products. Therefore, operations systems are based on Windows operations system, for servers - Windows 2000 and Windows 2003 Server, for desktops - Windows 2000 and Windows XP, for data bases - MS SQL Server 2000, for Office Applications - MS Office XP and 2003 and for mail Server: Exchange Server 2000, 2003. Beside those, different institutions also use specialized applications: e.g. Tax Administration, Cadastre, Customs, Treasury, BPK, the Budget, Payroll, Salaries, etc.

Until now, there was no integration of government services in Kosovo and offering them through government portal for the citizens and businesses, while some improvement has been made by some of the Kosovo institutions such as the Kosovo Assembly, some of the Ministries and municipal governments. However, most of them can only offer information to the citizens while other phases of government-citizen, government-businesses interaction are in process of development but are not yet functional [1].
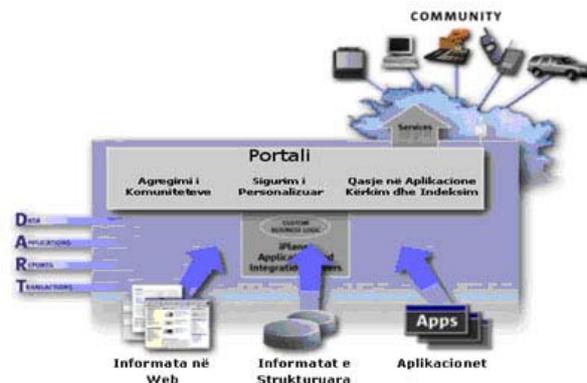*The system of e- governance is to be supported by Portal* which is shown on fig. 2.

Fig. 2. The Kosovo Government portal

The Kosovo government portal, www.ks-gov.net, for the moment does not offer online service but functions only as a web page through which we can transfer to the web pages of other government institutions [7]. Kosovo Municipal web pages (ex. www.gjilani-komuna.org), offer enough information on the work of municipal offices and enables citizens to download different forms, but they also lack two-sided circulation of information.

Prof. Meha Murat
Effect of e-Cadastre in Land Management in Kosovo and in Other Post Conflict Countries

Shaping the Change
XXIII International FIG Congress
Munich, Germany, October 8 – 13, 2006

At the local level, in most Kosovo municipalities, specific Intranet application is installed and used by all employs enhancing communication inside the institution, enabling fast exchange of information, digitalizing citizens' requests and offering faster services for the citizens and businesses. The level of intranet usage in the Kosovo municipalities is on the rise and the municipal administration is aware of the benefits that this kind of software provides.

The legal infrastructure for implementation of e-governance in Kosovo are prepared and approved:
- Project-regulation No. 2001/19, which, among other, gives to MPS but also to MTPT obligations and responsibilities regarding the e-governance:
- Administrative directions and policies approved by MPS;
- Laws and other directions that touch the area of e-governance approved by the Ministries or other Agencies.
- Laws and directions that are missing and that have to be drafted and approved in order to enable e-governance.

While directions and Laws that are near completion as obligations that were taken from the Kosovo government for approval of the Law Strategy according to the obligations for Kosovo membership in SEE on 1 July 2005:

- Approval of National and UNMIK Strategy for development of information society
- Creation of bodies at the government level or its equivalent for development of Information Association according to the unified model of Terms of Reference prepared by the eSEE Working Group (deadline: March 2006)
- Legal framework for electronic signature (e-signature)   (March 2006)
- Legal framework for electronic business (e-Commerce)   (March 2006)
- Law on electronic crime (cyber-crime)   (June 2006)
- Law on telecommunication   (completed in 2003)
- Law on protection of personal data   (June 2006)

Citizens access to Internet, landline and mobile phone system – In order to be able to offer e-governance services, main condition is levitate level of access of citizens and businesses to the internet. Kosovo still has a low level of access to internet of its citizens (11%), compared to countries candidates for EU accession (17.3%). Internet access of the institutions is at a satisfactory level, while citizens and business access is still low [1].

Landline telephony – Up to now, the only landline telephone operator in Kosovo is PTK which offers services for around 120 thousand users of landline telephony (5.6%). The landline telephony network is in the process of modernization applying digital technology, optic fibres and SDH system. Prishtina network already offers use of Lease Lines service, ISDN line etc. The capacity of the landline telephony network foresees to expand to 450 thousand ports, while currently it includes 100 thousand ports.

TS 50 – Conflicts and Land Administration   5/11
Prof. Meha Murat
Effect of e-Cadastre in Land Management in Kosovo and in Other Post Conflict Countries

Shaping the Change
XXIII International FIG Congress
Munich, Germany, October 8 – 13, 2006

Mobile telephony – Currently in Kosovo exists only one national company offering services of the mobile telephony GSM Vala 900 which uses the European technology standard GSM. Mobile Operator GSM Vala 900 has over 300 thousand users or over 16% penetration.

Internet services – Currently there are three big companies that offer internet services and more than ten smaller local companies that operate in this area. Conditions are also created for investments of foreign companies that want to compete. For further advancement and development of e-governance, the PISG has undertaken as their responsibility taking care about access, content and capacity and partnership.

Access; New ways of empowering participation of citizens in the process of decision-making and creation of partnerships between the ICT sector to offer access to rural regions as well as promotion of public and private services [9].

Content & Capacity; Advocating preparations of the local contents and applications that are web based, in the interest of the end users, advocating new types of private-public contents and focusing in using the ICT in distribution of public services and governance systems
Creation of national and regional capacities through trainings, creation of networks and teams of science workers, experts and training institutions as well as of professional associations to promote and advance the e-governance agenda

Partnership; Funding ICT, including direct foreign investments, online public services (e-services) and relevant applications of e-governance, distribution of new services from the private sector with information and selection support based on digital signature, technology penetration of Information association, production and achievements in traditional and other sectors based on knowledge and new technologies and e-learning.
Obviously well planning and strong coI are very important elements, but, there is required financial capability to follow the plans of investments which creates uncertainty and creates delays on reaching goals in most of developing countries.

3. e-CADASTRE IN LAND ADMINISTRATION IN KOSOVA

New ways of empowering participation of citizens in the process of decision-making and creation of partnerships between rural and urban regions as well as promotion of public and private sectors. All GIS and land administration activities have been very much affected by the IT development in Kosovo. GIS data and LIS (Land Information System) in digital form are as base to start with e-governance. Textual and graphical cadastral database is in digital format and most used products are INTERGRAPH itf files products and shape files from ESRE.
The Law on Cadastre defines that cadastral data are public with the restriction to the information about owners and a property. This restriction refers to the public and excludes Official Administrations (Courts, Cadastral Offices) and the owner of the respective property itself. 30 Municipalities Cadastral Offices (MCO) as local authority are going to link with the main Authority for Geodesy and Cadastre is Kosovo Cadastral Agency (KCA) [5], [6]. There is established direct link or e-cadastre between KCA and 8 MCO-s. The project foresees to

TS 50 – Conflicts and Land Administration   6/11
Prof. Meha Murat
Effect of e-Cadastre in Land Management in Kosovo and in Other Post Conflict Countries

Shaping the Change
XXIII International FIG Congress
Munich, Germany, October 8 – 13, 2006

link other 22 MCO-s in a network in due time [2]. Network of KCA and MCO–s is presented below on fig. 3.
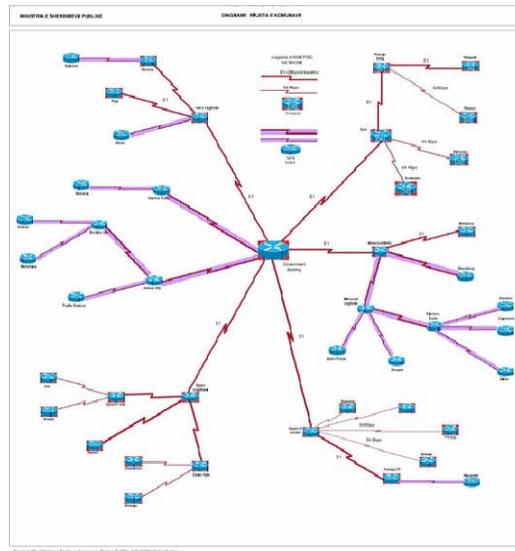

Fig. 3. *KCA networking plan for linking all 30 MCO-s*

Beginning of analog Immovable Property Right Register (IPRR) is since January 2005 than it's started being populated with digital data. Since January 2005 until May 2006 there were **29374** applications. MCO-s staff responsibility is to register all cadastral changes regarding properties. KCA connection with MCOs enabled improved data quality and quality control at the same time reduced timeframe for data updates. Short statistic about IPRR (cadastral units) and mortgages records is shown in the table below.

Applications	IPRR	Mortgages	Total
1. Approved:	18116	4673	22789
2. Refused:	151	1	152
3. In Process:	6225	208	6433
Total:	**24492**	**4882**	**29374**

Requests for IPRR & Mortgages in period January 2005 - February 2006

Institutions and others in Kosovo will have the possibility to use digital cadastre and property right data from Kosovo Cadastral Land Information System (KCLIS) in their own operational systems through WEB access. WebGIS is prepared first to start with three cadastral zones, (by end of June 2006), providing:

1. Basic GIS functionality in a Web browser (IE)
2. Integrates IPRR and KCLIS data in one system
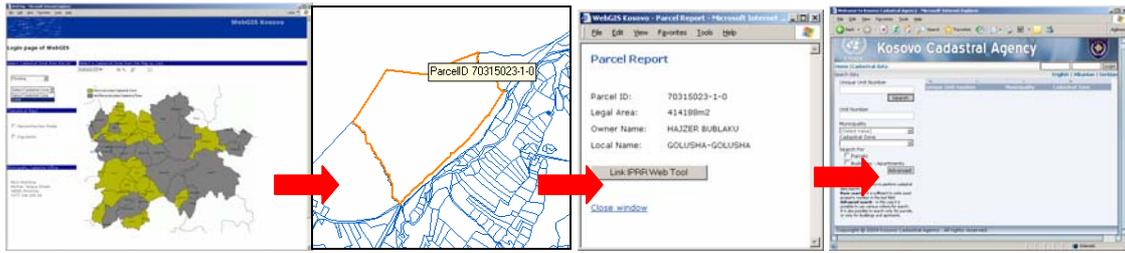3. Cadastral Data Viewer as user friendly Web interface

Prof. Meha Murat
Effect of e-Cadastre in Land Management in Kosovo and in Other Post Conflict Countries

Shaping the Change
XXIII International FIG Congress
Munich, Germany, October 8 – 13, 2006

Fig. 4. Link of database and presentation

Application user's access right to the e-cadastre is at different level such as:
1. Authorized users - with unlimited access to cadastral data
2. Paying users - of private sector - limited access to property data but right for uses of geographical information
3. Public users - with restricted access to property data and use of geographical information

Data Access restrictions, fees and Charging Procedure are foreseen in law on cadastre. WebGIS supports development of a data interface between the Land Cadastre, controlled by KCA and the other registers from MCOs, which provide useful data to different institutions. As digital cadastre KCLIS and IPRR are functional, they are first to be included in WEBGIS. The final result shall be an operational IPRR with possibility to distribute digital geographical and textual data from the KCA to institutions in Kosovo for use in their operations.

The Orthophotos below as digital cadastral and spatial records has to be made available on WebGIS fig.5.

Fig. 5. Cadastral data from digital Orthophotos 2004

Distribution system for geographical data from the KCLIS will include resellers and Internet options. This sub-component will support more efficient use of data and development of

Prof. Meha Murat
Effect of e-Cadastre in Land Management in Kosovo and in Other Post Conflict Countries

private sector involvement with cadastral works. This distribution system will complement the textual data distribution system.

Development of a comprehensive information system, based on cadastral data in the context of e-cadastre and e-Government (with decentralized data maintenance and central data access) is a step towards creation of National Spatial Data Infrastructure (NSDI).

4. e-CADASTRE WITH ACCURATE SURVEY

Digital cadastre need to support cadastral system with accurate positional records of land units and ownership relations. This accuracy has to be fulfilled during the regular maintenance of cadastre based on cadastre guidelines which are in use [1]. The existing cadastral records obtained by different sources (digitizing cadastral records, maps, measurements) and by different measurements periods (from 1957, 1978, 1983 1997 etc) created big gap between their probability and accuracy. Uncertainty is typical in rural and urban area but somewhere errors were unqualified. Improving e-cadastre as a modern concept should provide :
- updated data on a daily basis with possibility to do analyses in time,
- simplify digital data distribution with required accurate,
- simplify approach to maintained data.
The success of using digital cadastre in survey processes is very important for post conflict area, because of, they would have cadastral data and records in old – classical coordinate system, which miens all that have to be transformed in a new system. The same situation was in Kosovo after the recent war when we (international and local staff) developed new co-ordinate system with GPS technology based on EUREF system [4], [5]. Cadastral offices will accept itf. file, but also other formats (e g. dxf, shape file etc.) are appropriate for use.

SUMMARY

Digital data are necessity for land administration and are to be used from spatial planning down to implementation of the all pilot projects and projects. The development of e-cadastre in Kosovo is in progress. In principle, the technical elements are there and in use. Main projects for the cadastre: Reconstruction of Cadastre and Building Construction Cadastre which are ongoing should be available as landonline. It's mentioned above that the processes of sustainable development requires sustainable infrastructure, sustainable legal and institutional framework and operational land administration.
In countries that emerged from war or conflicts during the last decade, e-governance has added importance for easing reconstruction of country after severe destructions, on establishing contacts and guaranteeing properties to the property rights as well as for other services to the population scattered in and out of the country.
e-cadastre creates opportunities for return of the citizens to their place of origin, enables creation and visualization of relevant documentation of entire territory and especially for their property and areas where the documentation was missing or has been damaged.

Establishment of the national system of cadastral data for Kosovo increases opportunities for a stable and sustainable economic development. In this context, integration of those databases into a central database would provide for greater synergies between different institutions and

TS 50 – Conflicts and Land Administration   9/11
Prof. Meha Murat
Effect of e-Cadastre in Land Management in Kosovo and in Other Post Conflict Countries

Shaping the Change
XXIII International FIG Congress
Munich, Germany, October 8 – 13, 2006

increase efficiency in government work. It means that GIS, data visualization and e-cadastre as part of e-governance, offers us to think globally and act locally which will be important government policy in this area.

REFERENCES

[1] KCA 2004-2005, Annual reports of KCA

[2] KCSP,   2005.:   Kosovo Cadastre Support Project for period 2005-2007,

[3] Lorenz, J. 2004.: Map Server Prototype WebGIS Kosovo: www.kca-kosovo.org,

[4]Meha, M. 2004, "Progress of the cadastre in Kosovo FIG Commission 7", Annual Meting, Clermont-Ferrand, France, 8-14 September 2004

[5] Meha, M., "IT and Cadastre in Kosova". Regional World Bank Conference, "IT and Procurement Aspects of Land Administration Projects", 10-11 March 2005. Zagreb, Croatia

[6] Meha, M., "The Analyses of Trends and Vision of e-Cadastre in Kosova", LANDnet Conference, Activating e-community on Land Market related Fields in   CEE Countries, 9-10 May 2005, Budapest.

[7] Meha, M., "Cadastral Maps and GIS for Kosovo sustainable Economic Development", International Cartographic Conference, 9-16 July 2005, Coruna, Spain. (ICC2005)

[8] Meha, M. 2006.:   Short study of e-Government status in Kosova, International Workshop on **"e-Government and its Spatial Dimension"** Organized by**:** South-East European Research Center (SEERC/www.seerc.info), CITY College (www.city.academic.gr), URSIT Ltd (www.ursit.com) Sofia, 9 & 10 June 2006

[9] 2004-2006,   Ministry   of   Public   Services,   reports   and   materials.

BIOGRAPHICAL NOTES

Prof Dr.sc Murat Meha (03 December 1956) is Professor in University of Prishtina- Kosovo since 1988. He has high experience in survey, cadastre, Land Administration and Land management.
Education:
1. University of Zagreb Croatia, September 1976 - July 1980,
2. University of Zagreb Croatia, December 1984 October 1988, Master of Geodetic Sciences.
3. University of Tirana Albania, September 1996 – March 1999, Doctorate degree of Geodetic Science.

Membership of Professional Associations: Kosovo Association of Geodesy
From February 2003 to May 2006 was Chief Executive Officer of Kosova Cadastre Agency.
   Team leader of projects:
- Aerial photography of whole territory of Kosova in 2004.;
- Kosovo Cadastre Support Project 2 which is ongoing.
- Upgrade Immovable Property Right Register (IPRR)

Scientific professional activities of Mr. Meha are in the high level in region and abroad. Till now he had published two University books, one book translation, two

TS 50 – Conflicts and Land Administration   10/11
Prof. Meha Murat
Effect of e-Cadastre in Land Management in Kosovo and in Other Post Conflict Countries

Shaping the Change
XXIII International FIG Congress
Munich, Germany, October 8 – 13, 2006

books for Kosovo Cadastre Agency and some school geographic atlases, more than 65 science professional papers on Survey, Mapping and Cadastre, and Land Administration. Most of those articles can be found in Internet. Active participation in international associations and different institutions for Survey, Cadastre and Land Administration as in: FIG, EuroGeographic, WPLA, CELKCenter ICC, FAO etc.

CONTACTS

Prof. Dr. sc Murat MEHA
Department of Geodesy,
Faculty of Construction and Architecture
University of Prishtina
38000 Prishtina,
KOSOVA
Tel. mob: +377 44 120 958
E-mail: mmeha@yahoo.com

TS 50 – Conflicts and Land Administration   11/11
Prof. Meha Murat
Effect of e-Cadastre in Land Management in Kosovo and in Other Post Conflict Countries

Shaping the Change
XXIII International FIG Congress
Munich, Germany, October 8 – 13, 2006