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EDITORIAL:

THE NEW VISION TOWARDS SMART GEOGRAPHY IN SOUTH-EASTERN EUROPE

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Global change comprises a variety of transformations in climate, ecosystems, natural resources and human society which have started in 20th century and continue with increasing intensity at present days. This led to significant planetary constraints regarding resources, climate and ecological resilience which are the main challenges the human society is currently facing and must deal with. The geography of the 21st century can offer evidence-based and place specific solutions to address such challenges. It offers an interdisciplinary base which can be used to address the integrated issues of our community (Coutsopoulos, 2011) thus to cope with the complex challenges of the global changes by providing "smart" spatial solutions.

This special issue of European Journal of Geography is an outcome of the conference "Smart Geography" dedicated to the 100th anniversary of the Bulgarian Geographical Society (BGS) that was held in November 2018 in Sofia, Bulgaria. The Bulgarian Geographical Society is established at 9th November 1918 and its history is traced by periods of growth and stagnation, ups and downs. The first period (until 1945) is the time of foundation and consolidation of the society under the leadership of two remarkable persons, prof. Anastas Ishirkov and prof. Ivan Batakliev. The society issued the first Bulgarian geographical journal (in 1933) which published papers in various geographical fields by Bulgarian and foreign researchers. Among the famous authors of the journal during this time are Albrecht Penck, Albrecht Burkard, Herbert Louis and Arthur Gavatsi. The start of the next period (1945-1989) is marked by the political changes in the country which led to significant changes also in the scientific community and the activity of the BGS declines. The government support during the 1960s and 1970s enables to restore and extend the membership, publication and organization activities. The Society became popular especially for the secondary school teachers and reached more than 1300 members in mid-1980s. The next period (after 1989) is

marked by the transition in the country to democracy and marked economy which led to withdraw of the state form many activities including the support of the organizations such as BGS. This caused significant decline in its activities and formal closure of the society. The contemporary stage begins in 2014 with re-establishment of its legal status. During this period most of its former activities such as organization of regular events (conferences, seminars, and workshops), publication of the Journal of BGS, support of student through various initiatives (grants, motilities etc.) have been restores. In 2018 the Society celebrated its 100th anniversary and the 150th anniversary of its founder Anastas Ishirkov by series of events in several places of the country such as seminars, exhibitions, issue of jubilee postage stamp, campaign in Wikipedia etc. The most important event was the international conference "Smart Geography" which took part in Sofia University in November with more than 150 participants all over the world (Nedkov et al. 2019).

The conference was organized into four main topics. The first two covered the traditional disciplines of physical and human geography including specific topics such as climatology hydrology, geomorphology, geodemography, social geography etc. The third one was dedicated to the geoinformation science which covered mainly GIS and remote sensing topics. The fourth main topic was interdisciplinary studies which covered fields such as landscape ecology, ecosystem services, natural hazards, urban and regional studies. The last one has the biggest number of contributions and it is also best presented in this special issue by half of the papers (table 1).

Table 1. Overview of the papers in the special issue

Paper	**Main Topic**	**Specific topic**	**Location of the study**	**Scale**
Ilieva et al. 2019	Human Geography	Ghettoized urban structure	Bulgaria	Local
Putkaradze and Putkaradze, 2019	Human Geography	Demography	Georgia	National
Cholakova and Dogramadjieva, 2019	Human Geography	Local population and climate change	Bulgaria	Local
Kroumova et al. 2019	Geoinformation science	Remote sensing, land cover change	Bulgaria	National
Bezinska and Stoyanov, 2019	Geoinformation science	GIS technology and Hydro-morphometric analysis	Bulgaria	Local
Calotă, 2019	Interdisciplinary studies	Landscape ecology, Pasture assessment	Romania	National
Arany et al. 2019	Interdisciplinary studies	Ecosystem services	Hungary, Romania	Regional
Tchorbadjieff et al. 2019	Interdisciplinary studies	Statistics, environmental state	Bulgaria	Local
Antonov et al. 2019	Interdisciplinary studies	Landscape ecology	Bulgaria	Local
Stoyanova et al. 2019	Interdisciplinary studies	landscape ecology, Soil contamination	Bulgaria	Local

The human geography topic in the conference was presented by various contributions and we selected three of them for this special issue. The work of Ilieva et al (2019, in this issue) deals with the problems of ethnic minority integration and urban structure of the city of Plovdiv. The authors focus on spatial expansion of the existing Roma quarters and the formation of

new ones. It has been observed that they occupy an essential place in the functional structure of the city and have an impact on its development as a whole. The paper discussed also the serious problems in the overall process of Roma integration, together with the increasing ghettoization and the eventual social cataclysms in this respect. The location and spatial interrelations of the Roma-populated Harman Mahala quarter with the urban structure of the city of Plovdiv are also observed. The ghettoized urban structure are identified as spatial and functional barriers in the urban space, which give a negative image of the city of Plovdiv and at the same time represent a burden to the municipal budget. The attention on such ghettoized urban structures is attracted by the potential emergence of problems of various aspects in the future, as it can be argued that a "city in the city" has been formed, which becoms more and more autonomous and duplicating the institutional structure.

The second paper from this topic deals with intra-regional originalities of population`s dynamics of the mountain regions of Georgia (Putkaradze and Putkaradze, 2019, in this issue). The authors study the difference among quantitative and qualitative indicators of population in particular regions defined through comparative analysis method. They propose indicators of demographic development mechanism in study areas and by their means further development tendencies are defined. The results show that the population decreases in all mountain regions of Georgia and its further development would continue with slow rates, as the population`s growth rate is low and the gender–age structure is worsened. The authors consider that the stabilization of demographic condition in mountain regions of Georgia is one of the key point of country`s demographic policy. It could be achieved by raising the regional social – economic level, which depends very much on the effective implementation of the mountain law`s.

The work of Cholakova and Dogramadjieva (2019, in this issue) deals with the perceptions of climate change and the future of the Pamprovo ski resort in relation to the local population living in three adjacent settlements traditionally related to the out-of-the-settlement resort complex. The paper also presents the general climate change perceptions by views and opinions regarding the resorts' vulnerability and adaptation. The authors observed that locals are neutral on the snowmaking adaptation strategy, but strongly agree with the diversification of tourist services and conversion of the resort to an all-season destination. The climate related vulnerability of the resort is not of significant concern to the local population and in unison with this; the levels of optimism for the future development of Pamporovo are higher than pessimistic ones. The local population feels rather economically excluded from the resort as well of tourism adaptation to climate change, and this is a worrying situation from a sustainable development perspective as the local community should be a key actor in any adaptation process.

The geoinformation science session of the conference is presented in the special issue by two papers. The sspecifics of the quantitative evaluation process of Riparian zones land cover and land use data set for Bulgaria are presented by Kroumova et al (2019, in this issue). The web-based LACO-Wiki tool was used for the verification, applied at levels 1 to 4 of MAES (Mapping and Assessment of Ecosystems and their Services) nomenclature. Typical class encoding errors and delineation inaccuracies and omissions are grouped and analysed as several problem types. The analysis focused on the thematic accuracy shows predominance of the code errors in classes without or with rare presence in Bulgaria. Other accuracy problems are caused by the lack of specialized thematic information and a few of them are due to methodological reasons.

The second paper is focused on the application of GIS technology to determine the characteristics of the Mesta River basin (Bezinska and Stoyanov, 2019, in this issue). They developed a GIS database of more than 20 calculated features and incorporated recent research in this area, applicable to GIS analysis. The approach which authors used to model

the hydro-morphometric characteristics can to be successfully applied to mountain catchments, which are distinguished by the great differentiation of all natural components. The authors argue that none of the traditional methods used in cartography can provide such a good visualization and detailed information as the GRID models used to prepare the maps presented in the paper. The detailed modelling and mapping can be applied to distinguish fault zones, areas of intense erosion, contemporary external relief formation processes such as landslides and massive rock falls, potential flood areas, etc.

The interdisciplinary studies presented in the special issue cover various themes related predominantly to the field of landscape ecology. The work of Calotă and Pătru-Stupariu (2019, in this issue) discusses topical issues related to the modification of the pastures as a result of the changes in land use and land cover. The quality of pastures is disturbed in different ways, depending on the land use and the development of land cover in these primary ecosystems. The continuous reduction of the pastures is a process that influences indirectly the quality of life of the society. The authors also propose methods for assessment of the quality of pastures in Romania.

The natural status of ecosystems to support flower richness and thus create benefits for nature conservation and apiculture in Hungary and Romania was studied by Arany et al (2019, in this issue). The ecosystem service 'honey provision' was mapped in two case studies in both countries. The authors apply a participatory approach, which allows them to build the knowledge of local experts into locally adapted simple rule-based matrix models. They produce regional level ecosystem services maps which represent the capacity for honey provision of ecosystems in the study areas. The main conclusion of their study is that although a few mass flowering plants provide large part of the honey yield, diversity of floral resources is necessary to sustain persistent source of forage for the bee colony in the long term. Proper management of habitats is important to preserve their capacity to produce nectar and pollen.

The third paper from this section is focused on the use of K-mean algorithm to study the spatial distribution of metal-contaminated areas in the Ogosta River Valley in north-western Bulgaria (Tchorbadjieff et al, 2019, in this issue). By using this algorithm, homogeneous statistical samplings can be produced from the soil sampling sites with a view to detect regression models of the spatial distribution of the heavy metal concentrations in the soil, depending on the relief of the river valleys.

The work of Antonov et al (2019, in this issue) presents a study on the migration and concentration of arsenic of pre-existing enriched spots situated in alluvial floodplain, and the change of initially oxidizing to anoxic conditions hence leading to reductive release of iron and arsenic in the floodplain soil. The study was performed through complex investigation in a historically contaminated monitoring site in the Ogosta Valley. It uses a vertical infiltration model coinciding with the vadose zone of the studied spot define the hydraulic characteristics of all impacted layers, which have been determined in previous studies. The results show that the impact of two or three days' rainfall events cannot lead to significant arsenic release in the soil pore water or groundwater. The proposed model enables understanding the moisture regime variations in the floodplain of Ogosta River and the simulations can contribute to the estimation of the arsenic mobilization conditions in polluted areas. The results can be coupled with data on arsenic dynamics in the soil pore water for more precise estimations of the impact of rainfalls to arsenic mobilization and transport in the contaminated floodplain soils.

The pollutions of the soils with copper in the Bulgarian part of the Danube floodplain between Timok and Vit rivers have been studied by Stoyanova et al (2019, in this isuue). X-ray fluorescence spectrometry shows that the copper is the main pollutant in the Bulgarian lowlands near Danube River. The concentration of pollutants in the soil decreases with the increase of the distance to the mouth of the Timok River into the Danube. The rsults also

show that the Timok River is a major copper supplier to the floodplain of Danube River in the section between the Timok and Vit rivers.

The contemporary geography is expected to facilitate the development of human capital and the knowledge society by offering place-specific "smart" spatial solutions. In view of the intensive migration and urbanization processes in today's world, cities are trying to offer such solutions in order to deal effectively with demographic and environmental pressures (Caragliu et al. 2011; Angelidou, 2014). Smart solutions through geospatial technologies have already been proposed in the geography education (Chatel, 2017; Zwartjes, 2018). The works presented in this special issue demonstrate the current trends in geography research in some countries of South-Eastern Europe which are in line with the new ideas of interdisciplinary and focus on implementation of the scientific achievement in practice. The case studies from Bulgaria, Romania, Hungary and Georgia deal with various aspects of demography, tourism and landscapes and propose spatial solutions applicable from local to national scale.

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