



THE KATUNS – RURAL BUILDINGS AS A PERSPECTIVE OF SEASONAL MOUNTAIN SETTLEMENTS IN MONTENEGRO

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SUMMARY

Rural buildings play a central role on the environmental characteristics of the extra-urban land. They accompanied in the centuries the development of agricultural activities of the man who was so able to breed cattle, to grow and yield crops, and to store, transform and process agricultural products in a functional and efficient way, working into intensive conditions, so being unaffected by the external climate. On the other hand, construction built by the farmer-man marked the territory, influencing and steering the spontaneous development of nature, while leading to production that enabled humanity to get food.

The Montenegrin katuns constitute a special example of rural buildings; used as seasonal settlements, they are organized in areas of mountain pastures for summer cattle grazing. Even if in most case they were abandoned during recent years - since people living there moved to more comfortable residences within urban settlements - their contemporary potential for preserving traditional cattle-raising procedures and dairy products, rich cultural-historical heritage and perspectives of organized tourism activities, appears a very intriguing task to be approached.

With the aim to valorise Montenegrin katuns, in the present paper a first approach was proposed, through the implementation of a Geographical Information System aimed to a survey about the current situation. This first step could pave the way for future possible planning of their restoration, within the general framework of a concerted approach aimed to their safeguard and the general sustainability of the areas where they are located, fighting the progres-

sive abandonment of rural land. The exploitation of their unexpressed potential in the sector of tourism usage, together with cultural heritage, rich tradition and old infrastructure, would therefore reveal an efficient way for their valorisation. Articulating their place within the course of modern development of Montenegrin approaching the EU, would be a step towards enriching common European heritage with one of the most recognizable country's traditions.

Agro-tourism offers indeed new opportunities for enjoying the agricultural land in close contact with naturally untouched landscapes. It enables to appreciate some traditional aspects that the new industrialized modern society may have forgotten. The opportunities that an agro-tourism farm may offer are so many and differentiated, going from the tour of the dairy farm, nature trail and flower gardens, farm animals, the traditional local genuine agro-food products, whose preparation can be personally observed, often coupled with the opportunity to taste and buy them, until the role of the farm as a location for educational farming. The agro-tourism in Montenegrin katuns may therefore encourage economic development through sustainable use of natural and cultural resources. Additionally, all the above mentioned opportunities could help in the development of environmentally friendly tourism, which is growing three times faster than those choosing mainstream trips.

Key words: *Katun; rural building; cultural heritage; historical heritage; agro-tourism*

INTRODUCTION

Rural buildings are living witnesses of how humans have populated, in harmony with the natural elements, the agricultural land, joining the agricultural production needed for human nutrition with the control and care of extra-urban territory [Dal Sasso & Caliandro, 2010; Picuno P., 2012; Van der Vaart J.H.P., 2005]. The interventions made by the man strongly influenced then the agricultural environment and the visual perception of its landscape [Hernández et al., 2004; Picuno et al., 2011; Statuto et al., 2013; Tortora et al., 2015]. As in many cases all over Europe, and more specifically in the Mediterranean area, these factors led to the realization all over the centuries of many buildings that, designed in order to satisfy their main agricultural role, now constitute a widespread heritage of unrivaled architectural value, that should be taken into the highest consideration during the landscape planning [Fuentes et al., 2010; Statuto et al., 2014/a; Picuno et al., 2015].

A very interesting example of farm building is that one constituted by a temporary settlement, widespread over some Mediterranean mountainous regions, where the agricultural households stay with livestock during the summer season, most frequently for 4 to 5 months (*i.e.*, typically from the end of May or beginning of June until October). Movement from the villages to the mountains is also known as vertical transhumance or nomadic pastoralism. The main purpose is to use mountain pastures for rearing of farm animals for producing traditional milk and meat products, which is the main source of income for these households. Similar buildings take locally specific names in different Mediterranean countries, *e.g.* “malghe” in Italy [Scarascia-Mugnozza et al., 1996; Scarascia-Mugnozza et al., 1998], or “katuns” in Montenegro.

In Montenegro, the katuns are a unique social-cultural resource of the Country which should be preserved and revitalised via implementing new activities to enable them to become distinctive and attractive tourism destinations. There were quite strong non-return rules for using mountain pasture in the whole country. All villages (clans) had precisely defined areas for founding the summer settlements - the katuns. The katun's way of livestock rearing presented the dominant way of conducting this activity throughout the entire Montenegrin history. Even the name of the country itself came in colloquial use after the "katuns of Montenegro", area on the western slopes of Lovćen mountain, where the local population was bringing the livestock for summer grazing even in the 14th century. During all this time, katuns and the adherent area presented the most important parts of the economical life of central Montenegro. The importance of the amount and quality of grass on pastures led to a strict territorial demarcation of which pasture belongs to which katun, having often been followed with the use of weapons in the case of its violation. On internal side, the most important rule treated the right of clan member to build the cottages freely within the district of the katun belonging to clan, while denying this possibility to any other. Although the social atmosphere has dramatically been changed since the introduction of these rules, building of new housing facilities dominantly follows their inertia even today. With changes in Montenegrin society during the XX century, this kind of economy has been constantly decreasing, resulting in depopulation of the rural areas and complete abandonment of the most distant ones. Consequently, mountain pastures and katuns are used at much lower scale and the mountain as a whole.

Traditionally, livestock production has the highest economic significance (more than 50%) in the Montenegrin agricultural sector. Due to high percentage of meadows and pastures in the total agricultural area (around 90%), the Montenegrin livestock sector is dominated by rearing of ruminants. The cattle breeding with 84,701 heads in 2012 is the largest sub-sector of the livestock production. Sheep breeding (207,047 heads in the same year) is characterized by semi-extensive way of production, mainly in the North of the country. Goat breeding is also an important sector, especially in the karst areas (Central and South Regions). Poultry and pig production are weak primarily due to lack of domestic production of animal feed. Hence, utilisation of the vast areas of natural resources (mountain pastures) is closely linked with the traditional way of rearing livestock (ruminants) during the pasture season at the mountains where katuns are located. Trends in size of sheep and cattle populations are anyway decreasing. During the sixties of 20th century Montenegro had about 600,000 heads of sheep. Since that period intensive industrialization led to a drastic reduction of the total sheep population. Only during last 20 years sheep population had been decreased by 53%, from 480,000 heads in 1991 to 227,000 heads in 2010. These trends are reflected directly to the katuns - significantly smaller number of sheep and cattle are moved to the katuns during summer season. In spite of that, in many parts of the country, traditional livestock systems still survived. Transhumance or moving livestock from permanent settlements to the summer pastures in mountains is still practised in all of the municipalities of the northern part of the country and also widely used in the Central region (Podgorica, Danilovgrad and Nikšić), and even in some coastal municipalities like Hercego Novi and Bar.

In terms of buildings, the Montenegrin katuns' settlements (fig. 1) include different types of wooden or stone structures - cottages (local names: *koliba*, *glada* or *stan*) for household

members, mainly without electricity and water, where traditional production of milk and cheese is still in few cases going on. According to the most recent estimations, there are at least n.1.000 katuns in Montenegro, of which a significant number is still used, but at a much lower scale (smaller numbers of households with reduced numbers of animals use those resources). Noteworthy, the households in katun can earn significantly. Total income of one household (with 100 sheep and 5 cows) from production of dairy products during 100 days in katun is up to 10.000 euro, including incomes from marketing of livestock for slaughtering, while production costs (in cash) are very low and do not exceed 1.000 euro. By practising that way of livestock production, the rural holdings contribute to maintenance of the mountain pastures and reduction of the negative effects of abandonment of the pastureland. However, there are many underutilized pastureland resources, including some non-used for many years. Preserving mountain pastures and transhumance is also important for preserving the nature and rural heritage. The implementation of a suitable planning tool would be therefore very useful as a knowledge basis for the consequent formulation of sound policies and actions aimed to the valorisation of this very interesting farm building heritage.



Figure 1 A Montenegrin katun

Geographical Information Systems (GIS) are very powerful tools for developing and implementing tourism programs able to diversify and reinvigorate local economies

[Beedasy & Whyatt, 1999; Parolo et al., 2009]. In some countries, especially in Europe, tourism development strategies have combined agriculture and tourism to create agro-tourism, developing a GIS based model that maps the spatial distribution of rural buildings [Baskerville, 2013; Romano et al., 2015; Statuto et al., 2015/b]. The first step in this research involved the identification of location-based factors that may influence agro-tourism development based on the building valorization. This was accomplished through a survey of the literature and associated topics such as general tourism, rural economics, travel research, and geographic information systems. Secondly, a comprehensive geodatabase of agro-tourism operations in the rural area was developed. The resulting geodatabase contains for each building their corresponding location, the relation with infrastructures, land cover, morphology, vegetation, etc. In recent years, there have been numerous examples of Geographic Information Systems utilized for suitability modeling, which is commonly used to identify the best location for an agricultural enterprise and the surrounding context. Using GIS in the decision making process helps reduce the risk of failure and creates opportunities for efficient marketing and advertising.

MATERIALS AND METHODS

In order to verify the typological characteristic, building condition and status of use of Montenegrin katuns, an analysis was conducted in order to identify the most popular features of these buildings, in order to assess the possibilities to restore them, converting them to an agro-tourism use. This new way for offering tourism in a sustainable way, in fact, is in close agreement with the new EU Strategy for the Adriatic and Ionian Region (EUSAIR), a macro-regional strategy adopted by the European Commission and endorsed by the European Council in 2014. One of the main four pillars of this new EU macro-regional strategy is concentrated in sustainable tourism (<http://www.adriatic-ionian.eu/>).

Study area

There are several quite compact mountain areas with recognizable type of katuns, Durmitor mountain area (so-called Durmitor ring), Kuči mountains, vast area of Sinjajevina mountain, Bjelasica mountain, Morača mountains including Lukavica, the katuns in Berane (Mokra planina), Andrijevica, Plav (Bogičevica), Rožaje municipalities and many others dispersed through the country. Each of them has many specificities or particular characteristics.

For the purpose of this article, the “Mountains of Kuči” area was selected (fig. 2), thanks to its social aspects (richness in cultural heritage, customs related to the life in the katuns, tourism attractions, architecture, *etc.*) and certain positive trends in development of agriculture (sheep and cattle rearing and production of specific dairy products, as well as new sectors of agriculture like growing of potatoes, buckwheat, cereals, *etc.*).

The “Mountains of Kuči” area is located in the eastern part of Montenegro, containing the parts of Komovi and Prokletije as well as whole Žijevno mountain’s massif. Geographically, it covers c.ca 220 square kilometres. In the mentioned mountains, there are some 20 peaks of 2000m and higher. The southern part (Žijevno massif) is more rugged, rocky terrain, with Bosnian pine (*munika*) in higher and some beech forests in lower parts,

while the middle (Crna planina – Maglić – Širokar) and northern (Komovi) range are characterized with larger pastures and beech forests. In this area, there are two significant glacial lakes (Rikavačko and Bukumirsko) two streams (Opasanica and Verušica) that create the Tara river and one (Vučji potok) that flows into it. According to the existing data, this area is also rich in diversity of plant and fungal species which could be valuable for commercial use and benefits for rural populations. Best management practice is necessary to be established, in order to provide balance between commercial usage and needs for protection (sustainable management). Due to landscape characteristics, this area is becoming very popular among the backpackers of all kinds, being situated in the nearest vicinity of the Podgorica and its transport, infrastructure and logistic facilities. The tourism development here is aimed on following two directions – further promotion of the existing activities from the domain of active – adventure tourism, as well as introducing the agro tourism as a new category.

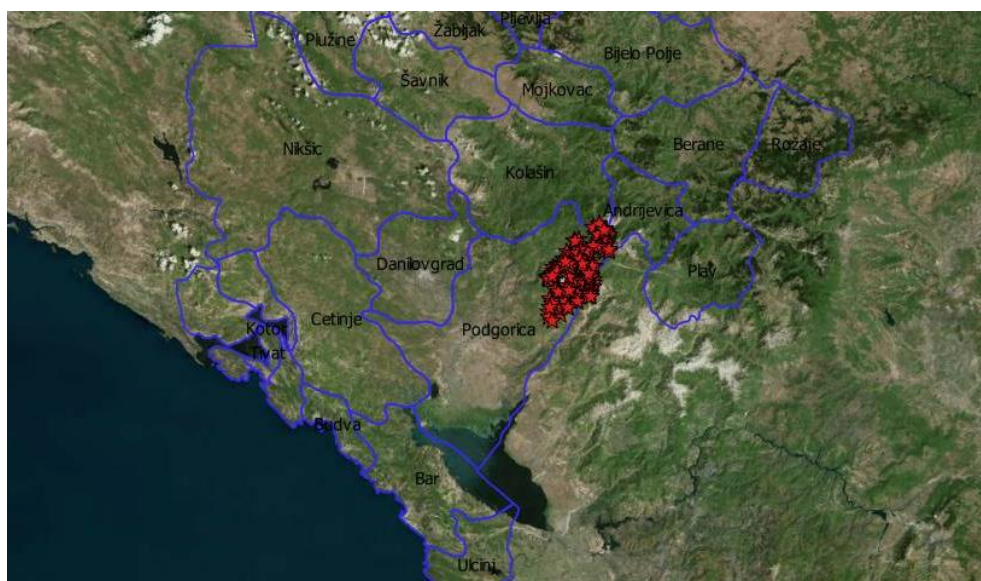


Figure 2 Study area in the Kuči mountains and distribution of selected katuns

Geographical Information System

Spatial data analysis was conducted with a Q-GIS software using Bing Aerial Maps, the katuns located in the study area were identified and a geo-database was implemented. It is possible to consider other parameters like roads, administrative boundaries, vegetation and geomorphology. These data were extracted from an on-line geodatabase [www.gadm.org] that allows the possibilities to download the administrative boundaries and other geographical parameters. The variables were combined into a GIS model to produce maps portraying the location of katun that can be used for touristic purposes. The maps generated with this GIS-based model can be used by farmers considering starting an agro-tourism enterprise on their farm or by state-wide economic and tourism development entities.

RESULTS AND DISCUSSION

The resulting geo-database contains for each building its location, the relation with infrastructures, land cover, morphology, vegetation, *etc.*

To promote the natural heritage for touristic purpose, some step in the GIS analysis were identified:

- Identification of the position of katun;
- Selection of the most stimulating points of interest;
- Creation of a geo-database, whose attribute table is represented by points of interest;
- Insertion of the points of interest in the GIS (with auxiliary level of information);
- Creation of exemplificative maps useful to describe the territory.

In order to promote the communication and to contribute to tourism development, the results of the present work consist on the creation of an innovative GIS database specially designed; this should be considered as a method/instrument for the representation of the territory and the identification of particular point of interest. This instrument allows appreciating from a cartographic point of view the distribution of the type of natural heritage, some parts of the old roads, some rural buildings and farms.

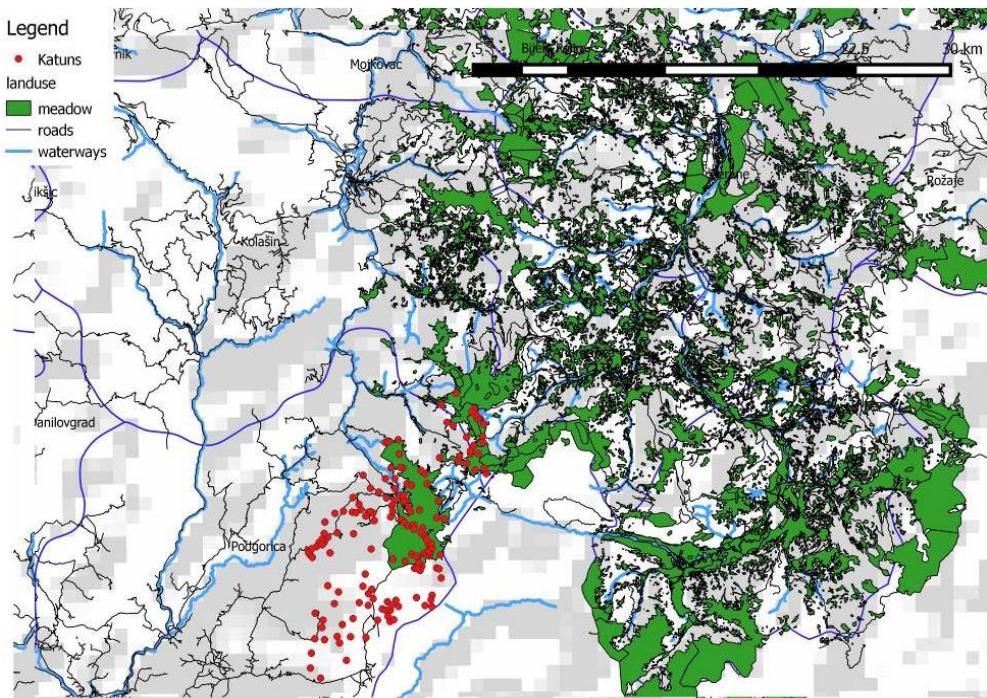


Figure 3 Natural vegetation and katun distribution

Main result of the present work is the map that was produced through the implementation of the Geographical Information System (fig. 3), showing the localization of the katuns, in close connection with the road system and the waterways. The dominant vegetation is constituted by meadows, that play an active role for the livestock activities and for the dairy production, since the characteristics of vegetation can influence indeed the smell of dairy products, through the feeding chain of the animal that are bred there [Manera et al., 2001]. The limited distribution of road network, the presence of natural vegetation, the mountain aspect and the absence of urbanized area are all important characteristics that constitute an unexpressed potential in the sector of tourism usage. Tourists that visit this place have the opportunity for enjoying the natural landscape, to visit the farms, taste local products, and take part into the agricultural practices. In this natural landscape, there is also the chance to taste some of the “forgotten” national specialties.

CONCLUSIONS

The geodatabase presented, that is the results of the territorial analysis with the support of a GIS System, represents an instrument for safeguarding the territory (Statuto et al., 2014) and promote katun buildings for touristic purposes. It is a consolidated practice for sustainable and alternative tourism which would be enlarged and completed with more useful information in the next future.

Livestock production, particularly rearing of ruminants, is the only rational way of valorisation of less favoured areas and prudent tool of preserving the cultural landscape of the katuns. In addition to its economic and nature conservation role, agriculture is also important for its social component and the katuns settlement value. Integration of nature conservation measures into development of the katuns is for sure an important contributor to the concept of the ecological state, proclaimed by the Constitution of Montenegro.

Since sustainable tourism is one of the pillars of the EU Strategy for the Adriatic and Ionian Region (EUSAIR), a plan for the identification and cataloguing of katun through the implementation of ICT tools as a GIS and a Decision Support System may reveal a fruitful way for implementing suitable actions aimed to the valorisation of rural building heritage all over this area, so contributing to the protection of natural resources and stimulating at the same time the local economies.

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