Ethnozootechny a Component of Geoeconomy

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Abstract

The multicultural Banat Euroregion is a well-defined space in terms of its geography, climate, economy, culture and also animal raising. The geoeconomy represents a branch of international relations, being positioned at the intersection between economic sciences and geopolitics and thus being a pluridisciplinary subject. Studying the relation between man-animal-environment, ethnozootechny offers information regarding the breeds, which are raised in Banat, the lifestyle of various rural communities, supporting the geoeconomic strategy in the Euroregion. Geoeconomy aims at raising the economic competitiveness in Banat. This paper is based on the results obtained over the course of many years of scientific research conducted by the authors. In order to develop eco-bioeconomically during the 2014-2030 period, the Banat Euroregion must be interested in forming a rural web network so that it has its own soft power. For this, the ethnozootechny studies are very important because they facilitate a conjunction between farmers and the main actors interfering in their lives, the state institutions and the agrifood industry. The first thing that needs to be done is to get to know the territorial capital of Banat Euroregion. Economic intelligence promotes the solutions for maintaining domestic biodiversity, offering the necessary tools for obtaining the information, which allows anticipating and defending the economic interests of the farmers. One of the solutions to success of the geoeconomic strategy in Euroregion Banat is a rural web network. In this way, it appears the territorial economic intelligence, in the context of glocally Type for capital territorial.

Keywords: *eco-bioeconomy, economic intelligence, ethnogastronomy, ethozootechny, geoeconomy, geo-ethnozootechny, territorial capital*

INTRODUCTION

Ethnozootechny is a new science out of the numerous ethno-sciences and combines history, archeology, paleontology, biology, geography, art, ethnicity, zootechny (is a multidisciplinary science). Ethnozootechny studies the relation between man-animal-environment in past and present societies and their transformations determined by animal breeding evolution (Denis and Eglin, 2013). The Ethnozootechny Society in France was founded in 1971 by Raymond Laurans, general engineer in agriculture and director of the National Ramboillet sheep shed. Ethnozootechny represent the link between geoheritage and geoeconomics, about the importance for humanity of food resources.

Is why the concept of geo-economics belongs to Edward Luttwak (born in 1942 in Arad)

professor at the Center for Strategic and International Studies in Washington DC. Geoeconomics is a branch of international relations at the intersection of economics and geopolitics (Luttwak, 2001). Knowledge in the field of geoeconomy has not been developed only in a few years, human civilizations have developed treasures of ingenuity to master and exploit their vast territories. (Brun-Picard, 2006)

Lorot (2013) states that geoeconomics analyzes strategies for economic policy, especially trade policy, decisions within the state to protect their national economy in order to help national enterprises implement new technology, to conquer segments of the world market for the production and marketing of sensitive products or to control it.

The knowledge of territorial capital can help

make right decisions (Berti, 2008). They may be taken only if reality is known. The Euro-Banat region's identity can be achieved by natural boundaries, political-administrative ones, social and functional boundaries. Banat is made from a natural and a man-made macrosystem with their interrelations ensuring resilience (Cocean, 2005; Ianas, 2010).

MATERIALS AND METHODS

This paper is elaborated having in mind the essential elements of rurality developed by the European Union in the "European Rural Charter". Charter individualizes three fundamental functions of rurality: the economic, the social and the environmental one (OECD, 2006). The composition of the territorial capital of Banat is also made of the livestock capital, which consists of animals and natural ecosystems. Ethnozootechny offers a lot of data about the history of animal breeds formation in present-day Romania, the importance of their growth, highlighting their particular characteristics in order to maintain animal domestic biodiversity. Destroying this biodiversity would mean the destruction of a way of life, a civilization.

This research continues the scientific material of our team (Matiuti *et al*, 2013) all the bibliographical references, the introduction and the discussion of the results are not to be repeated, although the paper is based on them. The purpose of this paper is to lift economic competitiveness and reduce rural poverty in Banat, being focused on the geoeconomic realities strategy of the Euroregion.

The authors wish to highlight the role of ethnozootechny in the knowledge of the territorial capital of the regions and the role it can play in the regional geoeconomic development strategy. There is also a new concept about geo-ethnozootechny as a tool for economic development projects, besides being a way to spread knowledge about the zoogenetic heritage of a community/region, showing its socio-cultural level, can also be a messenger of the culture in the area, i.e. there is an ethnozootechnical diplomacy. This paper builds on the authors' many years of work, authors who presented papers at symposiums and conferences (Bogdan, 2009, 2010, 2012; Matiuti *et al*, 2009, 2011, 2013, 2014; Matiuti and Matiuti, 2012; Matiuti, 2012). Later

on, these works were published in prestigious journals.

Over the course of time, Banat had relatively independent development of capital movements. By geoeconomics ethnozootechny studies complex projects in the Banat region by analyzing geographical configuration of the existent genetic resources. In this way, it helps establish and orient the agricultural policy of governments, of associations of breeders to protect animal domestic biodiversity in order to ensure food security for the population.

RESULTS AND DISCUSSION

The Euroregion Banat area is 28,526 sq km in which: 18966 sq km in Romania, 9276 sq km in Serbia and 284 sq km in Hungary. Ethnic and cultural diversity in Euroregion Banat was a positive factor in many aspects, but there were also some problems. Not all areas in Romanian Banat had the same economic, cultural and social development. The area among Timisoara - Sannicolau Mare - Jimbolia or the one of Arad were much more developed economically than areas such as Faget, Criciova, Secas, Ohaba or the Banat Mountain areas. Settlements on the Caransebes - Toplet lane had economic development during 1965-1990, due to the fact that the majority of them were collectivized, and residents raised sheep and grew fruit, benefiting from the direct trade in big cities. Manufacturing has developed in the area: leather, alcohol, dried fruits, processed berries and cheese, all these led to the development of settlements in the area until 1990, when the collapse of the Romanian economy had a huge impact on the economy in the area. Today many communities are almost depopulated, the inhabitants having left to work abroad; agriculture entered a decline, including livestock.

Rural diversity in Banat corresponded to rural fragmentation up until 1989, i.e. each village with a majority of German population had undergone a different development. Traditions were different for each locality because the Schwabs came from all over Germany, the Ulm area representing the departure point where they got their passport. This diversity of populations from different parts of Germany made it that in the German villages of Banat the dominant activities were fruit growing, animal breeding or manufacturing. For a long time, Banat was an example of rural development,

agriculture and zootechny development for other regions of Romania.

Experience of Banat, a distinct European bioregion and ecoregion. Technologies of the 21st century require education and perseverance through labor. The Banat Euroregion was an example for the prosperity of its inhabitants. This prosperity was due to the diligence of the residents, their care for the land and their respect for private property. The youth of Banat used to receive special education from their parents and used to know 2-3 languages. Ethnozootechny researches conducted over the years show many priorities in region. Historically, Banat's experience is reflected in the following: Cenad had the first school in Romania teaching in Latin in 1020, in 1179 Igrisi had the first library, and in 1183 the first information about water transport (salt brought from Nitra to Arad) was given (Balan and Mihailescu, 1985). In the 18th century the Land Registry was introduced by that teresian land record in 1780, they carried out the hydrological works on rivers, which were finished in 1755 with the Bega river that was made into a channel over a length of 115 km and extensive draining works of vast swamps Banat Plain (Munteanu, 2007). Beginning with the 18th century this region knew a massive import of cattle with high productions from Central Europe, hard traction horses, sheep with fine wool of the Merino type. In 1753, the first modern farm was built in Vinga, a dairy. The first cultivated tobacco and rice was in 1720 in Ghiroda, and hemp and alfalfa in 1718. In 1796, the first Montanist pharmacy in Romania, called Knoblauch, was inaugurated in Oravita (Popovici, 2011). A book for improving the rural economy and domestic industry was printed in 1807 in Banat. Villages in Banat were systematized by specialists sent by the House of Austria. Banat was famous for its multiculturalism. In 1817 at Oravita there was the oldest theater in the country and Timisoara has theaters such as the Romanian one, the German one and the Hungarian one. In 1849, the first station opens in Romania, at Oravita and in 1896 the Waterway Iron Gates. Mining, metallurgy, light and food industry were developed in Banat. In this region there was always much more production than necessary for local consumption; agricultural and industrial products were exported to Europe and America. The period of centralized economy represented the introduction of modern technology

in agriculture, animal husbandry, generalization in animal selection, the development of research, innovation and production. Comtim Holding was a model for other countries on how to raise pigs intensively and effectively, while the sheep farm in Liebling had specialists from Central Europe who came there in order to learn artificial insemination in sheep. At former Liebling also had a Tzurcana sheep farm. Also, noteworthy to mention was the Merino-Polwarth sheep farm, where the specimens had been brought from Australia in 1976 and to which artificial insemination was applied. One of the well-known specialists in protecting zoogenetic biodiversity in Austria said at a symposium in 2007 that "it was here that he learned how to do this biotechnique".

Cattle and sheep milk was prepared as various kinds of cheese, which Liebling was famous for. The fact that biological material was not imported anymore resulted in a higher level of inbreeding in Polwarth with those problems. The selection of sheep in Banat and not only is linked with the name of the lecturer who taught the subject called Sheep Raising at the Faculty of Animal Science in Timisoara, namely dr. eng. Mochnacs Mihai. The numerous papers and books published about sheep selection, in particular the Merino type, were the basis for the creation of Merino populations in Banat and Ardeal. The principles developed by the specialist were used at the former Sheep Research Resort from Carei (where there were approx. 25000 Transylvanian Merino sheep in 1989) or at the Sheep and Goats Research Station from Caransebes. In the 70s of the 20th century in Timis county specimens of Corriedale sheep were imported. They were taken to Fibis to crossbreed with Tigaia breed and to create a population of sheep called Tico. The action was abandoned shortly, and after 1990 the sheep were exported (Matiuti *et al.*, 2013). Also, in this area approx. 100 Stavropol Merino rams were imported in 1989 but in 1990 they took the same path.

After 1991, together with the collapse of Romanian economy, Banat lost its leadership. Massive migration of population from Banat, especially the Germans and other peoples coming from different areas of Romania led to major changes in rural areas in particular. There were new habits different from the ones in Banat and what is more important the respect for labor and other goods started to dilute. The youth in rural

communities does not have that kind of pride, of cultivated conscience of solidarity, of their cultural and territorial identity; the pride of Banat disappeared.

In 1965 the project of Holding COMTIM for pork production was in blue print, in 1966 the construction of the hall started, and in August 1968 the biological material began to be brought. The first complex was in Beregsau where they brought Large White and Landrace pigs from Caracal complex and from the former Gostat (IAS) Lieblieng. It is important to note the work of zootechnician eng. Cirpan Florentin who was the director of this Holding until his retirement in 1993, of veterinarian dr. Bunain Paul who dealt with the introduction of technology for growth and reproduction, including animal selection, veterinarian dr. Pambucol Radu, epizootologist, zootechnician eng. Szasz Valer who dealt with breeding problems, zootechnician foreman Dominic Muller who was in charge of the fattening of pigs. Two years after the plant started t function, its delivery capacity reached 100,000 fat pigs per year, and after another two years they could deliver 150,000 fat pigs per year. Subsequently alongside Complex Beregsau new pig breeding centers appeared –Jimbolia, Peciu Nou, Cenei, Sacalaz, Periam, Ionel, Padureni, Birda. In 1972 Duroc and Hampshire pigs were imported from the United States, males being used as terminal boars for the triracial hybrid COMTIM: Gilts MA x L (F1) x Duroc or Hampshire boar. In 1980, the capacity reached 1.1-1.2 million pigs per year and was the bigger combinat from Europe. For this reason in 1983, the ultramodern Slaughterhouse Freidorf was put into operation with the capacity of 10,000 pigs per day. It should also be noted the work of veterinarian dr. Pavel Ion who was in charge of treatments and vaccinations. Zootechnician eng. Gheorghe Serban should also be mentioned, who was the technical director during 1975-1986.

Animal breeds created in Banat. Plurivalent cattle breeds can, under certain conditions, support economic independence of Banat. This Euroregion was famous for number of cattle (*Fig. 1*) and the pigs (recently studies Matiuti, 2010).

Geoeconomy can evaluate and demonstrate the cultural intelligence of a community; it is the evidence of those communities existing. Geoeconomy links territorial space to humanity in all forms of activity, including knowledge put into

it action (Ferradou, 2014). Local breeds are part of the Cultural Intelligence of communities in Banat. They show the intelligence, work and creativity of the people of Banat and the reason why Banat was an example of economic development up until 1990. Preserving local breeds represent the respect for the community that created them and for the work involved in this process (Hoffman and Scherff, 2010). Relying on just a few breeds that are considered to be economically performant and letting local breeds to disappear poses a risk to climate change, natural disasters, wars, diseases with increased virulence potential (Digard, 2013). Banat is the place of formation of the Spotted Romanian and Transylvanian Pinzgau breeds.

The first Simmental cattle imports were made in Banat, which is actually the first location where the future Romanian Spotted breed was formed. Cattle import of the type Berne was made in Banat especially in Caras Severin with the intent to prevent the smuggling of cattle from Romanian and Serbian territories. Beginning with 1870 Pinzgauer breed bulls were imported straight from the Tyrol area (Austria). Today the number of specimens of Romanian Spotted breed is known only very approximately. Official data for 2011 shows that there is 30-35% type Simmental cattle in total out of the 1.2 million cattle in Romania (in herdbook is 30,000 ex Romanian Spotted). But most of them belong to generations, which were formed with imported male biological material, so we cannot speak of Romanian spotted proper in this case.

Selection for this breed at the former IAS Liebling was done by importing semen from bulls of Simmental breed from Switzerland, Austria and France during 1977-1981. Zootechnical eng. Nicholas Ramneanțu who coordinated this action is the first who explained to the students in 1982 that: “the cow of the year 2000 will have 700 kg and a production of 7000 kg”. IAS Liebling built in 1983 the “farm of 2000” which was a modern design for its time, with simple design solutions and technology that allowed a low number of caregivers to take care of a relatively large number of cattle.

Since 1975 in Banat infusions were performed with the Red Holstein breed in order to raise milk production in the Romanian Spotted and to correct defects especially in the udder, which are genetically transmitted from Simmental such as

Fig. 1. Evolution of number of cattle in Romanian Banat in period 1895-2013 (orig)

extra nipples, asymmetric udders or long, thick teats. At the farm from Dumbravita (Timis County) the average milk production in 1986 for example was 3800 kg per lactation in a total number of 1100 specimens out of which 580 were “matca”. Besides, for its results, including meat production, the farm, was included in the program for visits from specialists from the former CAER in 1986, as a bonus for the agricultural performances in Timis County (Matiuti *et al.*, 2011).

The fact that many farmers are already old, that the young no longer interested in this occupation or that those who succeed in accessing EU funds prefer imported breeds - mainly Holstein, leads to the rapid decline of the local breeds. It is widely believed, especially by young breeders, that what is imported is better (Matiuti, 2012).

After 1989, because of the dissolution of all forms of agricultural associative, these valuable taurines ended up mostly in the hands of people without the necessary training to keep animals or businessmen who didn't know about their genetic value. Thus the majority of Romanian Spotted specimens ended up in slaughterhouses, purchased at very low prices, like slaughter animals, which were subsequently used in these countries as animals for breeding with high genetic value. Today the former elite farm remains derelict. From 2009, official control of milk production of taurines has been ceased. There have been massive imports of bulls, frozen semen

and embryos of Fleckvieh or Simmental breeds, so that after so many generations one can say that Romanian Spotted reduced greatly in number. Only in the areas where males were kept in this race for natural artificial and rare mating and there are still specimens of Romanian Spotted breed (Matiuti *et al.*, 2011). The first step in the disappearance of a race is to destroy the males of the breed. The local breeds represent a solution for the development of a Genetic Industry in Banat.

Traditional breeding of cattle in Banat. Systematization of localities by the Austro-Hungarian authorities in the late 19th century led to the emergence of households “in line”, i.e. along the roads that cross the middle of the village (Munteanu, 2007). In this way it was easier for the movement of animals and people, so that the maintenance system for cattle was in herds during the summer, i.e. each morning, out of each household 1-3 cattle were brought in one big herd, taken care of by people employed by the villagers. The cattle grazed all day and returned to the household in the evening. Today this method is widespread in the summer.

In Banat the German household types are according to the Land where the settlers came from. Households in the mountains of Banat have many shelters for its livestock. In the German villages, the tallest building in the household was the hay barn. The traditional household in Banat contains two or three yards. The first courtyard is

reserved for the flowerbeds and resting places in summer. In the second, there is the hay barn, the animal shelters, and other annexed constructions. In some cases in the second yard there are only the hay barn and other annexed constructions that store various agricultural tools and it is only in the third yard that one can find the animal shelters. The Hallenhaus type from Banat's plain is characterized by a wagon style of living rooms and the granaries were located outside the village, which are barns equipped with fire protection. At the border with Hungary, in Arad County, it is kept a style of agriculture based on dwelling much different from the one described above. The first mention of the dwellings in the area, including the species and number of animals of owners appears in "Conscriptio Domestica. Procesus Zarandiensis Ao. 1746", because the Zarand was the administrative capital of the area. Localities such as Varsand, Pil, Siclau and Socodor represent the type of settlements in the plain, with a core group of housing and, at some distance from the houses, another string in a circle forming a protective ring. The householder had the house and the garden in the village. The existence of the dwelling made field and livestock work easier, representing a form of integration of plant growing and animal breeding. There they grew animals and prepared products. Animal manure fertilized the land. The dwelling was inhabited only during the summer, but then it became a permanent home. Breeding animals at the dwelling also served as a way to isolate them when there arose some diseases. It was a place of refuge including for people in case of epidemics. Those who had dwellings did not have to make daily trips to the field, or move the animals to pasture, especially during the rainy days when the roads in and outside the village became impossible to use. As time passed, the hearth remained only a place for social, cultural or religious gatherings, while the dwellings representing work; there were also a percentage of people who did not have these shelters (Matiuti and Matiuti, 2012).

Applicable a new concept geo-etnozootechny in Banat Bioregion. This represents the potential and the reality in a certain period of a race, a population of animals to form the domestic biodiversity of a region. In addition, the ethnozootechny gene pool comprises the animal gene pool and the vegetable gene pool from pratoecosystems (types of plants adapted

to a particular place). The beautiful landscape of Banat, with the Danube and the mountains attracted German settlers. Through labor, the people of Banat shaped an impressive landscape, making the region a unique one which, due to multicultural diversity (it used to be inhabited by 15 different communities, an example of peaceful coexistence), was called "Little Europe". Due to the mosaic of plants in the Banat Mountains, which are part of the Transylvanian Alps as they were called with admiration in the early 20th century by the French geographer Emmanuel de Martonne, in Banat there are special flavored dairy and meat products. For example the cheese and mutton obtained in the Caransebes-Topleț lane. The quality of products obtained from animals raised on pastures is recommended even in writings 200 years ago in Banat, when hydrological works were made on swamp drainage and river regularization in order to obtain farmland necessary for growing plants including fodder. The 2014 land law is similar to those *Prediem compagne* from the 18th century, that dealt with renting pastures for animals of meat production. At the seminar on "Implementing new technologies in growing and fattening cattle for meat in the organic farm" in November 2010, organized by dr. Marcel Matiuti (member fondant of the Transylvanian Rare Breeds Association) in collaboration with the "Acad. David Davidescu" Center for Research on Agroforestry Biodiversity, Karpaten Meat transnational company, with cattle breeders participants in western Romania, representatives of the Sanitary Departments in Timis, Arad, Caras-Severin and Dolj County, farmers from the Serbian Banat and academics from the Faculty of Veterinary Medicine from Budapest presented papers that highlight opportunities for organic agriculture in Romania. Authors of the paper highlight the possibility of growing a large number of cattle for organic meat farms, so that there is the opportunity to increase exports of this product due to favorable paedoclimatic conditions in Romania. It has been shown that there are still large areas in Banat, Bucovina and Transylvania where natural ecosystems provide a mosaic of plants, which confer taste and flavor to cattle meat (Matiuti *et al.*, 2011). It has been again accentuated the role of local breeds, best adapted to the conditions of the regions and they recommended as the best organic farms (Bogdan, 2010). Working stressed after an

analysis made in Banat situation for meat cattle breeding. The impact of this seminar resulted in interest in materials and information about raising cattle for meat by farmers in Banat, Oltenia, Apuseni Mountains who have applied for the establishment of such farms. Transylvanian Rare Breeds Association supported the establishment of such farms in Caras-Severin and another in the Carpathian in Vilcea County (Databasis Association Transylvanian Rare Breeds).

Pastures of a varied floristic composition should be neat, trimmed, fertilized and then they would be a quick opportunity to increase the number of livestock and getting great flavor meat or qualitative dairy products. Very rarely do they use methods for determining the productivity of the pasture or its grazing capacity. The choice of animal species to be grown in a given area affects the lifestyle, economy and organization of local communities. For example, the German influence in Banat made the locals consume especially pork and poultry, in particular geese, while the influence of Polish, Ruthenian and Galician make Bukovina people predominantly eat beef. Note that these species can be grown very successfully on pastures, favoring the emergence of organic farms.

Pratoecosystems in the plains can also be a basic forage for qualitative animal products. Identifying, assessing, mapping and disseminating spatialised information is required for the understanding, preservation and enhancement of geoheritage (Cayla, 2014). Of particular importance was the maintenance and improvement of soil fertility: fertilizing with organic fertilizers in combination with the chemical ones, deep plowing in summer and autumn, crop rotation, agro and phyto-specific work culture. During May-October young animals destined for reproduction were kept in summer camps, some land being leased at larger distances, e.g. in the Faget-Curtea-Traian Vuia (Banat peony) area. Clover was preferred for cultivation, especially due to its palatability it was better consumed by cattle than alfalfa. Generally, when a planted lawn was set up, the base seed mixtures were the perennial Lolium. Pasture parceling was taken into account, having in mind the fact that the grazing technique and the organization of the pasture has an influence on the floristic composition of the pasture.

Breeds of animals that can be easily grown on pastures must have an important feature: rusticity (Guintard and Denis, 2013). In the genetic improvement of animals in Romania, rusticity was not a purpose and it was not included in the methodology for the selection of animals, without the possibility to be measured and assessed, although this trait describes production skills in difficult environment or operating conditions. For example, farmers know that the Transylvanian Pinzgauer cattle breed best face rough grazing on stone in the mountains, because it is adapted to sudden changes in temperature and rough food. Specialists from the Ethnozootechny Society of Toul (France) recommend rusticity as a criterion to improve animals and to maintain multipurpose breeds. As early as the interwar period, teachers at agriculture schools in Germany recommended Romanian students studying there to preserve the versatile breeds in Romania because they are best for the conditions here.

Good practices for Ethnogastronomy in Banat's Euroregion. What we eat, the order of serving dishes at the table, the wealth of traditional foods and cooking recipes is part of the identity of a community (Matiuti *et al*, 2011). Nowadays there is a terrible propaganda for all kinds of smoked products with two thick layers of smoke as traditional products. The preparation of the so-called traditional products is done after a technology inherited through generations, tested and resulting in a quality product (Matiuti *et al*, 2011). For smoking products does not use just any kind of wood, and one must pay attention to the timing of smoking and the smoke intensity. There is another thing to be mentioned. Surely, pork products from Banat, which was the main export item before 1989 were particularly tasty, appetizing, but excessive consumption of smoked products results in modern day heart disease. Among the Swabian population in Jimbolia and Lovrin the incidence of these diseases was with 30-40% higher than among other communities according to statistics from the County Public Health Department in 1978.

It is true that the "Fast Food culture" is far from healthy. There are overweight people with diabetes, which appears in children from 9-15 years, all sorts of allergies and there is an increase in the incidence of Alzheimer's disease. The bottom line is that healthy food would be the

slow-food, ie cooked slowly to “simmer”. Current lifestyle does not allow this, only rarely in a family. Therefore, we believe that the most important is to ensure fresh food. This can be done by reducing the time spent going from farms to shops, making use of local products. Schools have to introduce a healthy food system based on verifiable recipes for the orientation of the youth toward a healthier lifestyle with exercise and sports. Unfortunately a lot of different recipes for traditional products have been lost, including many regional food recipes. There are numerous food and culinary products in Banat, which resemble others in other regions and other countries.

“Public good” is the public who appreciates the quality of the products in the market place, it is one that supports maintaining traditional products made from time-tested recipes and with a certain technology. This means, among other things, protection of the family farm, including genetic wealth of local breeds and varieties. Agriculture is the unique sector in which “public good” exists and cares for climate stability, sustainable management of natural resources, preserving domestic biodiversity. Through its objectives, public good directs the policy for agriculture of authorities in a Euroregion, preserving and highlighting the landscape value of the area in accordance with EU policy landscape preservation in Europe. It is recommended that a management be practiced in agriculture in the long term that does not affect the cultural and aesthetic qualities of the region (EU Rural Review, 2011).

In the past 20 years in most areas of Banat landscape has deteriorated in some places irreversibly. One can notice the desertification areas, massive deforestation, intensive pollution, depopulated rural areas, irrational and wasteful use of land. Geodiversity represents a variety of natural values, but they are threatened by a series of anthropogenic activities and land degradation processes (Orsi, 2014)

A possible sustainable geostrategy in Banat Euroregion. Control of a geographical region is done through mapping (Foucher, 2013). Geoeconomic constituents are market conquering, implementation of performant business process, the profitability of territory, protecting and improving them, the balance between cash flow, human flow, product flow, mastering the territory by land development and knowledge of spaces

(Brun-Picard, 2006). By mapping, the geopolitical situation becomes accessible, the land areas of a nation can be known, a memory of knowledge can be diffused. Banat mapping has been made since the 18th century e.g. in 1769-1772 the terrain map of Banat was established (Munteanu, 2007). Ecological modernization should stimulate the association of companies that use small amounts of energy, water and produce minimal waste. This is true for farms applying for environment-friendly technologies. The study of conservation is a multilevel world can serve to inform an interdisciplinary science of conservation consistent with the Convention on Biological Diversity to establish partnerships and link biological conservation objectives with local development objectives (Berkes, 2007). Agriculture has become a globalized industry, improving new condition for policy formation; new agricultural policies are needed to accommodate globalized agricultura (Le Heron, 1993).

The economic development of a region can be made through the flow of ideas, genes flow, information flow and capital flow. Mastering a geographical area results after a long experience, a desire for preservation the collective memory and permanent adaptation to natural phenomena, based on Banat’s performance. In Banat there is a need for a new space planning, this is a chance for sustainable development of the region. Development involves a greater emphasis on traditional factors of production - grazing, financial capital and labor. The connection between science, business and society must be strengthened by increasing exchange and transfer of knowledge (Bogdan *et al.*, 2009, 2010, 2012; Matiuti *et al.* 2009, 2010, 2012, 2013, 2014 and Strateanu 2009).

Continuing and completing *Figure 1* from our previous paper (Matiuti *et al.*, 2013), it develops in *Figure 2* which takes the path of new and original scientific approaches, resulted from the scientific papers of our team written in 2014, whether or not published and linked with the most recent bibliographical references from the international specialty literature.

Priority research will extend to working with key partners in other countries. For this, an analysis SWOT to determine Banat’s potential to integrate in major international projects using its research institutions. The analysis will help define research

Fig. 2. The complexity of ethnozootechny in Banat Euroregion based on eco-bio-geo-economy (orig).

topics for the period 2014-2030 and 2050. It is important to select the regional priorities, the research topics being geared towards the needs and interests of Banat (Tab. 1).

The first conclusion of this analysis: it is necessary to develop and implement as soon as possible a strategy for a bio-economy development taken after the strategy developed by the EU for 2030 but also for 2050. It should be noted that when Turkey becomes an EU member, there will be a strong competition in agriculture, livestock and agrifood industry. The Danube River should be Banat's link with the other Danubian regions. By applying an eco- bio-geo-economic development path the economic competitiveness of Banat will be increased. It is important to conduct a geoeconomic atlas for the Banat Euroregion. This will help in guiding potential investors

towards the opportunities of the Euroregion. After livestock farms in the Serbian Banat were visited, the conclusion was that the animal husbandry technologies used are obsolete are similar to those applied in the Romanian Banat in the 90s. Regarding the Serbian Banat, Serbia's EU entry would be an opportunity for the development of zootechny and for the general economic and social development. Banat Euroregion must adopt the bioeconomy development strategy developed by the EU for 2030. After joining the EU, Romanian Banat's zootechny was modernized a lot. The problem remaining here is the almost nonexistent Agrifood industry in the villages. The products of animal origin from the Market Niche have a modest marketing. For these products, including those in the manufacturing industry, it would be necessary to have a chain of stores such as the LIDL Company, which sells mainly the manufacturing products from rural areas of Germany. A cluster for the construction and operation of eight large dairy complex has been set up in the last years in the Serbian Banat. The project was funded and implemented by America's

Development Foundation and the U.S. Agency for International Development (FAO, 2013).

In the Serbian Banat it was implemented the project TERESA-Types of Interaction Between Economy, Rural Society, Environment and Agricultural activities in the European region, developed in 2007 by Humboldt University of Berlin in partnership with Austria, Germany, Spain, United Kingdom, Poland. The project has developed Rural Development Policy Options in Europe. The key theme of TERESA constituted the mutual interactions that take place between agriculture, the environment and other social, economic aspects of the wider rural development processes (Banski *et al.*, 2010). One of the solutions to success of the geoeconomic strategy in Banat is a rural web network. In this way it appears the territorial economic intelligence, in the context of glocally Type for capital territorial. The

Romanian Banat	Serbian Banat
Strengths	
<ul style="list-style-type: none"> - geographic location - raw material base - the existence of infrastructure necessary for economic activity - cooperation between local producers and agri-food industry - the existence of institutions for high education - tradition in animal breeding - the modern technology applied in zootechny - existence of huge fresh water reservoir - superior quality of soils - existence of land register - existence of Danube River the central axis which links Romanian Banat with Central and West Europe - member of UE 	<ul style="list-style-type: none"> - geographic location - raw material base - the existence of institutions for high education - tradition in animal breeding - existence of huge fresh water reservoir - generally in villages the traditional style of life is kept - superior quality of soils - existence of land register - existence of Danube River the central axis which links Romanian Banat with Central and West Europe
Opportunities	
<ul style="list-style-type: none"> - geographical and climatic preconditions for economic development - excellent pastures for livestock - the possibility to access European funds - the identification of a niche market - the potential to increase the animal product market - crossborder cooperation - the existence of diversified ethnogastronomy - existence of unused land surfaces and the possibility for hydrological works - the existence of modern zootechny - the application of a bio-economic EU strategy for development in 2030-2050 	<ul style="list-style-type: none"> - geographical and climatic preconditions for economic development - proximity to EU, Northern EuroAsia, North Africa, Middle East - the excellent pastures for livestock - the potential to increase the animal product market - the existence of diversified ethnogastronomy - the existence of unused land surfaces and the possibility for hydrological works - the existence of a program for local breeds preservation
Weaknesses	
<ul style="list-style-type: none"> - lack of knowledge of the territorial capital - lack of industry with environment-friendly technology - low quality of management - old agricultural machines and high price for the new technology - the continuous decrease of the number of animals - insufficient agricultural roads - lack of genetic animal industry - bureaucracy 	<ul style="list-style-type: none"> - the level of education in the region is very low - lack of politics ensures - lack of database containing innovative potential - lack of high educated personnel - the education is not oriented to practical knowledge - the continuous decrease of the number of animals - the old technology used in zootechny - insufficient agricultural roads - bureaucracy
Threats	
<ul style="list-style-type: none"> - concrete and visible political support - climate change - erosion of the domestic biodiversity - the excessive fiscality - the instability of legislation - lack of a Database for zootechny - lack of rural webnetwork - the migration of people from the countryside - lack of a GeneBank - lack of an agrifood industry in villages - lack in environment protection education 	<ul style="list-style-type: none"> - lack of innovation funds - lack of innovation strategies - concrete and visible political support - climate change - the erosion of the domestic biodiversity - lack of modern technology in zootechny - lack of a DataBase for zootechny - the migration of people from thr country side - lack of rural webnetwork

Tab. 1. Comparable SWOT analysis of opportunity in the zootechny development in Romanian Banat (after studies realized by Matiuti *et al*, 2009, 2010, 2011, 2012, 2013, 2014) and Serbian Banat (processed after Banscki *et al*, 2010; S3 Platform Peer Review, 2014) by eco-bio-economic strategy for 2030-2050-2100 (after studies realized by Bogdan *et al*, 2009, 2010, 2012).

influence of culture on business operations must be understood, why today there is international management, which is not available to everyone. Glocal working demonstrates how a population in a given region accumulated knowledge, where teaching, scientific research and work was encouraged, where there is culture and education. All this has led to working, disciplined, educated citizens able to grasp favorable opportunities. They are part of the communities that are Culturally Intelligent (Bertagni *et al.*, 2010). Glocally working concept is the way through which one can better understand why there is emigration, poor people, illiteracy. There should be human models proving that language and a certain attitude can determine success. Glolocalization rather than glocalization; global integration and micro-territorial fragmentation are two complementary processes (Bertagni *et al.*, 2010)

For years, the Danube River has been neglected. It was implemented the idea that it is just a border area with little importance where people do not get too close, the restrictions are many and strong. Therefore, the importance of this river was not used. Nowadays cooperation is sought through all kinds of cross-border projects. Their results are generally completed by workshops and leaflets. It is difficult to make an economically advantageous cross-border cooperation and not give rise to controversy. The acceptance of this cooperation can be sustained by increasing the activity of NGOs, state institutions supporting them. Still, we do not know the exact role and who applies the rural development measures in a Euroregion. There is no institution for the effective monitoring of those actions, if they do exist. Implementation of projects is made by some institutions which control equipment purchases, materials, use of money on different services, but which fail to appreciate the impact on regional development, ie the efficiency by output indicators and the indicators measuring the effect and the direct consequences where the project is applicable (Matiuti *et al.*, 2013). Banat Euroregion is within easy reach of ports on the Adriatic Sea, which favors exports. Romania's geographical position favors exports to Asia. Even now, the decision makers do not understand the importance of modernizing the infrastructure. Water and rail transport favored commercial links from Banat (this region has always produced more animal and

vegetable products than it could consume). Goods were transported by barges on the Bega Channel, Tisa River and then on the Danube to Central Europe and to England. The railway has helped the Banat to export meat, butter, wool markets in the Austro-Hungarian Empire and during the planned economy era trains full of vegetables, fruits, livestock or livestock products were being exported to Eastern and Western Europe.

Nowadays it is possible to export animal products and live animals. Just as, for centuries, from the present territory of Romania cattle, sheep, horses were exported and appreciated in major fairs such as Lvov, Leipzig, Vienna, the same opportunity exists today. There is a high demand for plurivalent races in China, Kazastan; The Romanian Spotted cattle for example is demanded due to the special qualities it has. The problem is that Romania has very few specimens of the breed. Directing exports towards BRICS (Brazil, Russia, India, China, South Africa) and also towards Nigeria, Turkey, Mexico, Indonesia is a great opportunity to increase the number of local plurivalent breeds. In Russia and Ukraine there is a demand for thick bacon pigs -local breeds are excellent for this export. It is thus proved through ethnozootechny studies that over the time the country that supported biodiversity was not dependent on imports. Links to Asian countries are relatively easy to make. There is a railway corridor from Western Europe through Russia on to India.

The main actors - the state institutions involved in agricultural policies, which influence farmers' life must move from passivity, inactivity to fulfill the role for which they were created and for which they exist. Development of a geoeconomy in Banat in order to protect the zootechny in the region and introducing animal products on certain segments of the global market is absolutely necessary. Banat has a special place in Central and Eastern Europe geoeconomy. Rural communities in Banat will have to jointly develop a Biocultural community Protocol. It is necessary to prepare the biocultural community protocol as the following model (Abreil *and al.*, 2009):

Community description - location and environment, history, traditions, values, laws;
Community description of animal genetic resources
- special features, cultural significance;

Community description of the community traditional knowledge - for the management of animal genetic resources and biodiversity in general.

CONCLUSION

Measures to restore biodiversity are only sustainable if geodiversity is part of the nature restoration plan e.g. history of the local landscape, geology, geomorphology and soils (Acker *and al.*, 2014). The geodiversity-biodiversity relationships will be part of the proposal for a European Geopark in Banat.

In Banat it is urgent that an "inventory" of resources be conducted because we do not know the territorial capital of the region. For the economy of the region, it is important to facilitate rapid penetration of technical and technological innovations. E.g. of USA where the National systems of innovation (NSIs) make many assumptions concerning the nature of the actors, their regard to the linkages that lead to learning and innovation, all of which are common in advanced countries (Mitelka, 2000) This is possible by overcoming the current state of conservatism shown by education in schools at various levels, including scientific research. The highlights are some excessively equipped laboratories with very expensive equipment whose existence is not justified for the purposes intended. Scientific research should not be done just to publish articles without any practical function. Instead, it should support finding development priorities, including the functioning of a regional system. Innovations must be focused on competitive and advantageous areas (Matiuti *and al.*, 2014). We do not know how competitive the industry in Banat is, nor tourism but certainly agriculture and animal husbandry can compete with other Euroregions.

We will have to develop an atlas of Banat's zootechny influence on other regions of the Danube, in which we have to map the presence breeds, products, firms from agrobusiness and from other strategic sectors ensuring food security of the inhabitants in those areas. Romania will need to become a more distinctive presence at FAO regarding the zoogenetic patrimony it has (Bogdan *and al.*, 2012).

Specialized educational institutions attended by foreign students would emphasize the promotion of zoogenetic biodiversity in Romania and of the traditional products.

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