

## **Case study on using new technology for the Cadastral Systematic Registration in the Republic of Kosovo**

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An efficient property and credit market will benefit from systematic smooth running and reliable immovable property information system. If moreover the system in public domain is computerized data from it will be readily available to all interested parties. Therefore real property rights must be registered and the information easily accessible. The authorities should guarantee the content of register and its transparency is strong basement that will support faster economic development of our country. Nowadays in the world are ongoing many cadastral reforms and efforts, as the traditional cadaster systems, however can no longer meet the high standards set by sustainable development and there is a need to adapt other successful new approaches for this development.

Having in the consideration that the Republic of Kosovo is a new state which is very keen on improving and strengthening toward stronger economic development, one of the main components to achieve this development are the activities related to the land administration and its management. Based on the actual situation in the field and official records in the cadastre in Kosovo there is a discrepancy in this information. Kosovo Cadastral Agency with the continuous support from the World Bank through the project for Real Estate Cadastre and Registration (RECAP) is carrying out the systematic registration activities of reconstruction of cadastral information. This activity consists of public awareness campaign, data collecting from the field, their analyzing and processing until their final registration in Kosovo Cadastre Land Information System (KCLIS). This activity which has started from 2010 is realized until now in more than 150 Cadastral Zones in 16 Municipalities. In this process Kosovo Cadastral Agency has increased the knowledge and experience and it is ready to check out for the new other technological possibilities to carry out the procedure of reconstruction of cadastral information faster, more accurate and with lower costs.

Based on the quote from Allesandro Annoni which says: *“Sharing data is the first step, but only when we really share people, knowledge, and resources will we achieve our ambitious goals”*, the working teams of experts from Kosovo Cadastral Agency supported from the experts from the World Bank have been working together in sharing their experiences, knowledge and technological resources in order to achieve the goals and objective on using data capture technology “Unmanned Air Vehicle” (UAV) and “Open Source Software” (OSS) in a pilot project in two different areas in Kosovo, one is more urban and second more rural area.

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This pilot project is being implemented in two phases, where the first phase has consisted on production of orthophotos using UAV technology. This phase has started on December 2015, where for one cadastral zone the process is repeated on April 2016, because of poor weather conditions during the December. The second phase has consisted on data collection from the field through OSS and whole process of reconstruction of cadastral information in these two cadastral zones is completed by September 15, 2016. Beside this two Cadastral Zones the pilot project has produced orthophoto with high accuracy for one archeological site with area of 20 ha and also for one part of under construction highway from Prishtina to Skopje with area of 80 ha. The idea of this task was to test faster solutions for decision making, using high resolution geoinformations.

The objectives of pilot project:

1) Analysis and comparison of the accuracy of geospatial data obtained from orthophoto (with UAV) with data obtained through the method directly from the field with classic conventional methods. A pilot project was conducted in two cadastral zones with the aim of including an urban area and a rural area. Cadastral Zone of Krusha e madhe, Municipality Rahovec as a rural area and part of the Cadastral Zone Ferizaj as urban area. For these two cadastral zones are created orthophoto involving about 1,500 hectares of land area. After processing of orthophotos, there it is compared the accuracy of this orthophotos with the data collected with conventional methods to give us an idea, giving results over expectations in the efficiency of time and economic of this technology. Therefore this analysis has helped KCA to come to the conclusions on the use or not of orthophotos at this level in the cadastre.

2) The second aim was the use of Software Open Source (OSS) for data collection of parcels, buildings and the owners/users. This is realized by direct contact with the citizens of the cadastral zones, where they themselves have been key components of this process by identifying their properties and providing first-hand information on cadastral parcels. The use of this technology has been an easy access for the citizens, especially for women in identifying their properties accurately and more easily.

3) Legal support and dissemination of information for registration of their properties for the cadastral zone residents of Krusha e madhe, especially for women, has gone through the following steps: a) Mapping and recording land at the community level. (b) work within the Kosovo Cadastre Agency to analyze the (historical) cadaster documents and legal impediments for registration (for example missing Inheritance documents), (c) Provide information and advice to the Krusha e madhe residents about their rights, and (d) Developing a methodology to update / complete the official registration

This paper will show achieved results and will give conclusions and recommendations on faster and cheaper collection of information from the field through preliminary signalization of parcel boundaries in the field, creation of orthophotos, creation of maps and registration rights directly based on information from the community, where all these recommendations will facilitate and improve greatly on new projects of reconstruction of cadastral information in the Republic of Kosovo.