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**В.1. Nadezhda Ilieva. City in the city.2022, ISBN:978-954-9649-16-1, 356   [Линк](http://harman-mahala.com/wp-content/uploads/2022/03/%D0%9C%D0%BE%D0%BD%D0%BE%D0%B3%D1%80%D0%B0%D1%84%D0%B8%D1%8F_%D0%98%D0%BB%D0%B8%D0%B5%D0%B2%D0%B0_2022.pdf" \t "_blank)**

Based on the in-depth theoretical research already done, the present monograph analyzes the multi-aspect processes of spatial segregation on the example of the Roma Harman neighborhood, Plovdiv. The localization and its spatial interrelationships in the structure of the city and its elements are analyzed, the origin, formation and changes that occurred in it are traced, the borders are outlined, the main factors influencing the development of the urban ghettoized structure in the context of the ongoing socio-eco -nomic, ethnocultural and political changes. This monograph examines the interrelationships between social and spatial inequality, as they mutually reinforce each other, and more specifically the manifestation of these inequalities in space. The present scientific monograph is structured in six chapters. In each of them, answers to different aspects of spatial segregation are sought. In the first chapter, an overview of the main concepts is made and the methodology of the research is clarified. The second chapter traces the changes in the number and localization of Roma in Bulgaria, as well as the formation and development of areas with a high concentration of Roma. Spatial segregation is a multidimensional phenomenon of residential and social differentiation that arises for various reasons, and in this regard, the third chapter analyzes the social, cultural, economic, political, institutional factors influencing spatial segregation on the example of Harman Mahal, Plovdiv. Only empirical research can answer the question about the causes of spatial segregation, which is why an assessment has been made to what extent it is the result of voluntary decisions (internal factors), is adopted as a strategy for survival and preservation of one's own culture and identity, or is a consequence of coercion/ constraints (external factors) resulting from direct or indirect discrimination, economic constraints, social exclusion, discrimination in the housing market and concentration of social housing. The degree of interaction between internal and external factors is established. Segregated spaces evolve and change over time, and not always in a predictable way. Bearing in mind that segregation has a temporal dimension as well as a spatial one, the fourth chapter traces and maps the changes in the internal structure of Harman Mahal during the last decades on the basis of orthophoto images, town planning plans, cadastral maps and UAV technologies, the level of social and ethnic homogeneity, amenities, type of ownership and legality of occupied dwellings, access to social housing and the period and manner of their occupation (legal or illegal), etc. In addition to the internal structure, ghettoized urban structures are distinguished by specific patterns of spatial organization. In the fifth chapter, an analysis of the location of the Roma neighborhood is made from the point of view of the place it occupies in the spatial structure of the city. Spatial expressions of integration are identified in three main aspects - territorial location of ethnic groups in the urban space, their degree of mobility and their accessibility to urban resources. In this regard, this chapter assesses and analyzes the access of the population of Harman Mahal to urban resources, which determines the spatial dimension of integration. In this regard, an analysis was made of the modern urban configuration, or, in other words, the location of resources in the urban space, the transport provision from the residential districts to them and the degree of mobility of the Roma ethnic community. Spatial segregation indicators allow us to summarize and therefore compare the spatial distributions of different ethnic groups. In the final, sixth chapter, using specific indicators and with the help of GIS, spatial segregation is measured and the Harman neighborhood is positioned in a conceptual scheme created by Massey and Denton in 1988.

Г.1. **Nadezhda Ilieva.** Spatial segregation – theoretical aspects.. National Institute of Geophysics, Geodesy and Geography, 2019, ISBN:978-954-9649-11-6, 245   [Линк](http://harman-mahala.com/wp-content/uploads/2019/07/%D0%9F%D1%83%D0%B1%D0%BB%D0%B8%D0%BA%D0%B0%D1%86%D0%B8%D1%8F_1.pdf" \t "_blank)

Spatial segregation manifests itself differently in different historical periods depending on different ideological, political, socio-economic, ethno-cultural and other influences. One of the main challenges facing modern European cities in the coming decades is related to socio-spatial problems (increasing inequalities in society and socio-spatial polarization, which is directly related to integration processes). Post-socialist societies face many challenges at the same time, which lead to complex sectoral and spatial changes, including in cities. There are new patterns of socio-spatial polarization based increasingly on income inequality and ethnicity. Social inequalities, as well as long-term ethnic interactions, sooner or later affect the structure of space. Spatial segregation has attracted the attention of geographers, sociologists, and urban planners for more than a century. The research is aimed at the analysis of the models of spatial segregation, the reasons for their formation and development, their place in space, the consequences arising from this segregation. In the scientific monograph "Spatial Segregation - Theoretical Aspects" a review of the literature was made and various theories, concepts and points of view, mostly of European and American scientists, who examined the global processes of transformation and restructuring of the urban space were considered, and the theoretical aspects in the essence of this segregation, the factors influencing the formation of its various models, its multifaceted dimensions, the positive and negative consequences, the spatial patterns formed under its influence, the methods of measuring the levels and the political approaches to reduce the high levels of spatial segregation, thereby providing the theoretical basis of the study.

Г.2. **Ilieva, N.**, KOUWATLI, O., Asenov, K., **Kazakov, B.**. LOCATION AND INTERRELATIONS OF THE ROMA QUARTER OF HARMAN MAHALA WITH THE URBAN STRUCTURE OF THE CITY OF PLOVDIV, BULGARIA. European Journal of Geography, 10, 2, Association of European Geographers, 2019, ISSN:1792-1341, 118-133. SJR (Scopus):1.2   **Q4 (Scopus)**  . JCR-IF (Web of Science):0.29   **Q3 (Scopus)**  [Линк](https://eurogeojournal.eu/showPaper.php?id=10011) [The key factor for a successful territorial cohesion: cross-border cooperation – (eurogeojournal.eu)](http://eurogeojournal.eu/articles/15_ILIEVA_eurogeo_last_with_FIGURES.pdf)

The main objective of this study is to analyse the location and the spatial interrelations of the Roma-populated Harman Mahala quarter of the city of Plovdiv, Bulgaria. Three types of boundaries of the ghettoized urban structure (GUS) have been distinguished – "solid", "blurry" and "symbolic". The solid boundaries are outlined taking into account the urban space inhabited by the Roma ethnic community, i.e. from a "static" point of view. In defining the “blurry” boundaries of the GUS, the specifics of the residents’ spatial behaviour were analyzed. Movement in space is closely linked to the following “functional spaces”: labour, education, recreation and leisure, sports, commerce, healthcare, transport and commuting, with their inherent material and technical facilities, organizational structure and interactions. Through those interactions, the so-called “functional space” is outlined. The third aspect taken into consideration is the outlining of the so-called "symbolic space" of the GUS, the boundaries of which are dependent on how the local Roma population perceives the urban space.

Г.3. Dimitrov, V., Koleva, R., Tepeliev, Y., **Kroumova, Y.**, Lubenov, T., **Ilieva, N.**. SATELLITE MAPPING OF BULGARIAN LAND COVER – CORINE 2018 PROJECT. FORESTRY Ideas, 25, 2, University of Forestry, 2019, ISSN:1314-3905 (print) 2603-2996 (online), 237-250. SJR (Scopus):0.103   **Q4 (Scopus)**   [Лин к](https://forestry-ideas.info/issues/issues_Index.php?journalFilter=64) [Forestry\_Ideas\_BG\_2019\_25\_2\_2.pdf](file:///C:\Users\NIlieva\Downloads\Forestry_Ideas_BG_2019_25_2_2.pdf)

The main aim of the CORINE Land cover 2018 project is to identify and map the changes of land cover/land use for the period 2012–2018 using multitemporal/multispectral satellite imagery. Harmonized methodology with a 44 class nomenclature and a computer assisted photo-interpretation are applied for creating a geospatial database of Bulgarian territory for the year 2018. A brief description of the applied methodology and the main results achieved are presented. The whole Bulgarian territory is mapped in details adequate for the 1:100 000 scale with a minimum mapping unit of 25 ha and a minimum change area of 5 ha. A statistical analysis of the created databases is made. For the investigated period (2012–2018) the largest in number (2720), the largest as area (53,558 ha) and with the highest percentage (53.54 %) of the total area of the changes are the changes occurring in class 3 ‘Forests and semi-natural areas’. Six types of changes prevail, forming over 3/4 of the area of all changes – loss of coniferous forests (23,392 ha – 23 %), loss of broad-leaved forests (18,389 ha – 18 %), pastures into non-irrigated arable land (14,534 ha – 14 %), vineyards into non-irrigated arable land (9451 ha – 9 %), fruit trees and berry plantations into non-irrigated arable land (6051 ha – 6 %) and restored broad-leaved forests (4865 ha – 5 %). The area of recovered broad-leaved forests (change 324-311) is 4865 ha, which is almost 4 times less than the lost (18,389 ha). Two negative change processes were identified – conversion of vineyards (221) and orchards (222) into non-irrigated arable land (211), i.e. extensification of agriculture, but also was an intensification one – change of pastures (231) to non-irrigated arable land (211)

Г.4. **Nadezhda Ilieva**, **Atanasova, Antonina**, Anna A. Ostrovskaya. Integration of the Cyber Economy with Research and Development at the “University–Science–Industry–Market” Level. Springer, 2020, ISBN:978-3-030-31565-8, DOI:https://doi.org/10.1007/978-3-030-31566-5, 283-290   **Без JCR или SJR – индексиран в WoS или Scopus (Scopus)**   [Линк](https://link.springer.com/chapter/10.1007/978-3-030-31566-5_29)

The evolution of economic systems requires changes in the ways that they are managed and, therefore, dictates new approaches for the conduct of scientific research and the training of personnel. The purpose of this chapter is to characterize the processes for the integration of universities, science, and industry with the needs of the cyber economy. The research is divided into three main blocks: characteristics of the main directions of such integration, determining potential problems, and the development of proposals for its acceleration. The research shows that in the modern conditions of widespread digitization, the rapid development of universities, scientific institutes, and industrial companies could and should be built on a close and systemic approach to integration processes and on the creation of a unified closed cyclic system, which satisfies the disparate needs of the digital economy: from the training of skilled personal to the implementation of applied R&D to industrial production through the application of modern digital technologies.

Г.5. Ventzeslav N. Dimitrov, **Nadezhda B. Ilieva**, Hristo S. Nikolov. Evaluation of urban atlas and street tree layer 2012 local component datasets for Bulgaria. Proceedings Volume 11524, Eighth International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2020); 1152417 (2020), 2020, DOI:https://doi.org/10.1117/12.2570763   **Без JCR или SJR – индексиран в WoS или Scopus (Scopus)**   [Линк](https://www.spiedigitallibrary.org/conference-proceedings-of-spie/11524/1152417/Evaluation-of-urban-atlas-and-street-tree-layer-2012-local/10.1117/12.2570763.short?SSO=1)

Land cover data derived from satellite images must be accompanied by information on their quality in order to be properly and fully used. The main purpose of this paper is to present the results of the evaluation of the Urban Atlas (UA) and Street Tree Layer (STL) datasets for Bulgaria for the reference 2012 year. This verification task is part of a project, managed by the European Environmental Agency (EEA) under the Copernicus program. A quantitative assessment approach is applied, based on stratified random sampling at polygon level. The working steps completed are, as follows: preparation of input and reference data, creation of a sample set of land cover/land use (LC/LU) polygons, visual interpretation of selected samples and evaluation of results. The LACO-Wiki web-based tool is used for sampling-related activities. Very highresolution (VHR) satellite imagery and digital aerial photos form major part of the reference data. This way, a scientifically based estimate of the thematic accuracy of UA and STL dataset are obtained and of some geometric characteristics, as well. The following features are estimated: user and producer's accuracy by LC/LU class, overall user's accuracy, uncertainty values, and correctness of delineation by LC/LU class. Comments by LC/LU class are provided. More than 89% of UA polygons have correctly delineated area. The detail of delineation accuracy is over 98%, while the positional accuracy is more than 97%. The overall weighted thematic accuracy of UA is 83.9%, which is higher than the target accuracy of 80%. STL product shows overall accuracy of 94.1% - higher than the required 85%. Relevant and diverse reference data sources together with appropriate stratification and sampling design tailored to the purpose and resources of the project helped to produce realistic accuracy results.

Г.6. **Dilyana Stefanova, Dimitrina Mihova, Nadezhda Ilieva. A survey study of the results of an experimental lesson in geography with the application of GIS, conducted in Bulgarian schools. Teaching geography**, 4, СУ, 2005, ISSN:0204-6849, 27-36   **Национално неакадемично издателство**

The survey evaluates the level of computer literacy of Bulgarian pupils and their attitude to the new information technologies (IT). It makes an attempt to find out the possibilities of using IT in class, as well as the effectiveness of a Geographic lesson with the use of GIS. The survey contains 17 questions and 167 pupils have been questioned.

The general conclusion is that the Bulgarian pupils have a positive attitude to IT technologies used in class. Even in a single demonstrational lesson they showed quick understanding of the GIS principles (73, 6 % correct answers) and 98 % of the surveyed wish to use GIS in class. The Bulgarian survey results come very close to those obtained from an analogical survey held in Japan, where IT use in class has a longer history. This shows the great potential of Bulgarian schools for introduction of the new information technologies and especially GIS.

The paper reports the results of a survey held in seven 9 grade classes in 5 schools in Sofia, one in Lovech and one in Blagoevgrad. The survey reflects the results from an experimental Geography lesson (demonstrational version) with the use of GIS (Geographic Information Systems). This project has been supported by the Bulgarian Ministry of Education aiming at experimental introduction of GIS and Internet in Bulgarian schools.

Г.7. **Mladenov Chavdar**, Ilieva Margarita, **Nadezhda Ilieva**, **Boris Kazakov**. The urbanization process in Bulgaria.. Térés Társadalom, XXIV, 4, Centre for Regional Studies of the HAS RCERS, 2010, ISSN:0237-7683, 285-300     [Линк](https://tet.rkk.hu/index.php/TeT" \t "_blank)

The study summarizes the trends of urbanization in Bulgaria. The development of a city network in the past and in the present is analyzed. Developments in urbanization processes are presented through two case studies. The first examines the transformation of small towns, with an emphasis on their demographic and migration characteristics. In Bulgaria, one of the most important demographic problems in rural areas is depopulation. The network of small towns is also not excluded from this phenomenon, which can only be partially explained by the deteriorating demographic indicators. Migration, directed mainly to the capital, the Black Sea coast and beyond the borders of Bulgaria, is also of great importance. The second case study examines the transformation of the urban population on the Bulgarian Black Sea coast.

Г.8. **Nadezhda Ilieva**. The Turkish ethnic group in Bulgaria (1878-2001) - summary results of the study. ГEOграфия'21, ІV (LІI), 6, 2010, ISSN:1312-6628, 12-23

Ethnical diversity is typical factor for a lot of countries in the World, including Bulgaria. The paper represents the major results from surveying the Turkish ethnic group in Bulgaria (1878-2001). Analyzing the demographic, socio-economic, physiologic, ethno-cultural and politic factors, influencing the factors of natural reproduction, it has been established that natural population growth has helped the increase of the Turkish ethnical group during the entire study period. Migrations also influence strongly the Turkish population number and localization in Bulgaria.

Based on a specially devised methodology for surveying the population number and type, as well as determination of the regions of compact population of the Turkish Ethnical Group, three stages of its demographic development have been outlined. They differ strongly from those, of the Bulgarian Ethnical Group.

Analysis of the natural movements, migrations and the reasons which cause *the them* give the grounds to separate three periods and seven sub-periods in the changes of the Turkish Ethnical Group number and localization in Bulgaria. Three regions of its compact settlement have been outlined, namely: *Ludogoire*, East-Balkan and *Eastp*-Rhodope mountains. They change their territorial boundaries throughout the different periods and sub-periods.

Г.9. **Nadezhda Ilieva.** Changes in the localization of the Roma ethnic group in Bulgaria (1992-2001). Problems of Geography, 1-2, Bulgarian Academy of Sciences,2011, ISSN:0204-7209 ISSN 2367-6671 (Online), 39-58

The theme of the Roma ethnic group is quite often discussed in public space. The changes in its size, demographic behaviour and structure are of great interest. It is the Roma ethnic group in Bulgaria which is the focus of research in this paper. The investigation covers the period between the last two censuses. An attempt is made to delineate the areas, remarkable for their high concentration of Roma population – three times higher than the national average (over 10 %).The 1992 and 2001 censustakings show that the Roma ethnic group is the only one in the country which increased in number – a 2 % average growth rate per year. The Roma population is dispersed amidst the other ethnic groups and does not form compact areas. Six regions can be distinguished, where the Roma ethnic group constitutes a large share – Sub-Balkan, South Dobrudja, Eastern Stara Planina, Burgas, Marishki and Northwestern.

Г.10. **Nadezhda Ilieva.** Number of the Roma ethnic group in Bulgaria from Liberation (1878) to the beginning of the 21st century according to censuses (first part). Problems of Geography, 3-4, Bulgarian Academy of Sciences, 2012, ISSN:0204-7209, 61-79

The main objective of the study is to trace most accurately the changes in the number of Roma ethnic group in Bulgaria throughout the post-liberation historical period when it constituted over 2% of the country’s population. The problems about calculating the number of Roma people are a lot and involve the complex hierarchical structure of their ethnic identity and the widespread phenomenon “preferred ethnicity“, i.e. publicly declared another, non-Roma ethnicity. Three main groups of factors are discussed, affecting the ethnic composition of an area – vital events, migrations of the Roma ethnic group and some ethnic processes (consolidation, assimilation, integration, etc.). Although the Roma ethnic group in Bulgaria is the second largest after the Turkish one, there are very few studies in both the post-liberation period and the years after World War II until the end of 1989. Studies were made on the basis of official censuses and unpublished data on ethnic communities in Bulgaria, aiming to obtain maximum reliable information on the number of Roma in the country. During the whole post-liberation period this was the only constantly growing ethnic group, due primarily to the high natural increase of the population. The latter is largely determined by the conservative traditions and customs of Roma families, by the nature of 79 employment, by the value system of Roma people combined with the specific living environment, by their occupation, by the young age structure, by the deteriorated educational structure, etc. Decisive influence on the decline in birth rates, respectively in natural increase, has the settled-down lifestyle of Roma people, regulated by a resolution of the Council of Ministers in 1958 (the year coincides with the completion of land collectivization), and leading to an improved educational level. Throughout the surveyed period the immigration processes prevailed over the emigration ones which were generally characterized by low intensity and had a negligible effect on the number of Roma population in the country. The changes in ethnic policy since the mid-1950s aimed to stop the growing trend towards self-identification of Roma Muslims, whose mother tongue is Turkish, as Turks. In addition, their Turkish-Arabic names were changed to Bulgarian names. In fact, the so called “restoration process“ or the process of re-naming, began with this ethnic group in the late 1950s, but an opposite result was achieved, especially as far as the Turkish ethnic group was concerned. These trends also affected the ethnic self-determination of Roma population in the next years.

Г.11. **Nadezhda Ilieva.** Geodemographic factors as a prerequisite for the emergence of ethno-religious conflicts in Bulgaria. Ethnic dimensions of social integration, Omda.bg, 2013, ISBN:978-954-9719-29-1, DOI:978-954-9719-28-4, 227-236   [http://www.omda.bg/page.php?tittle=%D0%95%D1%82%D0%BD%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%B8\_%D0%B8%D0%B7%D0%BC%D0%B5%D1%80%D0%B5%D0%BD%D0%B8%D1%8F\_%D0%BD%D0%B0\_%D1%81%D0%BE%D1%86%D0%B8%D0%B0%D0%BB%D0%BD%D0%B0%D1%82%D0%B0\_%D0%B8%D0%BD%D1%82%D0%B5%D0%B3%D1%80%D0%B0%D1%86%D0%B8%D1%8F&IDMenu=408&IDArticle=3704#bdn\_\_9](http://www.omda.bg/page.php?tittle=%D0%95%D1%82%D0%BD%D0%B8%D1%87%D0%B5%D1%81%D0%BA%D0%B8_%D0%B8%D0%B7%D0%BC%D0%B5%D1%80%D0%B5%D0%BD%D0%B8%D1%8F_%D0%BD%D0%B0_%D1%81%D0%BE%D1%86%D0%B8%D0%B0%D0%BB%D0%BD%D0%B0%D1%82%D0%B0_%D0%B8%D0%BD%D1%82%D0%B5%D0%B3%D1%80%D0%B0%D1%86%D0%B8%D1%8F&IDMenu=408&IDArticle=3704" \l "bdn__9)

Ethno-religious conflicts are a common phenomenon in the modern world. The problems that arise in connection with the situation of different ethnic groups, their equality and rights in a given country, are relevant today and will probably be so in the future. To one degree or another, overt or hidden tension on an ethnic basis also exists in Bulgaria. It has its historical burden, which reflects on the ethnic relations in Bulgaria during the so-called post-totalitarian period of the country's development. The adoption of the new Constitution, the ratification of the Framework Convention on the Rights of Minorities put the ethnic groups in the country in a radically different situation, providing them with full civil and political rights. The socio-economic problems that inevitably accompany the transition period are easily transformed into ethnic conflicts. The economic crisis that has occurred is an essential factor for strengthening ethnocentrism, the tendency to discriminatory measures and prejudices, which further complicate inter-ethnic relations.

Various ethnic and religious groups live in Bulgaria, each with its own characteristics and traditions. The communities of Bulgarian Roma and Bulgarian Turks are more numerous. The processes of their integration into the national community are more complicated and contradictory. This mostly applies to the Bulgarian Roma, who are characterized by a separate existence in "neighborhoods, neighborhoods", a specific cultural identity, significant backwardness in their everyday culture and their way of life. To all this must be added the unfriendly and conflictual relations with the Bulgarians and other ethnic groups at the household level and in immediate personal and neighborly relationships, etc. Regardless of the purposeful public and state care from the 1950s, their integration with the Bulgarian community is partial and superficial. The situation in Bulgaria is complicated by the fact that it ranks among the countries with the highest absolute number and relative share of Roma, on the one hand, and their aggravated socio-economic situation, inherited from the past, on the other.

The reasons that give rise to ethno-religious conflicts are of a different nature: foreign political, internal political, economic, social, psychological, etc., and one of the prerequisites for the emergence of these conflicts is related to geodemographic factors. In the present study, the main aspects of geodemographic factors are analyzed, and they are divided into three groups - demographic (peculiarities in the change in their number, relative share, reproductive attitudes, age, educational, social, settlement, professional structure), spatial-geographical ( territorial location and related spatial relationships in individual parts of the country) aspects and intensity of ethno-transformational processes.

Г.12. **Nadezhda Ilieva**. The Roma people in Bulgaria – Their number and localization. from the Liberation (1878) until the beginning of the 21st Century. EUROPA XXI., 27, Insitute of Geography and Spatial Organization, PAS, 2014, ISSN:1429-7132, 61-77   <https://rcin.org.pl/dlibra/show-content/publication/edition/53619?id=53619>

The main objective of this study is to trace accurately the changes in the number and in the location of the Roma ethnic group, which has constituted no more than 2% of the population during the whole history of Bulgaria after The Liberation (1878). In this study, general and regional features of the dynamics of demographic processes and spatial distribution of the Roma in Bulgaria have been followed through and some main trends in the development of these processes have been established.

Г.13. **Grozeva, Maria, Ilieva, Nadezhda.** Geographic distribution of the Renaissance architectural-ethnographic complexes in the mountainous and semi-mountainous territories of Bulgaria. Anthropogeography and Modernity, 11, Publication of the Association for Anthropology, Ethnology and Folklore "Ongle",2015, ISSN:1314-3115, 168-173    [Линк](http://www.spisanie.ongal.net/broi11/8_grozeva.pdf" \t "_blank) [8\_grozeva.pdf (ongal.net)](http://www.spisanie.ongal.net/broi11/8_grozeva.pdf)

National Revival architectural and ethnographic complexes and sites are an essential part of Bulgarian national culture. The aim of this study was to analyze the spatial concentration of the main reserves and complexes of this type in the mountainous and hilly areas of the country. To achieve this aim are used cartographic and comparative geographic method (Arc GIS 92) and historical approach. As a result, a map of these sites is geographically identified cultural and historical localizations and major axes of the monuments of this age. An architectural and historical assessment of their importance for cultural tourism is done.

Г.14. **Ilieva, Nadezhda, Lobutova, Veneta**. Spatial segregation - essence, factors, main characteristics. Problems of geography, 1-2, Marin Drinov, 2015, ISSN:0204-7209, 21- [Линк](http://www.niggg.bas.bg/departments-bg/geographyb/spisanie/" \t "_blank)

The spatial segregation is manifested differently in the various historical periods, influenced by the complex course of ideological change. Post-socialist societies face lots of challenges that lead to complex structural changes, including in the cities. Contemporary forms of spatial segregation are mainly related to income inequality and ethnicity. During the 1920s, the Chicago School created the first conceptual framework of spatial segregation. In Bulgaria the problems of spatial segregation are linked to the formation of neighborhoods of Roma population in big cities. This article examines the nature, patterns and factors, which influence the formation of spatial segregation, as well as the positive and negative effects of this phenomenon. A definition of spatial segregation is proposed. The spatial segregation is multidimensional phenomenon of spatial concentration of a group of people with a certain class, ethnicity and /or race, which is a result of voluntary decisions (internal factors) adopted as a strategy for survival and preservation of their culture and identity, or is a consequence of direct or indirect constraint (external factors), such as a direct or indirect discrimination, economic constraints, social exclusion, institutional policies, etc. Spatial segregation might form from a mix of internal and external factors. The proximity of large number of disadvantaged households aggravates and prolongs the shortcomings of spatial segregation, thus new forms of social interaction, which lead to sustainable economic status and active citizenship should be seek.

Г.15. **Ilieva, Nadezhda.** ETHNO-DEMOGRAPHIC PROCESSES IN NORTHEASTERN BULGARIA FROM THE LIBERATION TO THE BEGINNING OF THE XXI CENTURY. Ongal, 11, Publication of the Association for Anthropology, Ethnology and Folklore "Ongal", 2015, ISSN:1314-3115, 93-140 Link 5\_N\_ILIEVA-1.pdf (ongal.net)

Northeast Bulgaria differs with diverse ethnic structure. In 2011 in this part of the country is concentrated 17% of the Bulgarian population, 45% of Turkish and 22% of the Roma ethnic group. The aim of the study is to trace the demographic characteristics, the territorial location of the ethnic communities in Northeastern Bulgaria, and to clarify the complex of factors affected on the demographic processes in the different historical, socio-economic and political conditions after the Liberation of Bulgaria (1878) to nowadays. Based on changes in the number and share of Bulgarian, Turkish and Roma population, the peculiarities of their natural reproduction, the nature of migration movements, the reasons causing them, the policies towards ethnic groups, three periods in the development of ethnodemographic processes in Northeastern Bulgaria are clearly outlined.

From the Liberation to the end of the Second World War

- Liberation marked the beginning of large-scale demographic processes in the new political and economic conditions in Bulgaria. The fragmentation of its ethnic territories causes immigration movements. This part of the country accepts half of the refugees in Bulgaria before (1885) and one third of the refugees until the end of World War II. The presence of thousands of refugees have a positive impact on Bulgaria and mixed ethnically areas, as they help to strengthen the Bulgarian character of the settlements. The most general result is the establishment of the ethnic homogeneity in the ethnic structure of the population of Northeastern Bulgaria and the significant increase of the settlements populated entirely by Bulgarians (23 to 39%) and predominantly Bulgarian population (from 20 to 24%). In 1900 these groups settlements are widespread in the areas along the Danube and Black Sea. Until 1946 their territorial distribution, gradually expanded into the eastern parts of South Dobrogea, East Stara planina (east of Gerlovo, Slannik and Tuzluka) and the municipalities west of Ludogorie.

- Liberation puts Bulgarian Turks in radically different political, social and economic conditions. Regardless of the tolerant policy that led Bulgarian government, which is confirmed by the adoption of the Tarnovo Constitution, which gives civil, cultural and political rights to all its citizens, free primary education for all, freedom of speech and press and etc. emigration of Bulgarian Turks throughout the period did not stop. The main reasons for this are political changes and change of the position of Bulgarian Turks in the social structure of society. Considering that in the period to the end of the Second World War the Turkish population is in the first phase of demographic transition (high birth and death rates, which define moderately high levels of natural growth), it is clear that external migrations, depending on their nature and intensity are the most important factor influencing the changes in the number and territorial location of the Turkish population in Northeastern Bulgaria. The first period under consideration is characterized by the fastest rates of reduction in the number of the Turkish population and the most intensive processes in the changes of the its number and location. The region of Ludogorie, and historical-ethnographic area Gerlovo, Slannik Tuzluka retain their territorial differentiation, which helps to preserve his number, location and ethnical structure. Throughout the period the group of settlements populated entirely and predominantly with Bulgarian Turks retain their ethnic structure and show an increase in the number of the Turkish population. Territories with less compactness of the Turkish population a significant reduction in the number and its relative share is observed.

- Until World War II settlements with presence of Roma constitute an insignificant share in the structure of settlements. For example Bulgarian-Roma settlements constitute 2%; TurkishRoma settlements – 1%; settlements with diverse ethnic structure – 5%. Formation of a territorial concentration of these groups of settlements is not observed.

Since the end of World War II until the early 90s

- The Socialist period is characterized by increasing of the differences in the demographic indicators between the main ethnic communities. Since the mid 50s Roma and Turkish populations are entering in the second phase of demographic transition, while Bulgarians started the third. The second phase for Bulgarian Turks ends late 80s of the twentieth century, while Roma continued to the end of the 90s of the twentieth century. The fourth phase in Bulgarian started in the mid 80s, and the natural growth is already negative.

- During the period, unlike previous, significant changes in the ethnic structure of the population in Northeastern Bulgaria do not occur. There is a spatial diversification of the observed processes. During this period the positive values of the growth rate in the Bulgarian population are distinguished only in regional centers and some Black Sea municipalities. The biggest decrease in the number and proportion of Bulgarians stand out territories with compact Turkish population. In the migration processes, caused by the collectivization of agriculture and rapid industrialization of the country takes part predominantly Bulgarian population. Resultingin a decrease of its number in villages and in areas with mixed ethnic structure. Its growth only in the urban and municipal centers is observed. As a result of these processes has been a significant reduction in the group settlements populated entirely with Bulgarian population (from 29 to 19%) and settlements with predominantly Bulgarian population (from 24 to 12%).

- Policy towards ethnic groups in the country is characterized, similar to the previous period, with too much inconsistency regarding the status of ethnic groups. At the same time plays an important role in the policy pursued by Turkey, which seeks to regulate the number of Turkish ethnic group, by limiting the number of immigrants from the country. The losses of Turkish population due to inflow in 1950-1951, the 1969-1978, the so-called. "Great trip" in the late 80s are compensated by the high levels of population growth. As a result the number is growing compared to the end of World War II. Regardless of the policy of industrialization in the country, the regions with mixed population perform secondary functions in the national economy. Despite their progress in the socio-economic development, they continue to evolve significantly less than other parts of the country, and therefore remain predominantly agrarian character. In areas with mixed ethnic structure the rate of urbanization is weake and low intensity of migration to the cities of the Turkish population is observed, which mainly deals with agricultural activities and stays to live mainly in the villages. Unlike the years before the Second World War most affected by the emigration of the Turkish population (especially during the so-called "Revival process") are distinguished areas with the greatest territorial compactness of Bulgarian Turks – Ludogorie, Eastern Stara Planina which is in line with the policy of the Bulgarian government to reduce the number and compactness of the Turkish population in these areas. Unlike previous periods municipalities with a higher proportion of the Turkish population is observed the highest rates of decrease. Most affected by emigration are the municipalities with the highest percentage of the Turkish population. Regardless of the observed processes the desired results are not achieved. The rapid reduction of the Bulgarian population in villages as a result of ongoing migration from villages to the towns and the negative rates of natural growth not only helps to preserve the compactness of the Turkish population, but also to increase its share. Unlike the previous period, an increase of villages entirely inhabited by Turkish population (from 9 to 17%) at the expense of the villages with predominantly Turkish population (from 17 to 12%) is observed.

- An increase in groups with presence of Roma population is observed: Bulgarian-Roma settlements from 2 to 6%; settlements with diverse ethnic structure from 8 to 20%; for the first time group with predominantly Roma population is occur, which in 1992 accounted 2 % of the settlements in Northeastern Bulgaria.

Since the early 90s until the beginning of XXI century

- Constitution adopted in 1991, which enshrined the most important legal foundations, provide full civil and political rights of all citizens regardless of their ethnic identity. The severe social and economic crisis occurred after 1989 led to an accelerated rate of development of demographic transition and reduction of fertility in all three ethnic communities country.

- Socio-economic problems that accompany the transition period are crucial to make a decision to emigrate for the three ethnic communities and displace the influence of the political factor that is leading in previous periods. The greatest intensity of emigration at the beginning of the period is typical for the Turkish population, while the Roma emigration reached after the accession of Bulgaria to the EU in 2007. All these factors have a decisive influence on the formation of their number in Northeast Bulgaria

- The negative natural growth, in combination with the aging age structure and emigration, are the reasons for the rapid reduction of the Bulgarian population after 1989. The main factor for the negative growth rate in the Turkish population between the last two censuses is emigration, mainly to Turkey. The Roma high positive natural growth, in combination with poor mobility due to immigration restrictions imposed on them, favoring the increase of its number.

- All these processes determine the changes in the ethnic structure of municipalities and individual settlements. In most municipalities there is an increase in the share of Turkish and Roma population. After the detailed analysis of the spatial characteristics of the changes in the number and location of Bulgarian, Turkish and Roma population the following conclusions can be formulated: despite the reduction in the number of Turkish population, its territorial dislocation does not change, but on the contrary – there is an increase in settlements entirely populated and predominantly by the Turkish population; reducing the share of settlements with diverse ethnic structure; increase in settlements with predominantly Roma population (absolute number has doubled from 22 to 42 villages).

Г.16. **Ilieva, Nadezhda.** ETHNO-DEMOGRAPHIC PROCESSES IN THE ROMA POPULATION IN NORTHWESTERN BULGARIA FROM THE END OF THE 19TH TO THE BEGINNING OF THE 21ST CENTURY. Population, 4, Bulgarian Academy of Sciences,2015, ISSN:0205-0617, 195-208

The present study analyzes the changes in the number and localization of the Roma ethnic group in Northwestern Bulgaria. The impact of natural reproduction and migration processes on the spatial dislocation of the Roma were tracked. Two periods were identified in the change in the structure of the settlements with different relative shares of the Roma population: until the end of the 80s and from the beginning of the 90s. when there is a clear trend of growth in settlements with a high relative share of Roma (over 10%), which reached nearly 50% in the last census (2011), and the number of Roma in them is even greater and reaches nearly 70 %. The change in the ethnic structure of the settlements and the growth of their territorial localization led to the emergence and gradual growth of the North-West area with a high concentration of Roma population, which in 2011 covered 4.1% of the country's area and 8.9% of the Roma in the country.

Г.17. **Nadezhda Ilieva.** Socio-economic aspects in the development of the land border territories of Bulgaria outside the EU - problems and perspectives.. Problems of Geography, 3-4, BAS Publishing House ",2015, ISSN:0204-7209 ISSN 2367-6671 (Online), 5-20    [Линк](http://geoproblems.eu/bg/2015-%D0%B1%D1%80%D0%BE%D0%B9-3-4/" \l "1" \t "_blank)

Object of study in this publication are the land territory of Bulgaria that are external border areas of the EU. Due to the peculiarities of their socio-economic situation and possibilities for their future development, driven by the similarity in the character of their geographical location, they will be examined together. The main objective of the study is to analyze the socio-economic aspects in the development of the EU external land border territories of Bulgaria and to outline the problems and perspectives for their development. The study area have some common features and problem solving: common features in the geographical position, the natural environment, social and economic problems. From the analysis we can conclude that the main problems associated with the development of the studied areas are focused in the following areas:

– Dominant negative trends in the economy in recent decades, which affects their overall development. The analysis shows that most municipalities (except regional centers) are characterized by low production diversification, which can not guarantee economic stability.

– Negative trends in demographic processes, which further complicate the economic development of municipalities. For most of them are typical high unemployment and lack of alternative employment opportunities, enhanced processes of migration of working-age population in other parts of the country and abroad. All these disadvantages lead to enhanced processes of depopulation and worsened age structure.

– High concentration of activities in the administrative centers.

– Low investment activity and lack of investor interest. – Lack of funds to implement the strategic objectives of municipalities. – The structure of enterprises is presented by micro and small enterprises operating mainly in the field of trade.

– Lack of well developed transport and communications infrastructure.

– Primitive agriculture especially municipalities along the western border, accompanied by fragmentation of agricultural land and plots.

– Low developed cross-border cooperation with neighboring of these territories countries (Serbia, Macedonia and Turkey). All these processes are accompanied by limiting state subsidies and short-sighted policy of the state to the peripheral and the cross-border territories.

Г.18. **Nadezhda Ilieva**. Forecast of the population in the mountainous territories of Bulgaria until 2050 for the purposes of regional development. Bulgarian Geographical Society, 2016, ISBN:978 619 90446 1 2, 423-   [Линк](http://geography.bg/images/dokladi/21.pdf" \t "_blank) [21.pdf (geography.bg)](https://geography.bg/images/dokladi/21.pdf)

The mountainous areas in Bulgaria are distinguished by deteriorated social and economic indicators compared to the rest of the country. These territories require specific policies and development plans aimed at stabilizing them and limiting depopulation processes. Their effectiveness over time is largely determined by future demographic processes. In the present study, based on the analysis of the current state, trends in demographic development, as well as the expected impact of various factors, a forecast of the population by settlements in the mountainous territories in Bulgaria until 2050 has been made. The demographic forecast has been developed in three variants (pessimistic, optimistic, and realistic). The method of cohort components was used.

Г.19. **Geogrieva, S., Ilieva, N..** Regional features in the demographic processes of the population in the rural areas of South Central Bulgaria at the end of the 20th and the beginning of the 21st century. Collection of reports Fifth International Scientific Conference "Geographic Sciences and Education", 4- November 5, 2016, Shumen, University Publishing House "Bishop Konstantin Preslavski",2017, ISBN:978-619-201-172-7, 264-272

From 70 years of the XX century in the vast rural areas in the South Central Bulgaria regressive demographic trends is observed. Object of the present study is the population in rural areas of South Central Bulgaria. The main objective of this paper is to analyze the regional differences in demographic trends of the population in rural areas of South Central Bulgaria since 1989. In this connection the extent of influence of social, economic, ethnic, cultural, religious factors and the influence of the regional centers and major cities on the spatial polarization of the observed processes in rural areas in this part of the country are analyzed. The settlements are classified, depending on the structure of increase/decrease in the number of population and the influence of natural and mechanical growth.

Г.20. **Ilieva, Nadezhda, Asenov, Krasimir.** Factors influencing the processes of spatial segregation (on the example of "Arman Mahala", Plovdiv) (first part). Problems of Geography, 3-4, Bulgarian Academy of Sciences, 2016, ISSN:0204-7209, 103-125   [Линк](http://www.niggg.bas.bg/wp-content/uploads/2017/04/2016_34.pdf" \t "_blank)

One of the main challenges which modern European cities are about to face in the coming decades are associated with the increasing social inequalities and socio-spatial polarization, which are directly related to the processes of integration. These processes are the result of a continuous interaction between specific spatial patterns and social, economic, political and institutional transformations on one hand, and the behavior of different actors and the options they are provided with, on the other. The focus of many studies is put on the characteristics of the space, which affect the formation of certain opportunities and behavior of the population inhabiting that space, and vice versa - the way the behavior of the population and the social interactions create and reshape the urban space. Therefore, it is necessary to clarify the factors exerting a decisive influence on the formation and development of those interactions, as well as to estimate to what extent the new urban realities will affect the different categories of population, their daily spatial behavior, their inclusion or exclusion from the society in time and space. Urban geography, in recent years has focused on research related to the physical spatial structure of the city. One of the issues that relates to this type of research are the areas in the urban morphology occupied by Roma neighborhoods, the factors that influence the formation and spatial development of such neighbourhoods, their location and interaction with the different functional areas of the urban space, the time of their occurrence, the dynamics and changes of their location through different time periods. The first part of the paper represents a review of the literature on the topic, while various theories, concepts and perspectives (of European and American scientists mostly) concerning the factors influencing the formation of different patterns of spatial segregation , have been discussed. Thus, the theoretical basis of the study has been justified. Furthermore, a methodology for studying the factors influencing the processes of spatial segregation has been designed, the methods and approaches to gathering the necessary information have been revealed. A brief characteristic of the geographical location of the Roma “Arman mahala” neighborhood in Plovdiv follows, as well as an assessment of the natural factors for its formation and development. The second part of the paper intends to clarify, grade and analyze the demographic, socio-economic, psychological, political, institutional factors influencing the formation and the spatial development of the Roma “Armand mahala” neighborhood in Plovdiv.

Г.21. **Nadezhda Ilieva.** Typology of rural settlements of rural settlements in Bulgaria for the period 1992-2011 in the context of depopulation processes. Problems of Geography, 1-2, Bulgarian Academy of Sciences, 2018, ISSN:0204-7209 ISSN 2367-6671 (Online), 15-35     [Линк](http://geoproblems.eu/wp-content/uploads/2018/07/2018_12/2_ilieva.pdf" \t "_blank)

In recent decades, human capital has become an increasingly important topic of study. It is regarded as a leading development factor, given that the demographic development itself is closely linked to the overall economic development. Human capital - with its quantitative and qualitative characteristics - can hinder or accelerate the overalldevelopment of a given territory, especially when viewed in a spatial aspect, taking into account the specificities of that same territory. This study has found that the polarization of the depopulation processes is a result of various social, economic, demographic, ethno-cultural, political, psychological, natural, ecological and other factors. The spatial expansion of the depopulation processes is examined based on the study of the main demographic indicators on a settlement level. The depopulation processes in rural settlements are much deeper than in urban settlements. Significant spatial disparities are also observed. The relationship between the starting moment of depopulation processes and their magnitude over the last 25 years has been proved. The influence of the regional centers on the demographic development of the adjacent settlements has also been outlined. In most villages, extreme negative thresholds have been reached, which define the deepening unfavorable demographic trends in the future. Only a limited number of villages exhibit population growth. The trend of population concentration in the middle-sized and large urban settlements, together with the dropout of numerous very small villages from the settlement network, continues. The complete depopulation of many small villages located mainly in mountainous and peripheral areas leads to a number of negative consequences associated with serious difficulties in the development of these areas in the near future. By typologizing the villages using the classic method of John Webb (1963), the trends in population dynamics have been traced for the 1992-2001 and the 2001 -2011 subperiods, based on the degree of influence of the two main components that determine the population number change - the natural increase/decrease and the positive/negative net migration rate. In the 2001-2011 subperiod, the number of villages belonging to the types that exhibit the most unfavorable demographic situation has grown compared to the 1992-2001 subperiod. Using the IDW tool in ArcGIS for spatial analysis and visualization, areas with varying degrees of depopulation have been outlined in great detail.

Г.22. **Nadezhda Ilieva**, **Boris Kazakov**. Projection of the Roma population in Bulgaria (2020-2050). 5th JUBILEE INTERNATIONAL SCIENTIFIC CONFERENCE „GEOBALCANICA 2019“, 13-14 June 2019, Sofia, Bulgaria, 2019, ISSN:1857-7636, DOI:http://dx.doi.org/10.18509/GBP.2019.35, 271-280   [Линк](http://geobalcanica.org/wp-content/uploads/GBP/2019/GBP.2019.35.pdf" \t "_blank) [GBP.2019.35.pdf (geobalcanica.org)](http://geobalcanica.org/wp-content/uploads/GBP/2019/GBP.2019.35.pdf)

The paper presents the results of a demographic projection of the population and the age structure of the Roma ethnic group in Bulgaria, as well as the main factors for the specific demographic and socio-economic development of the Roma. The authors discuss the reasons for that discrepancy and attempt to estimate the number of Roma people in Bulgaria as of 2015 and make a projection of the population number of the country as a whole (2020-2050) and of the Roma share and number in particular, including its basic age structure – the 0-14; 15-64 and the 65+ age groups – by using the method of cohort components. Migration mobility and demographic transition phases have also been considered and some key conclusions have been made regarding the future trends concerning the number and share of the Roma ethnic group in Bulgaria.

Г.23. Dimitrov, V., Tepeliev, Yu., Koleva, R., Krumova, Yu., Ilieva, N., Lyubenov, T., Borisova, B.. Earth surface monitoring under the Copernicus program in 2017-2018. for Bulgaria - main results.SPACE ECOLOGY SAFETY PROCEEDINGS , FIFTEENTH INTERNATIONAL SCIENTIFIC CONFERENCE, 2019, Space Research and Technology Institute -BAS, 2019, ISSN:p-ISSN 2603 – 3313, e-ISSN 2603 – 3321, 146-152    [Линк](http://www.space.bas.bg/SES/archive/SES%202019_DOKLADI/PROCEEDINGS%20SES%202019.pdf" \t "_blank) [PROCEEDINGS SES 2019 (bas.bg)](http://www.space.bas.bg/SES/archive/SES%202019_DOKLADI/PROCEEDINGS%20SES%202019.pdf)

The report is dedicated to the working procedures and results of Bulgaria's participation in the activities to support the verification and creation of land cover products within the Copernicus Land Monitoring Service during the period 2017–2018. Completed is verification of local components and high-resolution layers by comparison with reference data. Through visual interpretation and GIS modelling, the databases for CORINE land cover 2018 were created: revised CLC2012, changes CLC2012–2018 and CLC2018. In general, the thematic accuracies of the local components meet the requirements, and acceptable and insufficient accuracy are registered for the high resolution layers. The largest changes in area under CLC2018 are the loss of coniferous and deciduous forests and pastures in arable land.

Г.24. **Nadezhda Ilieva**, **Boris Kazakov**, **Stefan Genchev**, **Aleksandra Ravnachka**, **Velimira Stoyanova**. APPLICATION OF GIS IN SPATIAL SEGREGATION MEASUREMENT (A CASE STUDY OF PLOVDIV, BULGARIA). Proceedings Vol. 1, 8th International Conference on Cartography and GIS, 2020, Nessebar, Bulgaria, Eds: Bandrova T., Konečný M., Marinova S., 1, Bulgarian Cartographic Association, 2020, ISSN:1314-0604, 94-109    [Линк](https://iccgis2020.cartography-gis.com/8ICCGIS-Vol1/8ICCGIS_Proceedings_Vol1_(10).pdf" \t "_blank)

In Bulgaria, spatial segregation is mostly related to the Roma quarters, which occupy a significant part of the urban space and thus represent a functional barrier to urban development. The paper presents the results of measuring spatial segregation in its five dimensions proposed by Massey and Denton’s conceptual scheme: evenness, exposure, concentration, centralization and clustering. Specific indicators providing information on the above-mentioned dimensions of the Roma segregation in the urban area of Plovdiv have been calculated, based on official national statistical data, satellite and orthophoto images, and GIS. The proposed methodology can be used for other cities as well, making comparison and spatial analysis possible.

Г.25. **Nadezhda Ilieva**, **Boris Kazakov**. Demographic projection of the educational level of the Roma population in Bulgaria.. GEOBALCANICA: Proceedings 2020, Geobalcancia Society – Skopje, North Macedonia, 2020, ISSN:ISSN 1857-7636, DOI:DOI: http://dx.doi.org/10.18509/GBP.2020.35   [Линк](http://geobalcanica.org/proceedings-2020/" \t "_blank) [GBP.2020.35.pdf (geobalcanica.org)](http://geobalcanica.org/wp-content/uploads/GBP/2020/GBP.2020.35.pdf)

Education is one of the main indicators of the social status of a population group in modem and postmodern societies. According to "Education: the situation of Roma in 11 EU Member States" (2014) only 1/2 of the male Roma teenagers and just l/3rd of the female Roma teenagers in Bulgaria aged 15-18 attended school (compared to 9/10 of Bulgarians). The projection of the attained educational level of the Roma population of Bulgaria aged 15+ years has been elaborated in two scenarios: 1) the so-called “base scenario” which stipulates that the current educational status and trends of the Roma population, the ethnic Bulgarian population and the total population of the country, will be maintained in the long term; 2) the so-called “integration in the education system scenario”, which assumes a possible significant improvement of the educational status of the Roma community. The projection has been made by time intervals (until 2020, from 2020 to 2030; from 2030 to 2040 and from 2040 to 2050) and has been elaborated through several calculation steps (estimation of the total number of the population aged 15+, the number of population aged 15+ by ethnicity by 2020, 2030, 2040 and 2050, the population aged 5-14 years as of 2011, 2020, 2030, 2040 and 2050 by ethnicity, and estimation of the education level of the population in the age cohort of 15-24, which in the base year were aged 5-14 years. The cumulative changes from previous years were also taken into account in the calculations. As a result – a final total projection of the population aged 15+ by education level, based on the results obtained in each steps of the projection has been elaborated.

Г.26. **Nadezhda Ilieva.** The unknown Anastas Razboinikov. Bulletin of the Bulgarian Geographical Society, 42, Bulgarian Geographical Society, 2020, ISSN:0375-5924, 132-140    [Линк](http://geography.bg/images/Izv_BGD/tom%2042/JBGS_vol42_2020_Ilieva_N.pdf" \t "_blank)

Anastas Razboynikov is a scientist, geographer, historian, ethnographer who has been in the shadows over the last decades and his life, creativity, role as a public figure, especially in the years before World War II, remain forgotten and unknown. In this article, based on the review of his work and published biographical materials, the life, creativity and the main contributions to the geographical science of Anastas Spasov Razboynikov have been traced.

Г.27. **Nadezhda Ilieva, Alexandra Ravnachka, Mariana Sultanova. CONCEPT FOR CREATING A GEOGRAPHIC EDUCATIONAL PORTAL "SCIENCE IN THE CLASSROOM. Problems of Geography, 3-4, "Marin Drinov",**2021, ISSN:0204-7209, 77-88

The dynamic development of science in the last decade, resulting from the wide spread of information technologies, poses new challenges to the modern educational paradigm. The creation of joint projects involving schools, on the one hand, and universities and research institutes, on the other, provides direct access for teachers and students to scientific achievements. The National Strategy of Scientific Research envisages the establishment of a sustainable connection between education and science and business, as a basis for the development of a knowledge-based economy. The geographical educational portal „Science in the classroom“ is oriented towards the creation of an interactive map of Bulgaria which has not been created so far, nor has it been published on the Internet, and will be easily accessible without the need to install additional specialized GIS software. The interactive map will be applicable in each of the lessons, replacing a wide range of specialized thematic maps, which, for a number of reasons, are missing from the current geography and economics lessons, while at the same time are an inalienable attribute of geographical education. The interactive map is designed to provide quick access to various geographical information about the components of the natural environment, the demographic and economic processes, and their temporal and spatial development. This enables students to observe the dynamics of geographical processes in the country, and to make projections of their future development. The entry of science into the classroom also provides benefits to geographical science itself. How will the student contribute? - the portal envisages students to be involved in the process of collecting and adding attributive information about their local area of residence to the interactive map. In this way, students will get involved in cognitive activity and thus experience the sense of discovery as an interesting and useful model of human behavior, giving them confidence as researchers. The portal envisages that students collect a database of natural objects which have not been classified by science so far, and locate them on the interactive map during the study of their local area of residence. After an additional inspection, that database will become part of the geographical database of the Bulgarian Academy of Sciences (BAS), and thus save a lot of scientific time and significant financial resources. The interactive map will be linked to the specially created geographical educational portal „Science in the classroom“, which will be virtually linked to the site of the National Institute of Geophysics, Geodesy and Geography at the BAS. Another module of the geographical educational portal, under the general name „My research“, aims to introduce geography into the classroom and meet the need of the teaching community for up-to-date scientific geographical information. This module substantiates the research, educational and cognitive activity of the students from a methodological, technological and didactic point of view. The module provides a valuable educational resource to the teacher of geography and economics, for conducting and optimizing activity lessons, which are largely neglected due to their insufficient scientific and didactic provision. The described research practices are accompanied by demonstration videos, specially created for the purpose. The research modules can be used in the lessons for students majoring in geography, so as to take the learning process out of the classroom and integrate it with other related subjects. The educational portal will shorten the distance between the latest geographical research, teachers of geography and economics, and students studying this subject.

Г.28. **Nadezhda Ilieva.** DEMOGRAPHIC FACTORS FOR SPATIAL SEGREGATION AND THEIR REFLECTION ON THE FORMATION AND DEVELOPMENT OF THE GHETTOIZED URBAN STRUCTURE HARMAN MAHALA, PLOVDIV. Problems of Geography, 1-2, Ed. "Marin Drinov",2022, ISSN:0204-7209, DOI:DOI: 10.35101/prg-2022.1-2.3, 35-59   [Линк](https://geoproblems.eu/wp-content/uploads/2022/07/2022_12/3_ilieva.pdf" \t "_blank)

Spatial segregation manifests itself in different ways during different historical periods depending on the different ideological, political, socio-economic, ethnocultural and other influences. Post-socialist societies face many challenges at the same time, leading to complex sectoral and spatial changes, including in cities. There are new models of sociospatial polarization, increasingly based on income inequality and ethnicity. Social inequalities, as well as long-term ethnic interactions, sooner or later affect the structure of space. The various forms of spatial segregation in Bulgaria are related to the territorial concentration of the Roma ethnic group, and the increase in the level of their spatial segregation in recent decades is proven. The factors that influence the formation of different models of spatial segregation are divided into two groups: internal or voluntary (ethnocultural and demographic) and external (political and institutional, socio-economic and discriminatory) factors. This publication analyzes the demographic factors, as part of the internal ones, for the formation and development of the Roma ghettoized structure Harman Mahala, Plovdiv. Combined methods were used in order to obtain quantitative and qualitative data, through which the studied processes were studied in greater depth. Demographic factors are key in determining differences in levels of spatial segregation and largely determine the degree of influence of other groups of factors. In this regard, an in-depth analysis of the peculiarities and ways of forming the modern ethnic structure, the number of Roma population in different urban areas, the ethnic diversity of Harman neighborhood, the share of ethnic communities, trends in demographic and migratory behavior of Roma in the study area , their age, educational and religious structure, composition and character of the household. In order to formulate effective national and regional policies and strategies for Roma integration and to objectively assess their effectiveness, there is an urgent need to improve the collection of ethnicity data through regular monitoring. The developed methodology to some extent solves the problem of lack of data. The application of the compiled research algorithm collects a wide range of data related not only to the demographic characteristics of the Roma population. Despite the observed trends of decreasing natural growth, there is a rapid increase in population in the urban ghettoized structure Harman neighborhood. The decline in the birth rate is mainly the result of policies to keep children in school and increase their educational level, as well as increased emigration, which has a limiting effect on the number of births. Although emigration has been intense over the last decade, it is not necessarily accompanied by a change of residence, as in many cases migration processes are intermittent, sporadic. Returning from abroad with their savings, many Roma buy real estate in other parts of the city and surrounding villages and despite the change in status, income and marital status keep their property in the Roma neighborhood in their desire to keep family, clan, neighborhood relationships. The Muslim religion and the Turkish mother tongue play a very strong role in the formation of the ethnoterritorial community and the alienation of the state. These ethnic features lead to the formation of the idea of alienation of Turkish Roma (such as over 90% of the population of Harman Mahala) not only from the majority, but also from other Roma groups. There is a process of searching for a new self-identification, of the formation of an ethnic community related to the Turkish identity. This desire is growing to such an extent that the Roma recognize Turkey as their homeland and as a country that would solve their accumulated problems, forming in their minds an idealized image that in no way corresponds to reality. All these processes give grounds to draw the conclusion about the strong influence of the internal factors for spatial segregation of the Roma in the formation of the urban ghettoized structures in the city of Plovdiv. The development of a successful regional policy will be effective, provided that the demographic situation, the number and location of individual ethnic and religious communities and their problems are known. The research done partly covers these needs, but there are also many problems that need to be addressed. In practice, the nature of demographic processes and whether the Roma will copy the reproductive and marital behavior of the majority depend on future integration problems. The integration processes will also determine the speed and intensity of the transition of the Roma to the fourth phase of the demographic transition. It is related to increasing the requirements for raising children, raising the educational level of the Roma, as their economic well-being is one of the most important factors influencing the change of their values. Trends in demographic development show that the increase in the Roma population will continue, which will maintain the high demand for housing. All these facts, in turn, will pose significant challenges to the physical planning of new homes.

Г.29. **Илиева, Н.**. Territorial Characteristic of the Demographic Processes and the Trends in Bulgaria. Coping with Demographic Decline in Croatia and Bulgaria, Friedrich-Ebert-Stiftung, Regional Office for Croatia and Slovenia, Praška 8, HR 10000 Zagreb, Croatia, 2017, ISBN:978-953-7043-63-6, 9-18   **Международно неакадемично издателство**   [Линк](http://library.fes.de/pdf-files/bueros/kroatien/13814.pdf) [13814.pdf (fes.de)](https://library.fes.de/pdf-files/bueros/kroatien/13814.pdf)

Some of the biggest challenges before Europe and modern societies in the present day and in future decades are related to the trends in demographic processes. These issues display a strong differentiated nature in individual regions, while at the same time many common characteristics can be observed as well. Political and economic transformations of the last 25-30 years have had a decisive impact on the demographic development of the population in Central and Eastern Europe. Generally speaking, the demographic trends can be summarized in the following points: a decrease in population, low birth rates, aging, a concentration of population in the large agglomerations, an upsetting of the principle structures of the population, a deepening of regional demographic differences, as well as higher rates of mortality and intensive external migration, the last two being typical of the countries in transition. Bulgaria is not an exception to the above-listed trends. The characteristics of the historical, economic and ethno-cultural development of the country predetermine the modern trends in the demographic processes of the country’s population. The unfavorable quantity changes in the parameters of the demographic situation, such changes characterizing the above-listed trends in Bulgaria, have reached such threshold values where the permanent destabilization in the population’s natural reproduction can be observed. As a result, the country is suffering a deep demographic crisis. A demographic crisis relates to an extremely disadvantageous condition of the ongoing demographic processes. According to Stephanov (2012), in the last years the demographic situation in Bulgaria can be referred to as a catastrophe rather than a crisis. The author claims that the term of “crisis” may be interpreted as an unstable situation, which gives a warning of the danger of the system’s collapse. At the same time, it contains an opportunity for such crisis to be overcome and for orientating the system towards sustainable development and functioning. In contrast, a “catastrophe” has absolutely different content and features. It is characterized by the dysfunctionality of the system in the first phase, and in cases where the negative trends fail to be overcome, transition towards the second phase begins, i.e. the one of collapse, the final destruction and extinction of the system. The primary objective of this study is to outline the demographic trends in Bulgaria with an emphasis on the period after the socio-economic and political transformations in the beginning of the 1990s and the spatial diversification of the processes under discussion. The study is aimed at finding answers to the following questions:

• What are the characteristics of the demographic trends in Bulgaria?

• What is the degree of similarity between the observed demographic processes and those in the other European countries?

• What are the regional peculiarities of the basic demographic indicators in Bulgaria?

• Which territories have been most strongly affected by depopulation processes?

• What are the main factors with an impact on the regional differences as observed in the demographic processes?

• What is the influence of the demographic processes and trends on economic development, the labor market and social security?

• What are the points of emphasis of the present and futures measures for overcoming the demographic crisis?

Г.30. **Ilieva, N..** Measuring spatial segregation.. Space - Society - Economy (Ed. P. Stoyanov and others), item 1,, Atlases, 2019, ISBN:978-619-238-085-4, 179-210   [Линк](https://www.atlasi.bg/SoundAtlasi/E_books_PDF/Prostranstvo_obshtestvo_ikonomika_P_Stoyanov.pdf" \t "_blank) [Prostranstvo\_obshtestvo\_ikonomika\_P\_Stoyanov.pdf (atlasi.bg)](https://www.atlasi.bg/SoundAtlasi/E_books_PDF/Prostranstvo_obshtestvo_ikonomika_P_Stoyanov.pdf)

Some of the major challenges facing modern European cities over the coming decades are related to increasing inequalities in society and social and spatial polarization, which is directly related to integration processes. For geographic surveys, the position of objects / subjects in space is a major determinant in the formation of patterns of interaction. Ethno-religious communities are spatially separated in their housing environments, which is the result of the degree of influence of different demographic, ethno-cultural, social, economic, political and institutional transformations at a given location, the spatial patterns and behavior of different actors involved in shaping a definite space. Geo-occupational research in recent years has been closely linked to urban transformations and the related social, cultural and economic problems of cities and individual urban areas. In the present study, the dimensions of spatial segregation, the indicators for its measurement, the main deficiencies of the individual indices, are traced on the basis of the literature review, examining different theories, concepts and perspectives, especially of European and American scientists.

Г.31. **Nadezhda Ilieva**, Krasimir Asenov, **Boris Kazakov**, Todor Lyubenov. Dynamics of the internal structure and habitation conditions of the ghettoized urban structure of Harman Mahala quarter – Plovdiv, Bulgaria (through combined application of remote sensing and field research methods). Smart Geography, Springer, 2020, ISBN:978-3-030-28191-5, DOI:10.1007/978-3-030-28191-5, 455, 175-191   **Международно академично издателство**   [Линк](https://www.springer.com/gp/book/9783030281908)

Post-communist societies are facing numerous challenges leading to complex structural changes. New models of socio-spatial polarization of the cities have emerged. In recent decades, Bulgaria has seen a clear trend of growing number of Roma people residing in cities. In the majority of cases, the Roma settle either in already existing Roma quarters, or the new settlers form completely new Roma quarters. The swift explanation of the Roma quarters in both horizontal (spatially) and vertical (height) aspects, makes is difficult to trace the changes. Considering that most buildings are illegal, they are not present on cadastral maps and urban spatial plans. The serious difficulties which Bulgaria has been encountering regarding the integration of its Roma population, together with the increased ghettoization of the Roma living in cities and the eventual threats of social cataclysms, determine the necessity of carrying out this study. Its main objective is to analyze the spatial development trends and the internal structure of the Roma quarters, based on the case study of the Roma-inhabited Harman Mahala quarter in the city of Plovdiv, applying remote sensing and field research methods.

Г.32. **Ravnachka Aleksandra**, **Кazakov Boris**, **Ilieva Nadezhda**, Asenov Krasimir. School segregation of the Roma ethnic group: a case study of Harman Mahala Roma quarter, Plovdiv. Smart Geography. Nedkov, S., Zhelezov, G., Ilieva, N., Nikolova, M., Koulov, B., Naydenov, K., Dimitrov, S. (Eds.), Springer, 2020, ISBN:978-3-030-28190-8, DOI:10.1007/978-3-030-28191-5, 15, 201-2016   **Международно академично издателство**   [Линк](https://www.springer.com/gp/book/9783030281908?fbclid=IwAR2r1114aWCp27qNK7YH-HxtiE2wAPiZq-R8Y8VFszqM2Pr-qoj3L3cNMcs#aboutAuthors)

School segregation among minority groups represent a serious social and educational problem in a number of countries across Europe, including Bulgaria. While in some countries this problem arises on the basis of social stratification or concerns both local minority communities and immigrant communities, in Bulgaria – as in other Eastern and Central European countries – school segregation is mainly associated with the Roma ethnic group. Education of Roma children is almost entirely provided in segregated schools located in or near the Roma quarters, regardless of the efforts by the governments to implement measures for overcoming the problem. The paper analyzes the specifics and the trends of the Roma school segregation in Bulgaria, based on the example of the Roma children from Harman Mahala quarter in the city of Plovdiv.

Г.33. **Nadezhda Ilieva, Geogri Burdarov.** (Im)possible Roma integration: Demographic specifics, 42 р.. Friedrich Ebert Stiftung, 2020, ISBN:978-954-2979-59-3,, 42, 1-42

Changes in the number and localization of Roma in Bulgaria, as well as the formation and development of areas with a high concentration of Roma, have been tracked. An analysis of the territorial manifestations of the demographic characteristics of the Roma ethnic group in Bulgaria was made, the complex of factors and reasons for the course of the demographic processes in them through the various historical, socio-economic and political conditions after the Liberation of Bulgaria to the present day were clarified. In connection with the peculiarities of the natural and mechanical movement of the ethnic communities in Bulgaria and the reasons that give rise to them, an attempt has been made to highlight some periods in the change of the ethnic structure, as well as to trace these changes in a territorial aspect.

Г.34. **Nadezhda Ilieva,** Georgi Burdarov. Horizon 2030. Demographic trends in Bulgaria..Friedrich Ebert Stiftung, 2018, ISBN:978-954-2979-35-7, 32

Based on the analysis of the current situation, trends in demographic development, as well as the expected impact of factors of different nature, a three-variantpopulation forecast by settlements in Bulgaria until 2030 was made. When determining the forecast population, the influence of two main groups was taken into account factors that can conditionally be defined as stimulating and restraining demographic development. Making the forecast in three variants ensures greater flexibility and anticipation of the factors that would influence future demographic development. The method of cohort components was used. During the development of the individual variants of the demographic forecast, both the current trends in the demographic development and the expected impact of factors of different nature are taken into account. In this sense are the differences in the numerical values of the individual variants of the demographic forecast. Each settlement is distinguished by its specific features in the demographic development, which is the result of the features in the ethno-religious structure, social, economic, infrastructural, etc. development. When determining the parameters of the demographic forecast for the number of the population by settlements, the differentiated approach was applied. For each of the settlements, individual estimated values have been determined (taking into account the current values and trends in these processes in the case of the realistic version, deterioration of the demographic indicators in the case of the pessimistic version and improvement of the demographic situation in the case of the optimistic version). By applying the estimated values ​​of the indicated demographic indicators and taking into account the degree of influence of the two groups of factors, the demographic forecast for the number of the population by population was determined, after which the obtained values ​​were summed up and the values ​​of the total number of the population in Bulgaria were calculated. An assessment was made of the future age structure, demographic potential of the workforce, the reproductive capabilities of the population and population density. The destructive processes in the development of the settlement network, which are observed with different intensity in different parts of the country, have been traced. The areas with different intensity of the depopulation processes for the indicated forecast years and the changes in their territorial extent are outlined by using appropriate statistical, mathematical, geo-informational methods and approaches.

Г.35. **Nadezhda Ilieva**, **Boris Kazakov**. The Residential Quality in the “Hidden” Roma Neighbourhoods: A Case Study of Harman Mahala, Plovdiv. Hidden Geographies, Springer, 2021, ISBN:978-3-030-74590-5, DOI:10.1007/978-3-030-74590-5\_16, 335-357

The Roma represents the second-largest ethnic minority in Bulgaria and the most dynamic population group in terms of population growth. Typically, they live in segregated neighborhoods in cities or smaller settlements. The expansion of these Roma neighborhoods both horizontally and vertically (in height) is difficult to trace, considering that the vast majority of the buildings are illegal and in the most cases not depicted on cadastral maps and urban plans, or – due to the rapid illegal construction – the existing plans do not represent the real situation. These neighborhoods remain invisible to the general public, as they are excluded from their minds as possible places of visiting, let alone habitation, and in their essence represent a type of unused space. This paper presents the results of a study aiming to make an assessment of the residential quality in the Roma neighborhoods of Harman Mahala, located in the second-largest Bulgarian city – Plovdiv. The residential quality has been assessed in both objective and subjective aspects, based on urban planning documents and legislation, field survey among the residents, and data collected with the use of an unmanned aerial vehicle (UAV). Spatial data has been combined with field studies, quantitative and qualitative methods of gathering information, which complement both the objective and subjective assessments of the residential environment 9how the residents of the neighborhood perceive the city, their neighborhood, and their homes).The study proposes a methodology for analyzing the internal structure of Roma neighborhoods by using data obtained from aerial photography, which compensates for the lack of information on the current state of the housing stock. The terrain has been captured from a height of 90-120 m using precise sensing instruments, recording images in the visible spectrum. Through the subsequent processing of the obtained image data and through the application of appropriate methods and algorithms, detailed maps of the actual status of the surveyed buildings – outline, height, density, surface area, etc. – have been created, which also depict the changes that took place over time. Basic spatial indicators, such as building density coefficient and green space percentage, as well as their dynamics over the period 2016-2019 have been calculated. The results of the study indicate that while the objective assessment of the studied neighborhood is relatively low, the subjective assessment of the residents is actually high, due to the strong sense of place and sense of security which the segregated community provides.

Г.36 **Nadezhda Ilieva,** Georgi Burdarov. REGIONAL DEMOGRAPHIC IMBALANCES IN BULGARIA – quantitative dimensions, causes, policies and measures to optimize the situation. Friedrich Ebert Foundation, 2021, ISBN:978-954-2979-93-, 56

One of the biggest challenges facing Bulgaria in the present and future decades is related to trends in the development of demographic processes. The deepening demographic crisis and related adverse quantitative changes in demographic parameters have been characterized by a very high intensity in the last three decades. Human capital is becoming increasingly important. It is seen as a leading factor in modern development, bearing in mind that demographic development is closely related to economic development. Human capital, together with its quantitative and qualitative characteristics, can hinder or accelerate the development of a territory. These trends acquire another perspective when they are considered in a spatial aspect, taking into account the specifics of a given territory. An analysis of the demographic trends in Bulgaria with an emphasis on the spatial diversification of the considered processes (birth rate, death rate, natural increase, migrations, dynamics in the number of the population, age structure, compared with those of the EU) after the period of socio-economic and political transformation was made from the beginning of the 90s of the twentieth century. The influence of various factors - socio-economic, demographic, ethno-cultural, political, psychological, natural, environmental, etc. - has been established. on the intensifying polarization of demographic processes in Bulgaria. An analysis of the territorial manifestations of the depopulation processes was made. The spatial expansion of these processes is considered at the settlement level. With the help of appropriate tools in a GIS environment for spatial analysis and visualization, the areas with different degrees of manifestation of the depopulation processes were outlined in great detail (when determining the degree and intensity of the depopulation processes for the Bulgarian conditions, the scale of Mladenov (2014) was used The relationship between the beginning of the depopulation processes and the intensity of their manifestation is proven.The influence of the regional centers on the demographic development of the surrounding settlements is emphasized. An analysis was made of the destructive changes in the settlement structure of the country as a result of the manifestation of the depopulation processes from the beginning of the XXI century. The development and changes in the structure of the settlement network in the country, which plays a significant role in the overall social and economic development of individual territories, especially in the construction of an economically efficient transport network and the population's access to various types of services, have been tracked.