ISSN 2076-1333

Міністерство освіти і науки України

Харківський національний університет імені В.Н. Каразіна

ЧАСОПИС

СОЦІАЛЬНО-ЕКОНОМІЧНОЇ ГЕОГРАФІЇ

ВИПУСК 24

Заснований 2005 року

Харків
2018

Міжрегіональний збірник наукових праць «Часопис соціально-економічної географії» розглядає сучасні проблеми суспільства, що вирішуються економічною та соціальною географією, і відображає результати новітніх досліджень у цій галузі. У збірнику розкриваються питання теорії та практичного застосування досліджень соціально-економічної географії в різних регіонах України та у світі. Для викладачів вищих закладів освіти, науковців і фахівців у цій галузі.

Збірник є фаховим виданням у галузі географічних наук (Наказ Міністерства освіти і науки України № 261 від 06.03.2015 р.).

Журнал зареєстрований у міжнародних наукометричних базах *Index Copernicus, Google Scholar, Ulrich's Periodicals Directory, DOAJ, InfoBase Index, Eurasian Scientific Journal Index, Scientific Indexing Services, ResearchBib, Cite Factor, OAJI, ERIH PLUS.*

Inter-regional journal «Human Geography Journal» is devoted to modern problems of society that could be solved with the methods of social-economic geography. It enlightens the latest studies in this field. There are different questions concerning the theory and practical use of the results of social-economic geography researches in different Ukraine regions and all over the world. It is recommended for high school lectures, scientists and specialists in this subject.

The journal is a professional edition in the field of geographical sciences (Order of the Ministry of Education and Science of Ukraine № 261, 06.03.2015).

The journal is registered in the international databases *Index Copernicus, Google Scholar, Ulrich's Periodicals Directory, DOAJ, InfoBase Index, Eurasian Scientific Journal Index, Scientific Indexing Services, ResearchBib, Cite Factor, OAJI, ERIH PLUS.*

Межрегиональный сборник научных трудов «Часопис соціально-економічної географії» рассматривает современные проблемы общества, решаемые социально-экономической географией, и освещает результаты новейших исследований в этой области. В сборнике раскрываются вопросы теории и практического использования исследований социально-экономической географии в различных регионах Украины и в мире. Для преподавателей вузов, научных работников и специалистов в этой области.

Сборник является профессиональным изданием в области географических наук (Приказ Министерства образования и науки Украины № 261 от 06.03.2015 г.).

Журнал зарегистрирован в международных наукометрических базах *Index Copernicus, Google Scholar, Ulrich's Periodicals Directory, DOAJ, InfoBase Index, Eurasian Scientific Journal Index, Scientific Indexing Services, ResearchBib, Cite Factor, OAJI, ERIH PLUS.*

Затверджено до друку рішенням Вченої ради Харківського національного університету імені В.Н. Каразіна (протокол № 6 від 29.05.2018 р.).

Адреса редакційної колегії: Кафедра соціально-економічної географії і регіонознавства, факультет геології, географії, рекреації і туризму, Харківський національний університет імені В.Н. Каразіна, майдан Свободи, 4, м. Харків, 61022, Україна; тел.: +38(057)707-52-74; e-mail: chseg@karazin.ua; офіційний веб-сайт: http://hgj.univer.kharkov.ua.

Свідоцтво про державну реєстрацію КВ № 10768 від 21.12.2005.

З М І С Т

Горизонти науки

Наукові повідомлення

Ювілеї

C O N T E N T S

Science Skylines

Research Reports

Jubilees

Горизонти науки

UDC 911.375.3(188.3)-044.57(439)

András Trócsányi
PhD Habil Associate Professor of the Department of Human Geography and Urban Studies
e-mail: troand@gamma.ttk.pte.hu, ORCID ID: https://orcid.org/0000-0002-3477-0455
Gábor Pirisi[1]
PhD, Assistant Professor of the Department of Human Geography and Urban Studies
e-mail: pirisig@gamma.ttk.pte.hu, ORCID ID: https://orcid.org/0000-0003-0179-3228
Éva Máté
PhD Student of the Department of Human Geography and Urban Studies
e-mail: mate.eva@gamma.ttk.pte.hu, ORCID ID: https://orcid.org/0000-0003-1013-8962
University of Pécs, Faculty of Sciences, Institute of Geography and Earth Sciences
H-7624 Pécs, Ifjúság útja 6, Hungary

AN INTERPRETATION ATTEMPT OF HUNGARIAN SMALL TOWNS' SHRINKING IN A POST-SOCIALIST TRANSFORMATION CONTEXT

The rapid shrinking of Hungarian small towns became such a general process after the turn of the Millennium, which does not simply reflect the overall effects of the second demographic transition, and could not even be interpreted with local and regional factors. The aim of the present paper is to analyse the shrinking of small towns among the framework of post-socialists urban transformation models and concepts. Many authors have dealt with such transformation issues, but rather focusing on the description of the development of larger cities and analysing the transformation of urban space and society. Despite the evident differences caused by the size of the researched settlements (small urban centres with a maximal population of 30,000 people), some general elements of these concepts give parts of the explanations we looked for. Others are rooted much deeper: our paper finally states that the present day crisis of small towns originates back to the later decades of planned economy, when the forced and somewhat over-dimensioned modernisation of small towns resulted a significant role in the urban network. This modernisation was centrally planned, led and financed, and with the exhaustion of these exogenous sources small towns seem to return to a less intensive development path.

Keywords: small towns, Hungary, shrinking, post-socialist transformation.

Андрас Троксані, Габор Пірісі, Єва Мате. СПРОБА ІНТЕРПРЕТАЦІЇ СКОРОЧЕННЯ УГОРСЬКИХ МАЛИХ МІСТ У КОНТЕКСТІ ПОСТСОЦІАЛІСТИЧНОЇ ТРАНСФОРМАЦІЇ
Метою даної статті є аналіз скорочення малих міст у рамках моделей і концепцій постсоціалістичних трансформацій міст. Багато авторів розглядали такі проблеми трансформації, а скоріше фокусувались на описі розвитку великих міст та аналізі трансформації міського простору і суспільства. Нинішня криза малих міст відбувається у більш пізні десятиліття планової економіки, коли вимушена і дещо переоцінена модернізація малих міст зіграла важливу роль у міській мережі. Ця модернізація була централізовано спланована, очолювалася і фінансувалася, але через виснаження цих екзогенних джерел невеликі міста поверталися до менш інтенсивного шляху розвитку.

Ключові слова: малі міста, Угорщина, скорочення, постсоціалістична трансформація.

Андрас Троксани, Габор Пириси, Ева Мате. ПОПЫТКА ИНТЕРПРЕТАЦИИ СОКРАЩЕНИЯ ВЕНГЕРСКИХ МАЛЫХ ГОРОДОВ В КОНТЕКСТЕ ПОСТСОЦИАЛИСТИЧЕСКОЙ ТРАНСФОРМАЦИИ
Целью настоящей статьи является анализ сокращения малых городов в рамках моделей и концепций постсоциалистических трансформаций городов. Многие авторы рассматривали такие проблемы трансформации, а скорее фокусировались на описании развития крупных городов и анализе трансформации городского пространства и общества. Нынешний кризис малых городов происходит в более поздние десятилетия плановой экономики, когда вынужденная и несколько переоцененная модернизация малых городов сыграла важную роль в городской сети. Эта модернизация была централизованно спланирована, возглавлялась и финансировалась, но из-за истощения этих экзогенных источников небольшие города возвращались к менее интенсивному пути развития.

Ключевые слова: малые города, Венгрия, сокращение, постсоциалистическая трансформация.

 DOI: 10.26565/2076-1333-2018-24-01

[1] The work of this author was supported by the János Bolyai Research Scholarship of the Hungarian Academy of Sciences.

Introduction

The post-socialist transformation was – or maybe, is – a process, which covered literally all aspects of the social systems of the Central- and Eastern European countries[1] (CEE). The controversial and difficult adaptation and integration to democratic and free market based Western Europe with all its different social, spatial and environmental issues has been the lead topic associated with these countries in peer-reviewed journals in spatial sciences for more than 20 years (*Altvater* 1998; *Herrschel* 2006; *Kolodko* 1999; *Smith/Rochovska* 2007; *Smith/Swain* 2010; *Smith et al.* 2008; *Stenning/Hoerschelmann* 2008).

This multiple transition was triggered off by a sort of overlapping crises of the macro-region. According to its nature, the worsening demographic situation was not among the most important issues forced the transition, but the challenges had been clearly visible before the transformation started. For example, researchers recognised the effects of an early fertility decline in the region in as early as at the beginning of the 20th century (*Demeny* 1968), but further conclusion and extrapolations were discouraged by the regime's growth and superiority based paradigm. From "Western" point of view, processes – as far the data availability made it possible – were analysed, with special attention to the USSR, where declining fertility and growing mortality became an important factor of long-term geopolitical struggles (*Crisostomo* 1983). The region (except Poland) was mostly avoided by the real baby boom, and fertility dropped in every affected country quickly in this era, resulting some political reflections with various pronatalist tools (*Gregory* 1982).

Political and economic changes in 1989/90 accelerated the changes and swept away almost all the benefits of the balanced system of social care. While more urgent problems hided the demographic transition from the attention, the indicators showed dramatic change, with the permanent association of "crisis" or even "catastrophe" (*Philipov/Kohler* 2001). The falling numbers of fertility, marriage and crude birth rates were primarily connected with the distracted social uncertainty of the political and economic transition (*Kohler/Kohler* 2002; *Marida/Laura* 2009; *Philipov/Dorbritz* 2003; *Philipov et al.* 2006), or for example in Rumania, the liberalisation of abortions and demolition of similar restrictive regulation and practice of the Ceausescu-regime. Less attention was paid to positive changes, like growing life expectancy (*Nolte et al.* 2005). The discussion about the demographic effects of transformation was also integrated in the theoretical framework of second demographic transition (*Lesthaeghe* 2010; *Lesthaeghe/Van de Kaa* 1986; *Van de Kaa* 1987; 2003), while more and more "postmodern" thoughts of these societies occurred (*Hoem et al.* 2009; *Sobotka* 2008; *Sobotka et al.* 2003). After almost 30 years of political changes, it has become obvious: whatever happens to the population of the region, it cannot be seen as a temporary crisis caused by the worsening material and non-material conditions (*Philipov et al.* 2006) of living. That means demography has become a highly significant factor of post-socialist transformation, affecting the spatial processes both on the level of regions and settlements.

These spatial processes include the transformation of towns and cities, or, more generally, the transformation of the entire settlement-systems in the region. During the era of planned economy, "socialist urbanisation" was determined by a strong, top-down regulated modernisation effort with forced growth of cities with economic priority (*Enyedi* 1992; *Murray/Szelenyi* 1984; *Musil/Ryŝavá* 1983; *Pickvance* 2002). The post-socialist transition had wide-ranged and spectacular effects on functions, structure and social networks of urban places. Therefore, not surprisingly, several papers focused either on the full scope, or on some details of post-socialist urban transition, which could be evaluated today as a well-described, even well modelled issue. (*Andrusz et al.* 2008; *Dimitrovska Andrews* 2005; *Hirt* 2012; *Sailer-Fliege* 1999; *Stanilov* 2007; *Tsenkov*, 2006; *Wiest* 2012). However, metropoles are rather exceptional, than typical in the region, where generally only the capital cities exceed one million inhabitants, the above models focused on these settlements.

The case of Prague (*Sykora* 1999; *Temelova* 2007), Budapest (*Kok/Kovacs* 1999; *Kovács* 1998; 2009), Sofia (*Hirt/Stanilov* 2007; *Tsenkova* 2007), Bucharest (*Light/Young* 2010; *Marcińczak et al.* 2014), Warsaw (*Grubbauer/Kusiak* 2012; *Weclawowicz* 2005) even Belgrade (*Goeler et al.* 2012; *Vujović/Petrović* 2007) are studied in details. Moreover, there are also some model-value case studies about medium sized cities – see for example (*Maes et al.* 2012; *Marcinczak/Sagan* 2011) (*Boros* 2009; *Cavrić et al.* 2008; *Kotus* 2006). The post-socialist transition took a specific shape and an accelerated pace in the former GDR characterised by a more intensive capital inflow (and population outflow). Becoming part of reunified Germany, these cities, especially Berlin (*Colomb* 2013; *Reimann* 1997) and Leipzig (*Bontje* 2005; *Kabisch et al.* 2010) seems to be quite "over-represented" among the region's cities (*Kubeš* 2013).

On this international, credited level of journals, much less attention was paid to small towns, and most of the studies focuses on a specific smaller geographical area (*Filipović et al. 2016; Konecka-Szydłowska et al.* 2010; *Agnieszka Kwiatek-Sołtys* 2005; 2006; *Slavík* 2002; *Steinführer et al.* 2014; *Vaishar* 2004; *Zuzańska-Żyśko* 2005; *Pirisi/Trócsányi* 2015b; *Zamfir et al.* 2009), and only a few paper sets more general goals (*Burdack/Knappe* 2007). Authors are concerned, that there are much more papers published in local languages – see for example: (*Frantál/Vaishar* 2008; *Horeczki* 2014; Konecka-Szydłowska 2017; *Vaishar et al.* 2008) – aside from the language barriers, the availability of these papers are also questionable, and the scoping is predominantly provincial. Nevertheless, according to our knowledge, the analysis of the lower level of urban sys-

[1] Although we find the term East-Central European more exact, hereby we use the acronym CEE to describe this group because of their slightly more intensive prevalence in literature. This covers the countries of Poland, Czech Republic, Slovakia, Hungary, Romania, Bulgaria, Slovenia and the three Baltic states.

tem has hardly ever been framed into the model of post-socialist urban transformation.

Recently, beyond the issues of transformation, shrinking became a central question among the urban researches in CEE –and in a wider interpreted Eastern Europe, too. Although shrinking, and urban decay as a challenge for both research and planning appeared much earlier in Western (European/American) context (*Bradbury et al.* 1982; *Friedrichs* 1993; *Martinez□Fernandez et al.* 2012; *Rybczynski/Linneman* 1999). Later it was also interpreted as a typical CEE-phenomenon (*Haase et al.* 2013; *Oswalt/Rieniets* 2006; *Siljanoska et al.* 2012), and may have become one of the most important analytical framework of urban researches. The term proved to be appropriate to describe the decay of some typical, industrial towns and cities, the "socialist cities" (new towns), therefore widely accepted in CEE countries' literature. Another continuously problematic and deeply investigated issue has been the fate of rural areas, especially remote and small-units-based ones providing endless work for economists, sociologists and geographers in the past 50 years.

However, what happens to small towns is something new – at least in Hungary[1]. Most commonly Hungarian literature had a positive evaluation on them: soon after the 1990s small towns were described as rather winners than losers of the transformation (*Izsák* 2001; *Kovács* 2004), while there were also some differentiated diagnoses taken about them emphasizing the positive signs of the small town urbanisation (*Beluszky* 1999a; *Beluszky/Győri* 1999; *Pirisi* 2009c). In his important, highly influential book György Enyedi sketched the three most probable scenario for the regional development in Hungary (*Enyedi* 1996), but only the worst case with permanent economic crises counted with the further polarisation of spatial structure and with the possible decline of small towns. A decade between 1996 and 2006 have brought us the most impressive and dynamic development of the Hungarian economy since the 1960s, therefore it was rather surprising, when the results of the national census in 2011 revealed the general downturn that was made by almost all of the traditional, central-functions dominated small towns (*Pirisi/Trócsányi* 2015a).

Some characteristics of the phenomenon, for example, the fact that the extent of shrinking has no strong correlation either with the settlements' size or with the geographical position (East-West dichotomy in Hungary), plus the growing significance of outmigration within the decline in the process beg the question of some kind of general failure (*Pirisi/Trócsányi* 2015a). Such functional erosion of urban settlements would not be unique in Western European literature (*Troeger-Weiß/ Domhardt* 2009), however it has not been identified as such in case of Hungarian small towns. Because of the highly different social conditions (economic activity, local capital and entrepreneurship, the different background and effects of ageing, the different mobility etc.), small towns' shrinking in Hungary could not be described simply, as they are "the main losers of globalisation" (*Enyedi* 2012). The present study intends to analyse shrinking within the framework of post-social transformation assuming that we can have a more detailed explanation of the process.

Therefore, the paper sets the goal to interpret and analyse the shrinking of small towns among the theoretical framework. Beyond the main intention, the paper sets some important sub-goals. Firstly, the concept and the definition of small town are needed to be evaluated. While small towns are very common, there is hardly any standard for the usage of this term in geography or urban studies. While the traditional classification is based on the number of inhabitants and even on a special pattern of spatial functions, they naturally vary between different countries' settlement networks, therefore the overall consensus is missing even inside of Hungary (see details and references in next chapter). Secondly, the paper summarises the most important observations about the demographic decline of small towns, focusing on the outmigration as a key-factor of shrinking. The main goal is however, to connect small town shrinking and post-socialist urban transformation, therefore the paper tries to summarise the elements of different concepts within the transition theories, and interpret them from a small town point of view.

The Hungarian interpretation of small towns

Small towns are essential elements of the Hungarian urban network, and it seems that they also play significant roles in other CEE-countries. There are historical and structural reasons, why we suggest that these roles can be more important than in Western Europe (*Pirisi/Trócsányi* 2015a), while the relatively large number of small-town related papers from these countries also seems to confirm this understanding (*Burdack/Knappe* 2007; *Ježek* 2011; *Kaczmarek/Konecka-Szydłowska* 2013; *Konecka-Szydłowska et al.* 2010; *Kwiatek-Sołtys* 2011; *Kwiatek-Sołtys* 2015; *Slavík* 2002; *Vaishar* 2004).

The manifestation of small towns is a quite attention-grabbing issue in literature: one can find a kind of consensual usage of this term/concept without an exact definition, or either a universally accepted upper and lower population limit or a functional character (*Niedermeyer* 2000). As being an everyday concept, everybody – even researchers – has some kind of mental image about small towns, however associations could be quite diverse (*Burdack* 2013). In some of our former papers (*Pirisi/ Trócsányi* 2015b) we gave a possible definition that we consistently used in our researches about Hungary. Highlighting the most important element of these definitions, we suggest that small towns are places with a limited number of town-forming factors and with dominantly LAU-1 units[2] functional interaction network. The population size of settlements according to this definition can be highly various depending on re-

[1] The authors have gained first-hand experience and studied the literature of the former GDR, Czech Republic, Slovakia, Poland, Romania and the Baltic states, however, presently will focus on the Hungarian examples offering more detailed data and literature available for them.

[2] LAU (Local Administrative Unit) is a low level of the European Union's territorial, administrative division system. LAU-1 is equivalent to the former NUTS-4 level and consist local administrative units over the level of single municipalities (LAU-2). In Hungarian LAU-1 units are called „járás" (district]

gional geographical and historical factors (like physical geographical environment, specialities of historical development, local ways and traditions of agriculture etc.). In Hungary, researchers interpret and circumscribe small towns in various ways from a clearly functional point of view (*Beluszky* 1999b) to an upper limitation of some kind of population size, including 20,000 people (*Kovács* 2002), 25,000 (*Tóth* 1996), or even 30,000 (*Kőszegfalvi* 2004). None of these limits are perfect, however based on our previous researches (*Pirisi* 2009b), we consequently use the limit of 30,000 inhabitants. It is unquestionably higher than usually used in literature where 20,000 or even 15,000 inhabitants seems to be a more common option (*Heineberg* 2014; *Vaishar* 2004; *Zuzańska-Żyśko* 2005). Our main arguments voting for this option root in some structural characteristics of the Hungarian urban network. Due to some historical and to certain recent elements in the territorial administrative system, beneath Budapest we can classify four explicit levels in this system:

a) Regional centres (n=5): with spatial functions covering NUTS-2 level regions and a with population exceeding 100,000 (Győr, Pécs, Miskolc, Szeged, Debrecen with population from 128,000 to 203,000);

b) County seats (n=13+5): medium sized cities with NUTS-3 level administrative and other spatial functions and with population from 33,000 to 118,000 inhabitants. We can also attach five more cities to this group with a population of 46,000 to 65,000 people: practically a size of an average county seat, legally classified as "county rank cities", but owning only limited administrative functions.

c) Low-level centres (n=152) with LAU-1 level administrative functions, with 2,000 to 40,500 inhabitants.

d) Towns without administrative functions (n=170): settlements are legally classified as towns, with strikingly various level of urbanity in functional, morphological and social sense, with a population between 1,000 and 29,000 people.

Small towns should be found in categories c) and d), but there are some relative bigger urban places among these centres, former (historical) county seats with still significant size and spatial roles, traditionally classified as mid-sized towns (like Sopron, Pápa, Baja and some others)(*Beluszky* 1999b). Although there are surprisingly few experiments to define small town in a complex way, including social, economic and/or cultural factors in Hungary (*Bánlaky* 1987), the authors try to interpret small towns as communities with various, but often unbalanced central functions, locality-dominated spatial connections and urban identity (*Pirisi* 2009b). To fulfil the goals of this research according to the small town shrinkage, we excluded one important group of small-sized towns: the ones belonging to larger urban agglomerations. Theoretically, these settlements may fulfil the criteria of urban identity, but as suburbs, they are usually weak in central functions, and their connections are more dominated by the metropoles than the local "hinterlands". Practically, including these settlements with their dynamical growing population through suburbanisation the investigation of shrinking would be very difficult.

According to the deliberations above, authors used the following criteria by selecting the researched settlements:

- Settlements need to have town rank in 2011 (census year),
- Must have a population under 30,000 by the census of 2011,
- Towns officially categorised as parts of urban agglomerations are excluded.

If applying the above criteria, our investigated pool of small towns includes 259 elements.

Shrinking small towns in a (demographically) declining country

When evaluating the small towns' shrinkage in the post-socialist Hungary, we need to take into consideration that Hungary is among the countries with the largest population decrease in the world. According to the population statistics of the United Nations[1] there are only four (all Eastern-European) countries of the world listed with lower level of natural decrease than Hungary (-3,8% between 2010 and 2015). The turning point arrived in 1981 (Hungary was among the first few countries in the world with natural decrease in peaceful times), since then, every year has brought more death than live births. In this meaning, political transition does not appear as a turning point – the decrease has been continued relative consistently. Between 1990 and 2001 a population of 175,000 people, between 2001 and 2011 218,000 people "disappeared" from Hungary. According to the latest data available, on 31st December 2015, the country has 9.823 million inhabitants[2], which means a total loss of 577,000 people in the last 25 years (this figure has been modified by the migration balance, without that the natural loss is calculated to reach 922,000 between 1990-2015!). The rate of natural decrease reached -4.1‰ in 2015, which is definitely worse, than the average of 1990-2014 (-3.5‰).

The total fertility rate dropped from 1.84 (1990) to the lowest of 1.24 (2011), with a drop back to 1.53 until 2016. The very low level of fertility rate is quite universal among the CEE-countries (*Philipov/Kohler* 2001), with some divergence in long-term values. In Hungary, the fertility rate had fallen under the 2.1 reproduction level as early as in 1959/1960, but pro-natalist initiatives (around 1968 and 1973, 1986) resulted minor positive changes in the number of births and fertility rates (*Daróczi* 2007). The present-day increase in fertility is with high possibility an effect of the postponed family-founding from the previous years of economic crisis, and probably does not influence the number of births, as the decreasing number of women in fertile years erodes the possible gain. Interesting however, that despite of a generous policy of family-support (in 1990 the expenditures for supporting childbearing and child rearing reached 4.32% of the GDP, which was one of the highest ratio in Europe (*Gábos* 2000)) the continuous efforts of reaching

[1] Population Division (Department of Economic and Social Affairs) United Nations World Population Prospects: The 2015 Revision. File POP/3: Rate of natural increase by major area, region and country, 1950-2100.

[2] Official data of the Hungarian Central Statistical Office – see http://www.ksh.hu/gyorstajekoztatok/#/en/document/nep1512

a sustainable level of fertility have failed. The situation of the recent years is more worrisome if we consider that thanks for above efforts, the cohorts born between 1973-1979 are relative populous. When these cohorts leave the fertile period, the number of births will significantly decline without the drop of fertility – this effect is clearly visible right now. Therefore, the new government – in power since May, 2018 – of Hungary itself emphasize the importance of a "demography-based governance", setting focus on the increase of births, planning the further expansion of family support sources.

Beyond the fertility and births, the demographic crisis in Hungary has some other "local" specialities. The decreasing or slightly growing life expectancy and increasing mortality was an overall phenomenon in CEE-countries (*Chenet et al.* 1996; *Cockerham* 1997; *Velkova et al.* 1997), but in Hungary – especially by the male mortality – the problem became surprisingly heavy, and more often has been connected with the ineffectiveness of healthcare system, also characterised by large urban-rural (and regional) disparities. (*Pál/Boros* 2010; *Uzzoli*, 2008).

International migration was an important balancing factor, at least between 1990 and 2011. The opening of the western borders did not affected significant emigration, while the economic gap between Hungary, Romania and Ukraine in these years, and the uncertain geopolitical situation in Serbia accelerated the immigration of mostly ethnically Hungarian population of neighbouring countries. That ensured a surplus of 325,000 people in the migration balance, playing important role in the maintenance of labour force and the system of social care. Analyses made in the years of EU-integration underlined the importance of these effect in future demographical prospects (*Hablicsek* 2004). In the past 6-8 years the situation has changed basically, as the Hungarian employees appeared on the common European labour market, especially in the United Kingdom, Germany and Austria. Hungarian population statistics have not been able to provide data about this phenomenon, and only a few scientifically valid estimations were published – one of them give a number of 335,000 for Hungarian citizens living permanently abroad in 2012 (*Kapitány/Rohr* 2014)[1]. The dominant majority of these people were probably registered in Hungary by the census of 2011 as "permanent residents" in their home settlement, which could mean that the present, "real" population of the country could be with 350-400,000 people less, than the official figure of 9.8 million.

In the recent years authors have described the phenomenon of small town shrinking in details (*Pirisi/Trócsányi* 2015a). In this paper, the goal is to give an overlook about the most impressing elements of it.

Small towns have always formed a less dynamic group among urban settlements. The traditional towns, with a long history of centrality and bourgeois development could also be defined as the "residual" elements of urban network, as they remained small towns while other similar places has grown to a bigger size and has evolved to a higher level of urbanity. The population of small towns accelerated significantly only in the 1970s (see Fig. 1), when the yearly growth rate reached 0.6%, which is still not a data to be confused with an urban explosion. Although the population of small towns started to decrease in the 1980s when the overall demographic trends – as it was discussed earlier – turned to be negative, the shrinking did not seem to be a serious problem for the next two decades. The change of population is not far from zero, and if we take into consideration, that the growth of larger urban places also stopped, it could underline that small towns could "hold the line" successfully during the turmoil period of transformation. Soon after the political transformation, small towns reached a small surplus from migration, which could almost balance the effect of natural decrease.

In the period between 2001 and 2011 the situation changed significantly (Fig. 2), and outmigration became in some years the more important factor of demographic decay.

The small towns' shrinking between 2001 and 2011 turned out to be more intensive compared to any other categories in the settlement network, including the enormous loss caused by suburban migration from Budapest (and some other larger cities). Altogether, 214 out of 259 surveyed towns have lost significant amount of population, the average decrease was 6.2%/10 years, which means that 140,000 people 'disappeared' from small towns. One major finding of the former researches was, that shrinking and its scale are not entirely independent from geographical position: settlements in the eastern, less developed parts of the country are affected more intensively (*Pirisi/Trócsányi* 2015a). However, it would be a dangerous oversimplification to interpret the shrinking of small towns as a reflection to regional problems only. The pattern suggests a much more diverse picture: we can find heavily affected small towns in dynamical north-western regions, and some quiet resilient ones even in the most problematic north-east. It seems, that some local factor (presence of some larger enterprises, maybe more effective local development initiatives, or even the management of municipalities) could be more important than regional determinates.

Until 2007, both natural and migration loss increased permanently. The turn was spectacular in outmigration, and happened parallel with the economic crisis. Therefore it is easy to interpret it as a sign of lower fragility of small towns, or even connect it to their higher resilience in the era of economic downturn. This might be an incorrect interpretation, because the remission of the outmigration from small towns happened in the same time, when generally the national emigration became very dynamic, and the estimated minimum number of Hungarian citizens living permanently abroad reached 330-350,000 people[2] in 2013 (*Blaskó/Gödri* 2014).

[1] The lack of accurate or even approximate official data opens wide space for estimations and even politically determined interpretations, indicating the number of the foreign-living Hungarian citizens between 350,000 (the government's opinion) and 600,000. These are probably the lowest and highest possible numbers.

[2] The estimation is about the number of people between the age of 18 and 49.

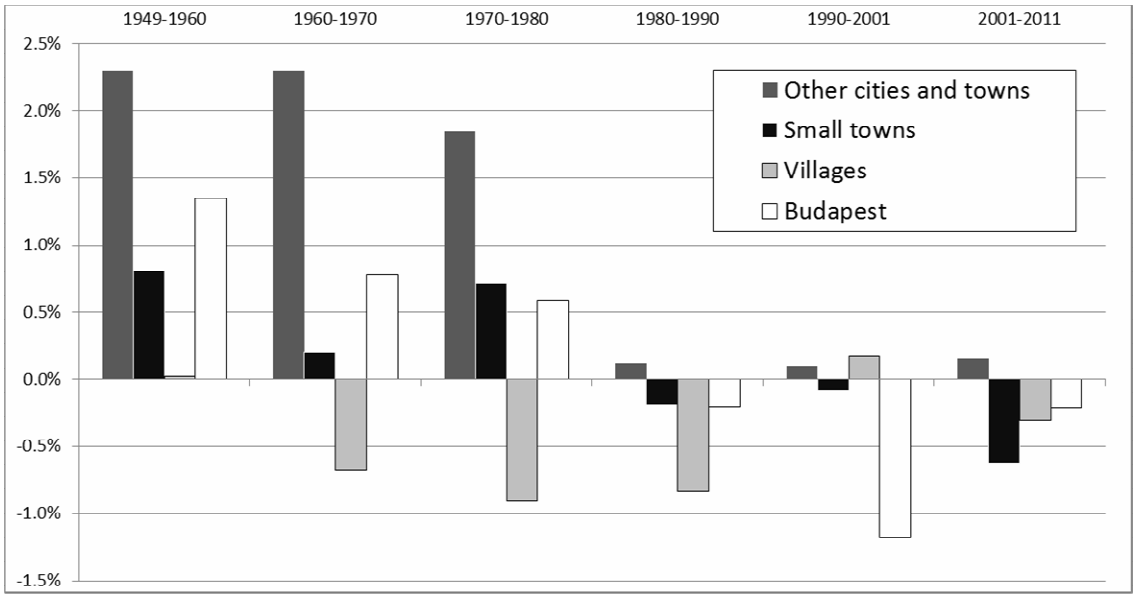


Fig. 1. Yearly average change of population in different settlement categories in Hungary, between 1949 and 2011
Based on the authors' own calculation using the data of Hungarian Central Office of Statistics

While official statistics are more or less reliable of measuring the internal migration (residents moving to another settlement eventually need to register themselves at the new address by the authorities of their new place), the Hungarian official statistics are unable to measure the international emigration, because migrants do not register their leave by the local, Hungarian authorities. Although they later appear somewhere by the tax offices or social care system of the selected, new country, these registrations have no feedbacks to the Hungarian statistics. Therefore, the decreasing figure of migration loss (see Fig. 2. by the year of 2007) shows only that the migration target presumably changed from domestic to foreign directions. In this case, statistics still have a belief about people practically missing from small towns, and the population of small towns is over- and the intensity of shrinking is underestimated. If we accept the above estimation about the number of recent emigrants from Hungary (350,000 people), and suppose, that this shows a balanced pattern through the main categories of settlements[1] than the number of foreign-living small town-citizens could exceed 80-85,000 people. This is 3.7% of the total population of small towns in 2011, and more than 66% of all population loss suffered between 2001 and 2011. Moreover, if this estimation is correct, almost 9% of small town residents of 18-49 years have chosen the European emigration. (*Pirisi/Trócsányi* 2015a).

The progress in the migration balance could not only been interpreted as a result of foreign migration instead of the more measurable domestic one. There are at least two factors to be mentioned causing real positive change. First of all, in the recent years, despite of the lack of an adequate policy in this field, return migration has appeared and become visible for researchers (Lados/Hegedűs 2016). Typically, the young emigrants return in some – but in limited number of – cases when their children start their school at the age of 6 or 7. The second possible reason of the decreasing migration loss could be an immigration to small towns from sourrounding villages, where economic, social and institutional structures have been eroded such in an accelerating pace that it pushes people to samller centres (Máté 2017).

Shrinking is not a demographic problem only, but it appears as a loss of significance and functions in many other aspects of social and economic life. In this sense, shrinking means more often a relative decline of small towns, the decreasing share and weight inside Hungary. There are not any direct data available about the change of the economic output of small towns, but we have some indirect signs of relative, and sometimes even the absolute decline of them. First of all, the number of small towns had a 22% share in the pool of enterprises employing more than 50 staff in 2000, 17.9% in those employing more than 250. These figures decreased to 18.9% and 15.6% respectively, which means a loss of 241/71 firms in each categories by 2010, as reported by the Hungarian Central Statistical Office. (*Pirisi/Trócsányi* 2015a) If we compare this data with the fact, that 45% of the Hungarian GDP is produced by enterprises over 250 employees (Hungarian Central Statistical Office), we can draw the conclusion that small towns' share within the national economic output also declined. This is not reflected directly in employment statistics: between 2001 and 2011 the number of workplaces in small towns grew by 5%, which was still a relative decline as the overall increase in Hungary in the same period was 6.8%. In a growing labour market, the

[1] Distributing the number of migrants according to the share of the total population may seems to an immoderate simplification, but former researches (see Pirisi, G. (2009c), Differenciálódó kisvárosaink, *Földrajzi Közlemények, 133*(3), 315-325.) suggests, that many of the qualitative parameters (like number of people with higher education degree, employment and unemployment, knowledge of foreign languages etc.) are very close to the national averages. Therefore, we suppose, that the factors determining migration are similar.

spatial role of small towns in employment slightly decreased. The balance of incoming and outgoing commuters was negative and has fallen since then. Only every third small town has a positive balance in commuting, and in the investigated period this balance became worse in 170 cases. It means that there is a tendency of both growing incoming and outgoing commuting in small towns.

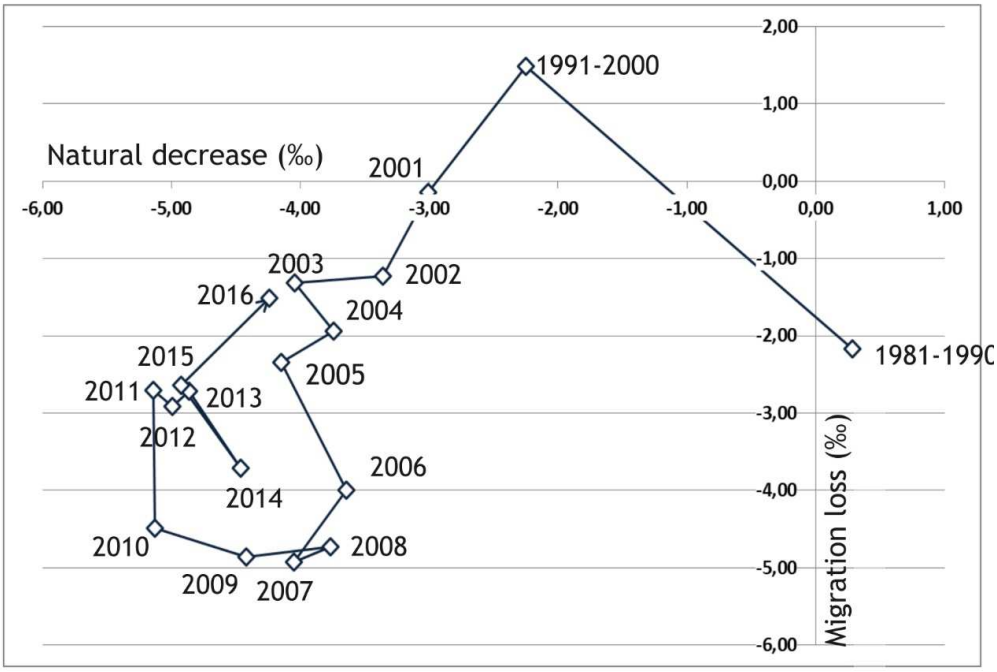


Fig. 2. Natural decrease and migration loss in small towns (1981-2016)
The authors' own design and calculation

There are some other sensible signs of economic shrinking, one of them is quite threatening for the future of small towns. The share of small towns in Hungarian flat constructions was 26.5% in 1990, 22.8% in 2001, which dropped back to a mere 9.4% by 2010 (of course accompanied by the collapse of the entire Hungarian market of newly built flats, due to the economic crisis). At such a rate the entire replacement of flats in small towns would take 400 years (the proportion of newly built flats compared with the total number of flats is 0.23%.

It seems that traditional central functions, public services financed from sate sources are the less fragile elements of small towns' economy right now. The mean volume indicators of healthcare (for example the number of active beds in hospitals) or education has hardly shown any decline. Even the staff employed in public administration remained almost untouched, even when the frameworks and structures have changed often and lately significantly. Small towns have managed to keep almost all the secondary schools (in several cases in somewhat reorganised forms), however the number of children enrolled into secondary education reached a peak in 2005 and has started to decrease since then. Therefore, many of small towns' secondary schools have, and much more of them will have serious difficulties to fill up the classes and in absence of children, it will be hard to keep up the institutions and the crucial "white-collar-jobs".

Summarising the paragraphs above: after many decades of stability and slow but balanced development, small towns found themselves on a very slippery slope around 2001. This is primarily exposed in their population-decrease, but it remarkably endangers the role they played in a spatial system. During the coming chapters the authors analyse the role and share of post-socialist transformation within the above negative tendencies.

Evaluation of post-socialist urban development models from small towns' point of view

The modelling of the post-socialist transformation is mainly based on well investigated cases of capital cities and some other cities, like Leipzig representing the former GDR-urbanisation. As Karin Wiest underlines, individual analysis dominate post-socialist urban debate, wherever case studies rather compare cities to some kind of Western, or even North American models, than to each other (*Wiest* 2012). However, the main features of the post-socialist transformation are hardly disputed (*Hirt* 2013) and there are some well-known papers, which give a theoretical models of the transformation (*Hirt* 2012; *Kovács* 1999; *Sailer-Fliege* 1999; *Sýkora/Bouzarovski* 2012; *Tsenkova* 2006). These models however, are focusing on big cities and analysing especially the transformation of urban spaces, giving hardly any hints for implementation of small towns.

Among the drivers and factors listed above, there are some elements that could be crucial for small towns as well; however, many of them do not appear at this level. In the political field, small towns gained a real widespread freedom in local decision making and planning, which was only questioned by the permanent lack of independent (non-governmental) financial sources,

and the under-financed nature of the whole system (*Vigvári* 2011). For the smaller and newly "promoted" towns this independence provided a great opportunity and the quality of leadership became an important factor of development. Other towns, having formal central roles in LAU-1 units, suffered some loss of spatial influence after the radical decentralisation of local governance. A new cycle of centralisation has just started in 2010/2012 and presently it is not still clear, how the re-organisation of administration, i.e. the rebirth of járás/district would affect the long-term development of small towns. Right at the end of year 2015, it seems that it can be a factor of polarisation between district-centres and other settlements.

Table 1

The most important common issues of post socialist urban transformation concepts

Factors & drivers	Effects in overall post-socialist transformation	Significance for and effects on small towns
Political transformation, democracy	Increasing role of local municipalities, decentralised decision making	Important, but divergent effects
Economic transformation	Introduction market economy, liberalisation and privatisation	Very important, leads to growing regional differences
	Deindustrialisation	Selective, but in average more problematic, than larger cities
	Growing importance of tertiary sector and especially retail	Selective and less important, than in larger cities
Social transformation	Unemployment	Significant
	Social polarisation, growing inequalities	Less significant, but segregation and social exclusion appears
	Individualisation, internationalisation	Less significant
	Demographic change, second demographic transition	Decisive factor
Spatial transformations	CBD/city-commercialisation, CBD-formation	Less significant
	Suburbanisation, urban sprawl	New small towns/No significance
	Decreasing scale of civic places, shift toward individual spaces	Less significant
	Privatisation of housing stocks, increasing costs of housing	Less significant
	Urban decay and brownfields	Less significant, but locally important problem
	Regeneration of downtown, gentrification	No significance
	End of visual uniformity, weakness of planning	Significant

Based on authors' own compilation

The economic transformation in Hungary left numerous and divergent effects behind on small towns. On the frequently analysed level of major cities, transformation mostly cited as a success story (*Nemes Nagy* 1994; *Pavlínek* 2004), however the collapse of the oversized heavy industry and the doubted development paths (*Trócsányi* 2011) have led to only questioned results. The significant failures of these transformation mostly associated with former monofunctional districts of heavy industry, composing region-size rust belts throughout the CEE-countries (*Lintz et al.* 2007; *Lux* 2009; *Pénzes* 2011).

The structural change of the economy, led by privatisation seriously affected small towns' previous role. In a survey of 2008 we found that 21% of leading industrial branches in small towns (with production sites over 200 employees each) disappeared completely during the transformation and by further 35%, activity reduced significantly (*Pirisi* 2009a). Other data, like the continuous erosion of the number of large employers – see former chapter – suggest, that economic transformation in these settlements was relatively slow, but painful, and less successful process. Small towns' industry could be characterised by some dominant branches (food processing industry, some elements of light industry, affiliates), which proved to be extremely exposed to crises as economic "modernisation" during the 1970s and 1980s took shape in the form of one or two plants, giving these settlements a monofunctional character. The examples of modernisation and preservation of traditional industries are rather exemptions (*Molnár* 2014), old structures have been partly substituted by new investments. Several studies underlined two important facts about the connection of economic renewal and direct investments: the lack of human capital and therefore the weak capabilities for adaptation of innovations meant extensive barriers for restructuring (*Csizmadia/Rechnitzer* 2005; *Rechnitzer et al.* 2011; *Rechnitzer et al.* 2014), their overall competitiveness is low (*Pénzes* 2014). On the other hand the geographical position (proximity to the western borders, to the dynamic agglomeration of Budapest or to the main traffic axis of motorways) are almost the only "capital" of small towns, which they could successfully transform into economic growth (*Nemes Nagy* 1995).

The emerging dominance of tertiary sector also means something different than in larger cities. The scale and volume of service sector is restricted, the market is very narrow. Until 2002-2006 retail sector contained only the surviving units of the planned economy system and a sort of newly founded small shops according to the viral expansion of small enterprises. After the Millennium retail revolution (*Garb/Dybicz* 2006) reached the Hungarian small towns. Today, a typical small town with 10,000 inhabitants houses at least one general (smaller) hypermarket, 2-3 larger supermarkets, and a continuously reducing number of small shops. The number of shops in small towns dropped with 13% between 2001 and 2011. This pace is twice quicker than the national average, so beyond the melting purchase power of the economic crisis, we can also experience the consequences of outmigration and maybe the structural changes as well. Within the tertiary sector public services play significant role, the share of the public sphere in the employment has even been increased during the transformation (*Pirisi* 2009a).

Among the factors mentioned by the social transformation processes, the effects of the second demographic transition played the most important role in the shrinking of small towns, however, according to our present knowledge, there are minor differences in the most important elements between small towns and larger urban places. The total fertility rate in 2011 was 1.28 in small towns while the national average (1.24) did not differ too much. Even if there is some minor negative deviation at the number of marriages (3.58 in small towns versus 3.82 in Hungary per 1000 people in 2014), and probably the number of children born outside a marriage is somewhat also higher, than the national average (46.2%), the processes seems to reflect the overall situation in Hungary. The same can be observed by the factors of unemployment: the value of small towns changed parallel with the national, with very high local variety.

The role of some "soft" factors of social transformation (individualisation, polarisation etc.) seems to be much more difficult to be evaluated. There are well-known issues from international researches, first of all the famous "Bowling alone" (*Putnam* 2001), which suggests, that the small town crisis is interconnected with the changing role and content of social capital. Except some relative early researches focusing on the transition of local elite (*Medgyesi* 2005; *Utasi* 1995; *Utasi et al.* 1996), the detailed surveys about the change of social capital in Hungarian small towns have not been conducted. Although both common talk and some publications (*A Gergely et al.* 1986; *Bánlaky* 1987) described small towns with well-developed and somewhat closed (even narrow-minded or provincial) local communities, in a former research we failed to find statistical evidence of higher intensity of (formalised) civil activity (*Bucher/Pirisi* 2010). The compactness of these inherited social structures surely decreased with the manifest occurrence of poverty in the 1990s. While opposite to larger cities, we have no accurate picture about the spatial order of social structure, some case studies proved the presence of segregation also at the level of small towns (*Fehér/Virág* 2014), however, the real dimension of rural segregation is still the disparity of small towns and villages, or smaller inhabited rural settlements (*Nagy et al.* 2015). The former compactness has remained in one very important dimension: Hungarian small towns are still nearly homogenous structure in the sense of ethnicity – if we neglect the presence of predominantly Hungarian speaking Roma population. The cities with foreign investments and newly with foreign students may become really more international, but – with the exemption of some touristic resorts – the Hungarian small towns have remained intact from international migration. According to (inner) spatial processes, most of the factors, which were evaluated in details in case of larger cities, are either unrevealed by small towns, or seems to be inadequate at this level. We hardly have any relevant data about the sensible architectural-morphological renewal of small towns fuelled by the growing availability of EU-funds from 2004. New public investments mainly have focused on the urban renewal of town centres and resulted in some identity-building significance, however the overall level of rehabilitation is definitely low. In the course of suburbanisation – being one of the most spectacular changes of urban areas in the transition countries – small towns have played only a passive role: some of them have become target of suburban migration. Though towns of agglomerations were excluded from this research, at this point we need to invoke, that this has been the only intensive migration to a specific group of small towns. In other words, being a well-located and attractive place for living proved to be the "easiest" way to avoid shrinking.

Hereby we would like to draw attention to one more aspect: in all similar analyses, the privatisation of housing stock is a decisive element of the post-social transformation. In Hungary, the share of state-owned flats was 19% before the privatisation started, in Budapest this number war slightly over 60% (*Czirfusz and Pósfai*, 2015). The share of non-private ownership in small towns in some cases (industrial and mining new towns) could be even higher than in Budapest, but on an average, it hardly exceeded 10-12%, which covered mainly the new block of flats erected as symbols of modernisation in the 1970s in almost every town. These have been almost totally privatised, and the share of people living in their own property could be very high, even over 90%. In other words: there is a significant inflexibility in local property markets, which – according to our understanding – does not help the renewal of small towns or the keeping the younger generations inside the towns.

Towards a conceptual interpretation of small towns' shrinkage in Hungary

Although we could confirm, that some elements of the urban transformation concepts play significant roles in small towns' development, we still do not have the framework we looked for. Shrinking, of course, is not an unknown situation in the CEE-countries. Many analyses of European city-shrinking highlights the special involvement of post-socialist countries (*Mykhnenko/Turok* 2008; *Turok/Mykhnenko* 2007), Annegret Haase and her co-authors have even called the post-socialist transformation as "caused and catalyst" of shrinking (*Haase et al.* 2013). In case of small towns we also need to remember, that some signs of small towns' crisis were reflected decades ago in "Western" literature (*Coats*

1977; *Simon/Gagnon* 1967), and, in some cases (at least by the demographic issues) we need to look back to the era or planned economy or even behind.

Among the papers having a long-term perspective for the region many underline the fact, that the urbanisation (in meaning of growth of the population of cities) has been stopped after the political transformation (*Kovács* 2010; *Tsenkova* 2006). The rate of urbanisation has still increased in Hungary during the last 30 years, but it has been the result of the so called "formal urbanisation", the reclassification of settlements, when former rural municipalities acquired town rank (*Bujdosó et al.* 2014; *Kulcsár/Brown* 2011; *Pirisi/Trócsányi* 2009). Of course, this legal act hardly can be seen as a real transformation from rural to urban, but it might be an indicator or milestone of the "real" or "functional" urbanisation as well. On the other hand, the "cease of urbanisation" also needs to be interpreted in other ways. The settlements (villages and towns) of the Budapest agglomeration gained 218,000 new inhabitants between 1990 and 2011, which is more than 40% of their population of 1990. Despite the spectacular (national) decline, the capital and its agglomeration preserved almost all its population and therefore the very important human resources. This is the cause, why cities like Budapest were able to increase their economic influence (*Kovács* 2010) during statistically spectacular decline. The slowdown of urbanisation became visible in the 1980s, without any sign of the deconcentrating of population. We totally agree with argumentation of Brown and Kulcsár, who interpreted this process as a sign of "the nation's overall decline", which phenomena indisputably concentrated in smaller settlements (*Brown et al.* 2005).

The overall condition of decreasing population since 1981 has meant fewer opportunities for small towns: the shrinking of human resources has become a general issue. The question however remains open: what happened to the small towns after a relatively successful period of late socialism and early post-socialism?

Not only our previous research (*Pirisi* 2009c) found at least some of the small towns successful during the transformation. Researchers like Beluszky underlined the stability of these small urban places during the crisis (*Beluszky* 1999a), moreover, Kovács even described the growing strength and importance of small towns as a unique character of the "Hungarian way" within the socialist Europe (*Kovács* 2010). This strength and stability is rooted deeply in the (partly) successful decentralisation experiments of the 1960s, which was further supported by the National Development Concept of Settlement System (1971 giving key roles to small towns in the rural hinterland of the country.

The above concept of the modernisation included a hierarchical reordering of central functions, modest industrialisation and (a highly controversial) architectural renewal. The political changes and the economic crisis interrupted this process: small towns in 1990 still preserved something premodern character. In many cases, this was not based on civic traditions of small-scale urbanity, but was quite archaic and rural: in 1990 17% of all small-town jobs employees found a job in agriculture.

This modernisation was initiated centrally, and hence was a real top-down process with significant reallocation of resources, effected important investments on health care, secondary (in some cases even tertiary) education, infrastructure and built environment. The development and strengthening of classical central functions (the concept was strongly based on central place theory) was much more long-lasting than the industrial development: jobs created that time survived the transition with higher chance, and the institutions founded then are still the basis of local intellectuals. However, the "product life" of that modernisation most likely reached its end around 2000-2010: the infrastructure was no longer capable to serve the community and the new intelligentsia was looking for wider horizons. Moreover, after the disappearance of youngsters (born around 1975) of the last demographic crest the declining population size may question the ability of local communities, and the commitment of central decision makers for maintaining a sort of public services.

Despite all difficulties, modernisation could continue after 1990 partly because of the impetus of recent reorganisations and investments, partly as the effect of general euphoria about the transition. Although state resources disappeared, the direct investments at least in some sectors (and in certain small towns) helped to create or improve urban conditions in retail and other services. However, the inflow of new investments in a typical small town was not enough to counterbalance the losses of deindustrialisation. The long-lasting economic crises (the restrictive economic policy started in 2006 and the dynamism of economic growth did not really return until 2014) used up local resources when less and less central help was given.

The position of small towns was not only challenged from financial aspects after the Millennium. The transition placed small towns into the free market where decision about new economic locations were made in a much wider context, and their chances for influencing these decisions were rather poor. The problem became even more serious, when the opening of the EU-labour market created another horizon of decision: the small-town born and educated young adults started to consider their perspectives in a European scale. Until that point, small towns were more or less able to show some attraction compared to larger cities in Hungary, but presently it seems, that it is clearly not enough against the new competitors.

Each of the above described factor on its own would have been enough to endanger the position of small towns, however many of them have occurred simultaneously. The obsolescence of the late modernisation coupled with the constant demographic decline have resulted a less attractive location for both investors and population. The free market conditions have not favoured small towns; the post-socialist transition has placed them on an entirely new and unknown track either in the form of deindustrialisation or in the form of competition for investors. The long expected European integration has brought limited sources for small town renewal, but on the other hand with offering foreign perspectives for youngsters unfortunately has degraded many of small towns to one-sided human resource pools.

Conclusion

After attempted to evaluate the shrinking in Hungarian small towns in a post-socialist context, some generalised conclusion can be formed. First of all, factors of shrinking contain a sort of overlapping, and interfering structure: clear chains of causes and consequences are very hard to forge. If we turn back to the basics of our argumentation: the crisis of small town taking shape in shrinking has been caused both by demographical and economic coefficients, however, the absence of any of these could prevent the decline. While the second demographic transition with global, regional and Hungarian determination have been mostly responsible for natural decrease, the functional emptying and economic decline are the main causes of continuous outmigration.

What small towns need(ed) to face in the recent and following years, is a kind of superposition to global, regional and in many times local challenges. Global factors influencing small towns in a very similar way than the influence other locations, however small towns being weak and 'small' suffer severely from the globalised competition for resources.

Although there are several ways, how post-socialist transformation influenced small towns, via changing social structure, political frameworks and spatial structures, the authors would place the main emphasis on the economic transformation. Post-socialist transformation in economy has been determined by deindustrialisation, a contradictory transition to a post-industrial structure. While in larger cities, even in late-industrialising CEE-countries there has been elapsed a century or at least half of a century between the establishment and reduction of large-scale industry, in case of small towns this time span often have covered only 30 years – a period being too short to build up a stabile base of competitive economy. Industrial development in small towns of Hungary was delayed and centrally coordinated, resulted top-down structures and thin network of local connections. These delayed and weak structures have become in large numbers victims of transition, and their replacement with other structures has been only partially successful.

This argumentation lead us to a point, which is might be the most general lesson of the analysed transformation of small towns. The Hungarian small towns' development and successes in the framework of the socialist modernisation proved to ephemeral and somewhat artificial due to its central-led and financed nature, as the whole urbanisation of the CEE-countries was somewhat accelerated (*Murray/Szelenyi* 1984). From this point of view, the present shrinking process is nothing else than compensation, the return of a non-supported (endogenous) development path. The lack of resilience toward challenges of transformation and globalisation many smaller post-socialist cities and towns showing today can be only a kind of "withdrawal symptom" in absence of formerly available, central channelled resources of development.

The drying up of resources and the overall lack of investments has led to the permanent shortage of well-paid and higher qualified jobs. The real challenge in most of the cases is not the present unemployment, but the permanent outmigration of young adults, who do not see any perspectives in small towns. The shrinking would remain in a more manageable path, if the natural decrease occurred. With a very strong feedback to reproduction and economic renewal capabilities, the permanent outmigration seems to be most decisive strike not only on the small towns, but probably on the majority of post-socialist cities.

Finally, we have to raise the question: is there a way back for shrinking small towns? Although recent literature seems to explore the beauty, the advantages of shrinking (*Klemme*, 2010) or even the possibility of planned shrinking (*Hospers*, 2014), these concepts are mainly based on surveys conducted in large, dense populated cities with a wide range of urban functions. The danger in case of small towns seems to be somewhat greater: the urbanity of these places is based on only limited functions, and the effects of demographic decline in the short run directly threaten many of them.

The small towns' reaction to this challenge is somewhat controversial. By analysing the planning activities (documents) of shrinking small towns (*Pirisi/Máté* 2014) we concluded that even the recognition of the crisis is problematic in many cases, moreover the reflections and planned actions are in many cases unrealistic and inadequate. After the EU-integration within in the first budgetary period of 2007-2013, European sources were mainly used to complete or strengthen some of the goals of the stagnating modernisation. In order to accomplish these goals their main task is to maximise the amount of sources can be acquired. This is once again a field and activity more familiar for these settlements. However, this is a kind of paradox resilience in Hungary: the key to success is to build good political and governmental connections, to insure the flow of centrally distributed sources in a country, where still (and again) ad-hoc and individual decisions dominate the policy making. The paradox of these efforts is naturally the growing dependence of small towns from the central government, i.e. on external developmental energies. Not surprisingly, the fear among small towns from a spatial "regression" or "restructuring" of their present status is regrettably much more intensive, than from the real and rapid demographic decline.

References:

1. *A Gergely, András; Kamarás, István; Varga, Csaba* 1986: Egy kisváros. Budapest: Művelődéskutató Intézet.
2. *Altvater, Elmar* 1998: Theoretical deliberations on time and space in post-socialist transformation. In: Regional Studies, 32,7: 591-605.
3. *Andrusz, Gregory; Harloe, Michael; Szelényi, Iván* 2008: Cities after socialism: urban and regional change and conflict in post-socialist societies. New York: John Wiley & Sons.
4. *Bánlaky, Pál* 1987: Előtanulmány és hipotézis. In: Tér és Társadalom, 1,1: 31-45.
5. *Beluszky, Pál; Győri, Róbert* 1999: A magyarországi városhálózat és az EU-csatlakozás. Tér és Társadalom, 13,1-2: 1-30.

6. *Beluszky, Pál* 1999a: The Hungarian urban network at the end of the second millennium. Discussion Papers, 27, 1-83.
7. *Beluszky, Pál* 1999b: Magyarország településföldrajza. Budapest - Pécs: Dialóg Campus.
8. *Blaskó, Zsuzsa; Gödri, Irén* 2014: Kivándorlás Magyarországról: szelekció és célország-választás az "új migránsok" körében. Demográfia, 57,4: 271-307.
9. *Bontje, Marco* 2005: Facing the challenge of shrinking cities in East Germany: the case of Leipzig. In: GeoJournal, 61,1: 13-21.
10. *Boros, Lajos* 2009: Szeged belső térfolyamatai az 1950-es évektől napjainkig. In: Földrajzi Közlemények, 133,4: 453-465
11. *Bradbury, Katharine L; Downs, Anthony; Small, Kenneth A.* 1982: Urban decline and the future of American cities. Washington: Brookings Institution Press.
12. *Brown, David L, et al.* 2005: Post□socialist restructuring and population redistribution in Hungary. In: Rural Sociology, 70,3: 336-59.
13. *Bucher, Eszter; Pirisi, Gábor* 2010: Nonprofit szektor a kisvárosokban. In: Tér és Társadalom, 24,4: 195-205.
14. *Bujdosó, Zoltán; Dávid, Lóránt; Uakhitova, Gulmira* 2014: The urbanisation in Hungary during the last decade. Management Research and Practice, 6,1: 1-21.
15. *Burdack, Joachim* 2013: Lokal basierte Kleinstadtentwicklung in östlichen Europa. Potenziale, Probleme und Praktikum - Eine Einführung. In *Burdack, Joachim, Kriszán, Ágnes* (eds.): Kleinstädte in Mittel- und Osteuropa: Pespektiven und Strategien Lokaler Entwicklung Forum IfL; Leipzig: Institut für Länderkunde, 5-12.
16. *Burdack, Joachim; Knappe, Elke* 2007: The development of small towns in Central Europe and the Baltic States. In: Geografiski Raksti, 13,1: 35-45.
17. *Cavrić, Branko; Toplek, Silvija; Šiljeg, Ante* 2008: Participatory measurements of sustainable urban development and quality of life in post-socialist Zadar, Croatia. In: Spatium, 17-18,1; 45-54.
18. *Chenet, Laurent; et al.* 1996: Changing Life Expectancy in Central Europe: Is There a Single Reason? In: Journal of Public Health, 18,3: 329-36.
19. *Coats, Vary T.* 1977: The future of rural small towns: are they obsolete in post-industrial society? In: Habitat, 2,1: 247-258.
20. *Cockerham, William C.* 1997: The social determinants of the decline of life expectancy in Russia and Eastern Europe: a lifestyle explanation. In: Journal of Health and Social Behavior, 38,2: 117-30.
21. *Colomb, Claire* 2013: Staging the New Berlin: place marketing and the politics of urban reinvention post-1989. London - New York: Routledge.
22. *Crisostomo, Rosemarie* 1983: The demographic dilemma of the Soviet Union. Washington: US Dept. of Commerce, Bureau of the Census.
23. *Czirfusz, Márton; Pósfai, Zsuzsanna* 2015: Kritikus ponton? Önkormányzati lakásgazdálkodás a gazdasági világválság után. In: Területi Statisztika, 55,5; 484-504.
24. *Csizmadia, Zoltán; Rechnitzer, János* 2005: A magyar városhálózat innovációs potenciálja. In*: Grósz András; Rechnitzer, János* (eds.): Régiók és nagyvárosok innovációs potenciálja Magyarországon. MTA RKK, Pécs–Győr, 147-80.
25. *Daróczi, Etelka* 2007: ageing and health in the transition countries of Europe-the case of Hungary. Working Papers on Population, Family and Welfare. Budapest: Hungarian Central Statistical Office.
26. *Demeny, Paul* 1968: Early fertility decline in Austria-Hungary: A lesson in demographic transition. In: Daedalus, 97,2: 502-22.
27. *Dimitrovska Andrews, Kaliopa.* 2005. Mastering the post-socialist city: impacts on planning the built environment. In: *Hamilton, Ian; Dimitrovska Andrews, Kaliopa and Pichler-Milanovis, Natasa* (eds.): Transformation of cities in Central and Eastern Europe: towards globalization. Tokyo, New York, Paris: United Nation University Press, 153-86.
28. *Enyedi, György* 1996: Regionális folyamatok Magyarországon az átmenet időszakában. Budapest: Hilscher Rezső Szociálpolitikai Egyesület.
29. *Enyedi, György* 2012: Városi világ. Budapest: Akadémiai Kiadó.
30. *Fehér, Katalin; Virág, Tünde* 2014: Élet egy kisváros peremén. In: Tér és Társadalom, 28,3: 50–65.
31. *Filipović, Marko; Kokotović, Kanazir Vlasta; Drobnjaković, Marija* 2016: Small Towns in Serbia–The “Bridge” Between the Urban and the Rural. In: European Countryside, 8,4,: 462-480
32. *Frantál, Bohumil; Vaishar, Antonín* 2008: Zvláštnosti kvality života v malých městech. In: Geografia Slovaca, 25,1: 175-88.
33. *Friedrichs, Jürgen.* 1993: Theory of urban decline - Economy, demography and political elits. In: Urban Studies, 30,6: 907-17.
34. *Gábos, András* 2000: Családok helyzete és családtámogatások a kilencvenes években. In: *Kolosi, Tamás; Tóth, István György; Vukovich, György* (eds.): Társadalmi Riport 2000. Budapest: TÁRKI, 99-122.
35. *Garb, Yaakov; Dybicz, Tomasz* 2006: The Retail Revolution in Post-Socialist Central Europe and Its Lessons. In: *Tsenkova, Sasha and Nedović-Budić, Zorica* (eds.): The Urban Mosaic of Post-Socialist Europe. Heidelberg: Physica Verlag, 231-52.

36. *Goeler, Daniel et al.* 2012: Informal housing as routine? Multiple urban transitions in the Belgrade Metropolitan Area (with Kaluderica as an example). In: Mitteilungen Der Osterreichischen Geographischen Gesellschaft, 154: 212-34.
37. *Gregory, Paul R.* 1982: Fertility and labor force participation in the Soviet Union and Eastern Europe. In: The Review of Economics and Statistics, 64,1: 18-31.
38. *Grubbauer, Monika; Kusiak, Joanna* (eds.) 2012: Chasing Warsaw: socio-material dynamics of urban change since 1990. Frankfurt / New York: Campus Verlag.
39. *Haase, Annegret; Grossmann, Katrin; Rink, Dieter* 2013: Shrinking cities in postsocialist Europe–what can we learn from their analysis for urban theory-making? RC21 Conference: Resourceful Cities.
40. *Hablicsek, László* 2004: A nemzetközi vándorlás hatása Magyarország népességének változására. In: Demográfia, 47,3: 300-20.
41. *Heineberg, Heinz* 2014: Stadtgeographie. Padernborn, München, Wien, Zürich: Ferdinand Schöningh.
42. *Herrschel, Tassilo.* 2007: Global geographies of post-socialist transition: geographies, societies, policies. London, New York: Routledge.
43. *Hirt, Sonia* 2012: Iron curtains: Gates, suburbs and privatization of space in the post-socialist city. Oxford: John Wiley & Sons.
44. *Hirt, Sonia* 2013: Whatever happened to the post socialist city? In: Cities, 32: 29-38.
45. *Hirt, Sonia; Stanilov, Kiril* 2007: The perils of post-socialist transformation: residential development in Sofia. In: *Stanilov, Kiril* (ed.): The Post-Socialist City. Berlin: Springer, 215-44.
46. *Hoem, Jan M. et al.* 2009: Traces of the second demographic transition in four selected countries in central and Eastern Europe: union formation as a demographic manifestation. In: European Journal of Population / Revue Europeenne De Demographie, 25,3: 239-55.
47. *Hollós, Marida; Bernardi, Laura*. 2009: Gyermekvállalás bizonytalan időkben magyarországi fiatal párok beszámolója alapján. In: Demográfia, 52,1: 5-30.
48. *Horeczki, Réka* 2014: A kisvárosok ipari átalakulása a XX. században. In: Köztes-Európa, 14, 1: 135-142.
49. *Hospers, Gert-Jan* 2014: Policy responses to urban shrinkage: From growth thinking to civic engagement. In: European Planning Studies, 22,7: 1507-1523.
50. *Izsák, Éva* 2001: Suburbanisation and economic development in Budaörs, Hungary's most successful town. In: *Keune, Maarten; Nemes Nagy, József* (eds.): Local development, institutions and conflicts in post-socialist Hungary. Geneva: International Labour Organisation.
51. *Ježek, Jiři* 2011: Small towns attractiveness for living, working and doing business. Case study the Czech Republic. In: *Ježek, Jiří; Kaňka, Lukáš (*eds.): Competitiveness and Sustainable Development of the Small Towns and Rural Regions in Europe Plzen: University of West Bohemia in Pilsen, Centre for Regional Development Research, 4-11.
52. *Kabisch, Nadja; Haase, Dagmar; Haase, Annegret* 2010: Evolving reurbanisation? Spatio-temporal dynamics as exemplified by the East German city of Leipzig. In: Urban Studies, 47,5: 967-90.
53. *Kaczmarek, Urszula; Konecka-Szydłowska, Barbara* 2013: Perspectives for development of small towns in Wielkopolska voivodeship. In: *Burdack, Joachim; Kriszán Ágnes* (eds.): Kleinstädte in Mittel- und Osteuropa: Perspektiven und Strategien lokaler Entwicklung Forum IfL; Leipzig: Institut für Länderkunde, 66-89.
54. *Kapitány, Balázs; Rohr, Adél* 2014: Kivándorlás Magyarországról – Egy új becslési eljárás eredményei. In: *Spéder, Zsolt* (ed): A család vonzásában: tanulmányok Pongrácz Tiborné tiszteletére. Budapest: KSH Népességtudományi Kutatóintézet, 67-85.
55. *Klemme, Marion* 2010: Wunsch und Wirklichkeiten in demographisch schrumpfenden Räumen: Handlungslogiken öffentlicher Akteure in der kommunalen Siedlungsflächenentwicklung. In: FuB-Flachenmanagement und Bodenordnung, 72,2: 62.
56. *Kohler, Hans Peter; Kohler, Ilina* 2002: Fertility decline in Russia in the early and mid 1990's: The role of economic uncertainty and labour market crises. In: European Journal of Population/Revue européenne de Démographie, 18,3: 233-62.
57. *Kok, Herman; Kovacs, Zoltan* 1999: The process of suburbanization in the agglomeration of Budapest. In: Netherlands Journal of Housing and the Built Environment, 14,2: 119-41.
58. *Kolodko, Grzegorz W.* 1999: Ten years of post-socialist transition lessons for policy reform. New York: World Bank Publications.
59. *Konecka-Szydłowska, Barbara; Zuzańska-Żyśko, Elżbieta; Szmytkie, Robert* 2010: Role of services in the economies of small towns of Silesia region and Wielkopolskie voivodehip. In: Bulletin of Geography. Socio-economic Series, 14,1; 51-62.
60. *Konecka-Szydłowska, Barbara* 2017: Zróżnicowanie poziomu rozwoju społeczno-gospodarczego nowych miast. Przykład Polski i Węgier. In: Studia Ekonomiczne, 327: 145-163.
61. *Kotus, Jacek* 2006: Changes in the spatial structure of a large Polish city–the case of Poznań. In: Cities, 23,5: 364-81.
62. *Kovács, Zoltán* 1999: Cities from state-socialism to global capitalism: an introduction. In: GeoJournal, 49,1: 1-6.
63. *Kovács, Zoltán* 2002: Népesség- és településföldrajz. Budapest: Eötvös Kiadó.
64. *Kovács, Zoltán* 2004: Socio-economic transition and regional differentiation in Hungary. In: Földrajzi Értestő, 53,1-2: 33-49.

65. *Kovács, Zoltán* 2010: A szocialista és posztszocialista urbanizáció értelmezése. In: *Barta, Györgyi* et al. (eds.): A területi kutatások csomópontjai Pécs: MTA Regionális Kutatások Központja, 141-57.
66. *Kovács, Zoltán* 1998: Ghettoization or Gentrification? Post-socialist Scenarios for Budapest. In: Netherlands Journal of Housing and the Built Environment, 13,1: 63-81.
67. *Kovács, Zoltán* 2009: Social and economic transformation of historical neighbourhoods in Budapest. In: Tijdschrift Voor Economische en Sociale Geografie, 100,4: 399-416.
68. *Kőszegfalvi, György* 2004: Magyarország településrendszere. Pécs: Alexandra.
69. *Kubeš, Jan* 2013: European post-socialist cities and their near hinterland in intra-urban geography literature. In: Bulletin of Geography. Socio-economic Series, 19,1: 19-43.
70. *Kulcsár, J László; Brown, David L* 2011: The political economy of urban reclassification in post-socialist Hungary. In: Regional Studies, 45,4: 479-490.
71. *Kwiatek-Sołtys, Agnieszka* 2011: Small towns in Poland-barriers and factors of growth. In: Procedia-Social and Behavioral Sciences, 19,1: 363-370.
72. *Kwiatek-Sołtys, Agnieszka* 2015: Population changes as litmus paper of the socio-economic development level of small towns in Poland. In: Annales Universitatis Paedagogicae Cracoviensis Studia Geographica, 8,1: 39-53.
73. *Kwiatek-Sołtys, Agnieszka* 2005: The role of small district towns in the urban agglomeration system in Poland. In: Bulletin of Geography. Socio-economic Series, 4,1: 135-40.
74. *Kwiatek-Sołtys, Agnieszka* 2006: Migration attractiveness of small towns in the Małoposka Province. In: Bulletin of Geography. Socio-economic Series, 5,1: 155-60.
75. *Lados, Gábor; Hegedűs, Gábor 2016: Returning home: An evaluation of Hungarian return migration. Hungarian Geographical Bulletin, 65,3: 321-330.*
76. *Lesthaeghe, Ron; Van de Kaa, Dirk J.* 1986: Twee demografische transities. In: Bevolking: Groei en Krimp, 9-24.
77. *Lesthaeghe, Ron* 2010: The unfolding story of the second demographic transition. In: Population and Development Review, 36,2: 211-51.
78. *Light, Duncan; Young, Craig* 2010: Reconfiguring socialist urban landscapes: The'left-over'spaces of state-socialism in Bucharest. In: Human Geographies, 4,1: 5-16.
79. *Lintz, Gerd; Müller, Bernhard; Schmude, Karl* 2007: The future of industrial cities and regions in central and eastern Europe. Geoforum, 38,3: 512-519.
80. *Lux, Gábor* 2009: Divergent patterns of adaptation among Central European old industrial regions. European Spatial Research and Policy, 16,1: 145-157.
81. *Maes, Marieke; Loopmans, Maarten; Kesteloot, Christian* 2012: urban shrinkage and everyday life in post-socialist cities: living with diversity in Hrušov, Ostrava, Czech Republic. In: Built Environment, 38,2: 229-43.
82. *Marcinczak, Szymon; Sagan, Iwona* 2011: The socio-spatial restructuring of Łodz, Poland. In: Urban Studies, 48,9: 1789-809.
83. *Marcinczak, Szymon et al.* 2014: Urban geographies of hesitant transition: tracing socioeconomic segregation in post-Ceauşescu Bucharest. In: International Journal of Urban and Regional Research, 38,4: 1399-417.
84. *Martinez-Fernandez et al.* 2012: Shrinking Cities: Urban challenges of globalization. In: International Journal of Urban and Regional Research, 36,2: 213-25.
85. *Máté, Éva* 2017: Perforált régiók? Izolálódó térségek a Dél-Dunántúlon. In: Földrajzi Közlemények, 141,2: 164-178.
86. *Medgyesi, Konstantin* 2005: A kertész, az orvos és a borkimérő. kisvárosi rendszerváltozás és a helyi hatalmi elit. In: Szociológiai Szemle, 15,1: 60-71.
87. *Molnár, Ernő* 2015: Martfű: Egy cipőgyártó kisváros múltja és perspektívái. In: Földrajzi Közlemények, 139,2: 132-46.
88. *Murray, Pearse; Szelenyi, Ivan* 1984: The city in the transition to socialism. In: International Journal of Urban and Regional Research, 8,1: 90-107.
89. *Musil, Jiří; Ryšavá, Zdeněk* 1983: Urban and regional processes under capitalism and socialism: A Case study from Czechoslovakia. In: International Journal of Urban and Regional Research, 7,4: 495-527.
90. *Mykhnenko, Vlad; Turok, Ivan* 2008: East European cities—patterns of growth and decline, 1960–2005. In: International Planning Studies, 13,4: 311-342.
91. *Nagy, Erika; Timár, Judit; Nagy, Gábor; Velkey, Gábor* 2015: A társadalmi-térbeli marginalizáció folyamatai a leszakadó vidéki térségekben. In: Tér és Társadalom, 29,1: 35–52.
92. *Nemes Nagy, József* 1994: Regional disparities in Hungary during the period of transition to a market economy. In: GeoJournal, 32,4: 363-68.
93. *Nemes Nagy, József* 1995: Soprontól Nyíradonyig–városok a paicgazdasági átmenetben. In: Comitatus, 5,8-9: 15-22.
94. *Niedermeyer, Martin* 2000: Kleinstadtentwicklung. Würzburger Geographische Arbeiten, 93,1, 375.
95. *Nolte, Ellen; McKee, Martin, Gilmore, Anna* 2005: Morbidity and mortality in the transition countries of Europe. In: *Macura, Miroslav; MacDonald, Alphonse L; Haug, Werner* (eds.): The New Demographic Regime. Population Challenges and Policy Responses. New York / Geneva: United Nations, 153-76.
96. *Oswalt, Philipp; Rieniets, Tim* 2006: Atlas of shrinking cities. Ostfildern: Hatje Cantz.
97. *Pál, Viktor; Boros, Lajos* 2010: The Relationship between health policy and spatial justice-the case of Hungary. In: Megatrend Review, 7,1: 249-64.

98. *Pavlínek, Petr* 2004: Regional development implications of foreign direct investment in Central Europe. In: European Urban and Regional Studies, 11,1: 47-70.
99. *Pénzes, János* 2011: A jövedelmi szempontból elmaradott települések területi átrendeződése a rendszerváltozás után. In: Földrajzi Közlemények, 135,1: 59-69.
100. *Pénzes, János* 2014: Competitiveness of Hungarian towns after the change of regime. In: Central European Regional Policy and Human Geography, 4,1: 49-61.
101. *Philipov, Dimiter; Kohler, Hans-Peter* 2001: Tempo effects in the fertility decline in Eastern Europe: evidence from Bulgaria, the Czech Republic, Hungary, Poland, and Russia. In: European Journal of Population/Revue européenne de Démographie, 17,1: 37-60.
102. *Philipov, Dimiter; Dorbritz, Jürgen* 2003: Demographic consequences of economic transition in countries of Central and Eastern Europe. Strasbourg: Council of Europe Publishing.
103. *Philipov, Dimiter; Spéder, Zsolt; Billari, Francesco C.* 2006: Soon, Later, or Ever? The Impact of Anomie and Social Capital on Fertility Intentions in Bulgaria (2002) and Hungary (2001). In: Population Studies, 60,3: 289-308.
104. *Pickvance, Chris* 2002: State socialism, post-socialism and their urban patterns: Theorizing the Central and Eastern European experience. In: *Eade, John and Mele, Cristopher* (eds.): Understanding the City: Contemporary and Future Perspectives. Oxford: Blackwell Publishing, 183-203.
105. *Pirisi, Gábor* 2009a: Kisvárosok differenciált átalakulása az ezredforduló Magyarországán. PhD-Thesis, Pécsi Tudományegyetem.
106. *Pirisi, Gábor* 2009b: Differenciálódó kisvárosaink. In: Földrajzi Közlemények, 133,3: 315-25.
107. *Pirisi, Gábor* 2009c: Város vagy nem város? Dilemmák a formális és a funkcionális városfogalom kettőssége kapcsán. In: Területi Statisztika, 12,2: 129-36.
108. *Pirisi, Gábor; Máté, Éva* 2014: Zsugorodó kisvárosok – kincstári optimizmus. A demográfiai hanyatlás kérdéskörének megjelenése hazai kisvárosok tervezési dokumentumaiban. In: Területfejlesztés és Innováció, 8,2: 28-39.
109. *Pirisi, Gábor; Trócsányi, András* 2009: The Transformation of villages into Towns – A qantitative way of Hungarian urbanisation. In: Geographia – Studia Universitatis Babeş-Bolyai, 54,1: 75-82.
110. *Pirisi, Gábor; Trócsányi, András* 2015a: Shrinking small towns in Hungary: the factors behind the urban decline in "small scale". In: Acta Geographica Universitatis Comenianae, 58,2: 131-47.
111. *Pirisi, Gábor; Trócsányi, András* 2015b: Between shrinking and blooming: the crossroad of small towns urbanisation in Hungary. In: Annales Universitatis Paedagogicae Cracoviensis Studia Geographica, 8,1: 12-28.
112. *Putnam, Robert D.* 2001: Bowling alone: the collapse and revival of American community. Simon and Schuster.
113. *Rechnitzer, János; Csizmadia, Zoltán; Grosz, András* 2011: A magyar városhálózat tudásalapú megújító képessége az ezredfordulón. In: Tér és Társadalom, 18,2: 117–56.
114. *Rechnitzer, János; Páthy, Ádám; Berkes, Judit* 2014: Stability and changes of the Hungarian city-network. In *Somlyódyné Pfeil, Edit* (ed.): Industrial districts and cities in Central Europe Győr: Universitas-Győr Nonprofit Ltd, 109-130.
115. *Reimann, Bettina* 1997: The Transition from people's property to private property: consequences of the restitution principle for urban development and urban renewal in East Berlin's inner-city residential areas. In: Applied Geography, 17,4: 301-13.
116. *Rybczynski, Witold; Linneman, Peter D.* 1999: How to save our shrinking cities. In: Public Interest, 135,1: 30-44.
117. *Sailer-Fliege; Ulrike* 1999: Characteristics of post-socialist urban transformation in East Central Europe. In: GeoJournal, 49,1: 7-16.
118. *Siljanoska, Jasmina; Korobar, Vlatko P.; Stefanovska Jasna* 2012: Causes, consequences and challenges of shrinkage: the case of small cities in a transition society. In: Built Environment, 38,2: 244-58.
119. *Simon, William; Gagnon, John H* 1967: The decline and fall of the small town. In: Society, 4,5: 42-51.
120. *Slavík, Vladimir* 2002: Small towns of the Slovak Republic within the transformation stage. In: Acta Facultatis Studiorum Humanitatis et Naturae Universitatis Prešoviensis, Folia Geographica, 5,1: 146-54.
121. *Smith, Adrian; Swain, Adam* 2010: The global economic crisis, Eastern Europe, and the former Soviet Union: models of development and the contradictions of internationalization. In: Eurasian Geography and Economics, 51,1: 1-34.
122. *Smith, Adrian; Rochovska, Alena* 2007: Domesticating neo-liberalism: everyday lives and the geographies of post-socialist transformations. In: Geoforum, 38,6: 1163-78.
123. *Smith, Adrian; Stenning, Alison; Rochovska, Alena; Swiatek, Dariusz* 2008: The emergence of a working poor: labour markets, neoliberalisation and diverse economies in post-socialist cities. In: Antipode, 40,2: 283-311.
124. *Sobotka, Tomáš.* 2008: The diverse faces of the second demographic transition in Europe. In: Demographic Research, 19,8: 171-224.
125. *Sobotka, Tomáš; Zeman, Kryštof; Kantorová, Vladimíra* 2003: Demographic shifts in the Czech Republic after 1989: A second demographic transition view. In: European Journal of Population/Revue européenne de Démographie, 19,3: 249-77.
126. *Stanilov, Kiril ed.* 2007: The post-socialist city: Urban form and space transformations in Central and Eastern Europe after socialism. Berlin: Springer.
127. *Steinführer, Annett; Küpper, Patrick; Tautz, Alexandra* 2014: Adapt and cope: strategies for safeguarding the quality of life in a shrinking ageing region. In: Comparative Population Studies, 39,2: 319-44.

128. *Stenning, Alison; Hoerschelmann, Kathrin* 2008: History, geography and difference in the post-socialist world: or, do we still need post-socialism? In: Antipode, 40,2: 312-35.
129. *Sýkora, Luděk* 1999: Processes of socio-spatial differentiation in post-communist Prague. In: Housing Studies, 14,5: 679-701.
130. *Sýkora, Luděk; Bouzarovski, Stefan* 2012: Multiple transformations conceptualising the post-communist urban transition. In: Urban Studies, 49,1: 43-60.
131. *Temelova, Jana* 2007: Flagship Developments and the physical upgrading of the post-socialist inner city: The Golden Angel project in Prague. In: Geografiska Annaler Series B-Human Geography, 89B,2: 169-81.
132. *Tóth, József* 1996: Településrendszer. In*: Perczel, György* ed.: Magyarország társadalmi-gazdasági földrajza Budapest: Eötvös Kiadó, 539-86.
133. *Trócsányi, András* 2011: The spatial implications of urban renewal carried out by the ECC programs in Pécs. In: Hungarian Geographical Bulletin, 60,3: 261-84.
134. *Troeger-Weiß, Gabi; Domhardt, Hans-Jörg* 2009: Germany's shrinkage on a small town scale. In *Pallagst, Karin* (ed.): The future of shrinking cities: problems, patterns and strategies of urban transformation in a global context. Berkeley, CA: Institute of Urban and Regional Development, 161-68.
135. *Tsenkova, Sasha* 2007: Reinventing strategic planning in post-socialist cities: experiences from Sofia. In: European Planning Studies, 15,3: 295-317.
136. *Tsenkova; Sasha* 2006: Beyond transitions: Understanding urban change in post-socialist cities. In *Tsenkova, Sasha ; Nedović-Budić, Zorica* (eds.): The Urban Mosaic of Post-Socialist Europe Contributions to Economics: Physica-Verlag HD, 21-50.
137. *Turok, Ivan; Mykhnenko, Vlad* 2007: The trajectories of European cities, 1960–2005. In: Cities, 24,3: 165-82.
138. *Utasi, Ágnes* 1995. A kisvárosi elit eredete és vagyona. In: Tér és Társadalom, 9,3-4: 191–205.
139. *Utasi, Ágnes; A Gergely, András; Becskeházi, Attila* 1996: Kisvárosi elit. Budapest: MTA Politikai Tudományok Intézete.
140. *Uzzoli, Annamária* 2008: The mortality situation and its spatial dimension in Hungary. In: Czech Regional Studies, 2,2: 41-50.
141. *Vaishar, Antonín* 2004: Small towns: an important part of the Moravian settlement system. In: Dela, 21: 309-18.
142. *Vaishar, Antonín et al.* 2008: Geografie malých měst a jejich úloha v systému osídlení. Brno: Ústav geoniky AV ČR.
143. *Van de Kaa, Dirk J.* 1987: Europe's second demographic transition. In: Population Bulletin, 42,1: 1-59.
144. *Van de Kaa, Dirk J.* 2003: second demographic transition. Encyclopedia of Population, 2: 872-75.
145. *Velkova, Angelika; Wolleswinkel-Van den Bosch, Judith H.; Mackenbach, Johan P.* 1997: The east-west life expectancy gap: differences in mortality from conditions amenable to medical intervention. In: International Journal of Epidemiology, 26,1: 75-84.
146. *Vigvári, András* 2011: Szubszidiaritás nélküli decentralizáció. Néhány adalék az önkormányzati rendszer magyar modelljének korszerűsítéséhez. Tér és Társadalom, 22,1, 141–67.
147. *Vujović, Sreten; Petrović, Mina* 2007: Belgrade's post-socialist urban evolution: reflections by the actors in the development Process In: *Stanilov, Kiril* (ed.): The Post-Socialist City: Urban Form and Space Transformations in Central and Eastern Europe after Socialism. Berlin: Springer, 361-83.
148. *Weclawowicz, Grzegorz* 2005: The Warsaw Metropolitan Area on the eve of Poland's integration into the European Union. In: *Hamilton Ian; Dimitrovska Andrews, Kaliopa; Pichler-Milanovic, Natasa* (eds.): Transformation of Cities in Central and Eastern Europe: Towards Globalization. United Nations University Press, 223-47.
149. *Wiest, Karin* 2012: Comparative debates in post-socialist urban studies. In: Urban Geography, 33,6: 829-49.
150. *Zamfir, Daniela; Tălângă Cristian; Stoica, Ilinca Valentina* 2009: Romanian small towns searching for their identity. IN: Journal of Urban & Regional Analysis, 1,1: 41-53.
151. *Zuzańska-Żyśko, Elżbieta* 2005: Economic transformation of small silesian towns in the years 1990–1999. In: Geographica Polonica, 78,1: 137-50.

Надійшла до редколегії 22.05.2018 р.

UDC 911.375.5:502.5

Harsha Munasinghe
MSc (Arch), M Arch (Urban Design), PhD, Professor of the School of Architectural Studies
e-mail: hmunasinghe@georgebrown.ca, ORCID ID: https://orcid.org/0000-0003-3804-5100
George Brown College
146 Kendal Ave., Room E 220, P.O. Box 1015, Station B, Toronto, Ontario, Canada

ECOLOGICAL PARADIGM OF CITIES IN POST-BRUNDTLAND ERA: CHALLENGES OF CONSERVING HISTORIC URBAN LANDSCAPES AS LIVING CITIES

Sustainability has been a pressing, complex, and challenging agenda for urbanists. Its focus turns on wider issues of environment and societies thus broadening the concept defined in the Brundtland report. Eco-city, ecological footprint, green building and cultural planning are among significant initiatives resulted by the reincarnation of sustainable development of Brundtland report. Undoubtedly, nature plays a huge role in defining *place-legibility* but its perception by inhabitants plays a much bigger role in sustaining that place. Having tested types of cohabitations of nature and culture, we have made attempts to emphasize the significance of society in interpreting *place-legibility* for sustainable development. The first administrative capital of Sri Lanka, the World Heritage City of Anuradhapura was built as a political cum religious polis. The legibility of this city is shaped by its location, evolved hydraulic civilization and values placed subsequently. The protection of the city centre as a *dead monument,* focusing on one cultural layer, undermines its multicultural making. This conversion of a multicultural place into a mono-cultural space has depleted its *liveability,* and as such is not sustainable. Having found how those forced values have challenged city's liveability, we used eco-city planning and cultural planning to restore the *liveability* of city's Royal Park. Qualitative research methods were used for field surveys and modest design charrettes were used to test our proposals. Our restoration plan, based on socio-culturally defined *eco-city concept,* not only strengthened city's sustainability but also prepared the grounds for an *eco-society.*

Keywords: ecological paradigm, Eco-city, cultural-planning, liveability, Anuradhapura.

Харша Мунасінгхе. ЕКОЛОГІЧНА ПАРАДИГМА МІСТ В ЕПОХУ ПОСТ-БРУНДТЛАНД: ПРОБЛЕМИ ЗБЕРЕЖЕННЯ ІСТОРИЧНИХ МІСЬКИХ ЛАНДШАФТІВ ЯК ЖИВИХ МІСТ

Стійкість є нагальним і складним завданням для урбаністів. Основна увага у його розв'язанні приділяється більш широким питанням навколишнього середовища і суспільства, розширюючи тим самим концепцію, визначену в доповіді Брундтланд. Еко-місто, екологічний слід, зелене будівництво і культурне планування є одними із значних ініціатив, викликаних реінкарнацією сталого розвитку доповіді Брундтланд. Перевіривши типи спільного існування природи і культури, ми спробували підкреслити значення суспільства у визначенні місць для сталого розвитку. Перша адміністративна столиця Шрі-Ланки, місто всесвітньої спадщини Анурадхапура, була побудована як політичний релігійний поліс. Важливість цього міста визначається його географічним положенням, розвиненою річковою цивілізацією та іншими чинниками, які були встановлені. Захист центру міста як мертвого пам'ятника, орієнтованого на один культурний шар, підриває його багатокультурне значення. Це перетворення багатокультурного місця у монокультурний простір виснажило його придатність для життя і не є стійким. Виявивши, як ці примусові цінності оскаржують життєздатність міста, було використано еко-містобудування та культурне планування, щоб відновити життєздатність королівського парку міста. Наш план відновлення, заснований на соціально-культурній концепції еко-міста, не тільки зміцнив стійкість міста, а й підготував підгрунтя для еко-суспільства.

Ключові слова: екологічна парадигма, еко-місто, культурне планування, життєздатність, Анурадхапура.

Харша Мунасингхе. ЭКОЛОГИЧЕСКАЯ ПАРАДИГМА ГОРОДОВ В ЭПОХУ ПОСТ-БРУНДТЛАНД: ПРОБЛЕМЫ СОХРАНЕНИЯ ИСТОРИЧЕСКИХ ГОРОДСКИХ ЛАНДШАФТОВ КАК ЖИВЫХ ГОРОДОВ

Устойчивость является неотложной и сложной задачей для урбанистов. Основное внимание в её решении уделяется более широким вопросам окружающей среды и общества, расширяя тем самым концепцию, определенную в докладе Брундтланд. Эко-город, экологический след, зеленое строительство и культурное планирование являются одними из значительных инициатив, вызванных реинкарнацией устойчивого развития доклада Брундтланд. Проверив типы совместного существования природы и культуры, мы попытались подчеркнуть значение общества в определении мест для устойчивого развития. Первая административная столица Шри-Ланки, город всемирного наследия Анурадхапура, была построена как политический религиозный полис. Важность этого города определяется его географическим положением, развитой речной цивилизацией и другими факторами, которые были установлены. Защита центра города как мертвого памятника, ориентированного на один культурный слой, подрывает его многокультурное значение. Это преобразование многокультурного места в монокультурное пространство истощило его пригодность для жизни и не является устойчивым. Обнаружив, как эти принудительные ценности оспаривают жизнеспособность города, было использовано эко-градостроительство и культурное планирование, чтобы восстановить жизнепригодность королевского парка города. Наш план восстановления, основанный на социально-культурной концепции эко-города, не только укрепил устойчивость города, но и подготовил почву для эко-общества.

Ключевые слова: экологическая парадигма, эко-город, культурное планирование, жизнепригодность, Анурадхапура.

 DOI: 10.26565/2076-1333-2018-24-02

Introduction to place-sustainability

Reincarnation of the concept of sustainable development with the World Summit on Environment and Development of 1983, or Brundland Commission,[1] resulted in new development strategies such as eco-city, green building and bio mimicry. They all have come to play a vital role in designing and building new urban habitats without challenging the ecological sustainability of place.[2] Some may perceive such concepts as promoting nature as a bio-centric entity that controls itself and defining place as its life forms and biota rather than by human activities and values evolved in that place. By promoting land's carrying capacity, a prodigy of assessment strategies used by agriculturalists on land, attempts have been made to preserve cities without the evolving requirement of their living societies. This misinterpreted strategies to urban conservation depleted the liveability of cities by converting them into open-air museums. We have argued for the need to shift the focus of carrying capacity from land to landscapes, which includes socio-cultural values, to make conservation sustainable.[3] Our aim has been to use the concepts of eco-city and cultural planning to achieve ecological sustainability of evolved urban landscapes. Our hypothesis has been that strengthening city's legibility is imperative to improve its liveability. A protection strategy that separates the evolved society from the protected urban landscape would not ultimately protect that landscape.

A lived city cannot be separated from its evolved society. Each city represents its own distinctive configuration of nature and culture, and should be protected for where it is built, who built it for whom, and who thrived in there. Its city form, land utilization and built forms are not totally nature-shaped but how culture has interpreted those demands of the nature time to time. Protecting a city to strengthen its liveability rather than turning it into a *museum object,* find refuge a broadened concept of cultural planning that merely advocates converting empty built spaces for *cultural activities.* Creating liveable place in those empty urban spaces could only be possible by responding to the evolved cultural values, and those conversions would be sustainable if those so-called cultural activities truly represent the living society and not occasional tourists. City is a container built to promote good life and a place for societies to come together. The on-going encounter between city and society further diversifies the city life. As such, liveability is the most human-oriented scale to measure the quality of life and celebration of cultural diversity in a city. It is a fact that city's liveability is heavily dependent on its location and how its evolved societies that made that location a habitat- in other words how societies converted a land into a landscape. Any attempt to strengthen city's liveability shall start with the indulgent unique composition of nature and culture.[4] The linking of *good city life* with ecology gave birth to the idea of eco-city defined with nature, its resources and their continuity in pristine form without sacrificing the will and strength of an evolving urban life.[5] Urban conservation, as a management strategy, can be more proactive in improving the quality of life if the materialistic value of natural resources is not emphasized over qualitative aspects such as culture and society.[6]

Our aim has been to bring those evolved cultural values to the centre of decision making in order to achieve city's ecological sustainability. We argue for facilitating an ecological society to ensure the continuity of the historic urban landscape. Management of natural resources, use of ecologically-friendly materials, use of renewable energy sources are quantitative aspects of ecological sustainability that should be intertwined with qualitative aspects such as social orders and structures, city forms, lead-built forms, land use, growth patterns, and spatial structure criteria in city-scale. As such, the potential degradation of city life in the conserved city after it becoming a *stereotyped* world-city can be avoided. The qualitative aspects can be the catalysts for continuous living and upholding the qualities of a city; *density and diversity.* Each lived city has its own story written on its urban form. This cultural dimension of the city expresses values, ideas, meanings, symbols, and organizational rules that sustained the city, and the most sustainable way of developing that city is first respecting its unique evolution and guiding towards a more ecological target. Enforcing universally-appreciated cultural activities such as art galleries or museums or entertainment districts may not embrace city's uniqueness but promote its tourism at the expense of its evolved life. Such conservation attempts that did not respond to the cultural dimension but filled with cultural activities failed to improve the liveability of the city and therefore to sustain its urban societies.[7] Cultural planning as a holistic approach formulates a comprehensive protection to city's uniqueness. Scott (2000) notes, "Place and culture are persistently intertwined with one another, for any given place… is always a locus of dense human relationships, and culture is a phenomenon that trends to have intensely local characteristics thereby helping to differentiate places from one another". The particular relationship between place and culture should be strengthened through conservation to facilitate the continuity of its evolved society as a true guardian. The continuous living of this guardian-society, reinforced with eco-city princi-

[1] *Our Common Future* (1987) World Commission on Environment and Development, London: Oxford Press

[2] These concepts intend to create habitats with minimum environmental impact: minimized requirement of input resources and controlled waste out. Richard Register coined the term Eco city in his book, *Eco-city Berkley: Building Cities for Healthy Futures*, published in 1987.

[3] Munasinghe (1998) *Urban Conservation and City Life, Oulu: University of Oulu*

[4] The idea of eco-city should not be perceived as bringing the elements of countryside to the city. Lefebvre (1996:87) notes the differences, "the countryside, both practical reality and representation, will carry images of nature, of being, of the innate. The city will carry images of effort, of will, or subjectivity, of contemplation, without these representations becoming disjointed from real activities".

[5] Munasinghe (2004) 'Ecological Housing in Helsinki: Case study of Viikki', *Sri Lanka Architect*, Journal of Sri Lanka Institute of Architects, 4/2004

[6] One could easily see that how these conventional means of shaping sustainable environments are becoming rather *stereo-typed* thus risking the making of the Eco-city into a mere *type.*

[7] Munasinghe (1998) *op.cit.*

ples, may ensure sustainability of the city by improving its liveability. This is our research premise.

Sri Lanka's first administrative capital, Anuradhapura, was built in the 4th century BC. Its royal park called *Maha Mewuna Uyana* was planned in the 3rd century BC to complete the image of a garden city in the dry zone. The park, named after a mythical cloud of the heaven, *Maha Megha*, encompassed the city that accommodated various types of buildings of the royal court. This shady-green forest was the major binding element of the city and its name was a denoted a huge concession to the dry zone experience just two months of rain. The citadel and the royal palace formed the locus of the urban structure, and park ran through the ramparts to show how nature was represented in the administrative capital. With the arrival of Buddhism in the 3rd century BC and with the elevation of Buddhism to the level of state religion, the kings patronised construction of a ring of monasteries dominated by colossal stupas around the city. The planting of the sacred Bodhi tree, *Sri Maha Bodhi*, in the park further affirmed its significance among Buddhists. Kings abandoned Anuradhapura, time to time retreating to more secured locations due to South Indian invasions, yet the city remained the capital until 12th century AD. The South Indian rulers and some local kings, who patronised Hindu traditions, enriched city's diversity by adding various built forms and activities. The post-Anuradhapura kings restored the city, showing their respect to its cultural significance. The British colonialists used Anuradhapura as their administrative centre of the North Central Province. They further diversified its urban structure by adding new buildings and laying down streets, disintegrating its unique ring-based spatial structure and the park-dominated centre to a larger extent. The Department of Archaeology established by the colonialists documented and planned the protection of major Buddhist monuments.

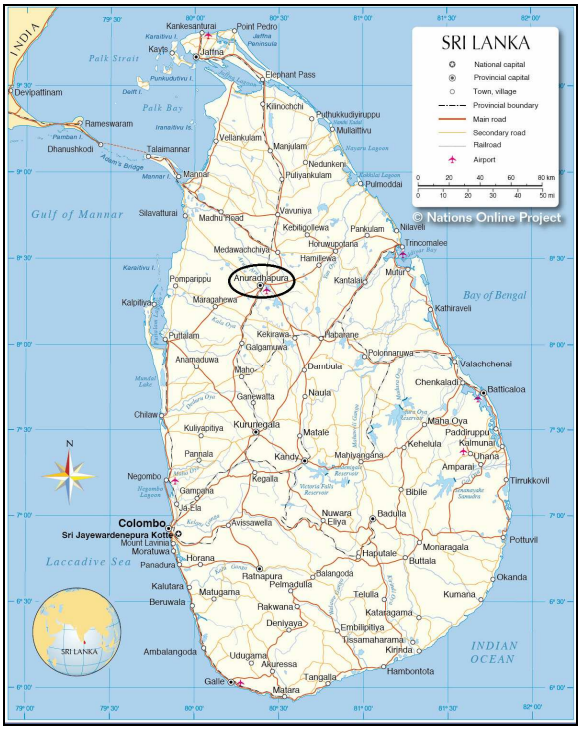


Fig. 1: Map of Sri Lanka
(Source: Survey General Department, Sri Lanka)

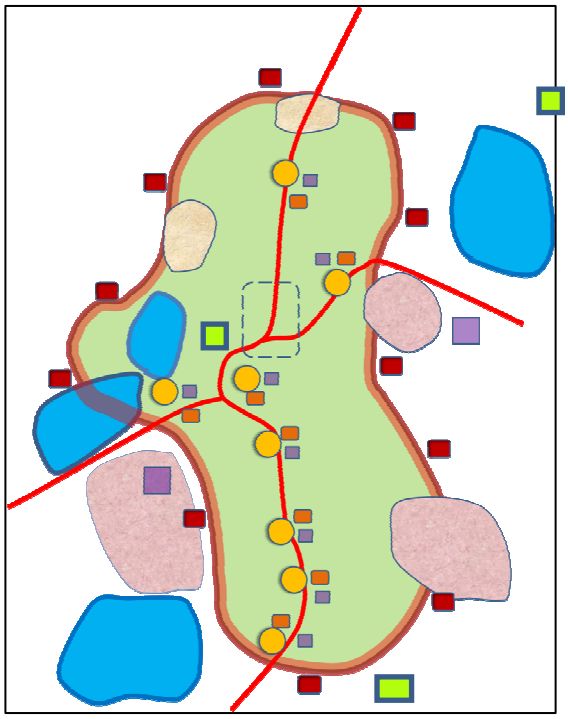


Fig.2: Conceptual city plan of Anuradhapura citadel

The post-independent government, declaring the city centre a *sacred city* in 1961, removed the living society, houses, shops, and discontinued major transport routes of colonial era. Since then the stupa encircled city centre has been preserved as a *dead monument.*[1] The Department of Town and Country Planning also planned a new town to accommodate those evicted from the sacred area, dividing one city into two alien segments.

Having declared Anuradhapura a sacred city, preservation placed emphasis on Buddhist monuments at the expense of pre-Buddhist and non-Buddhist monuments. UNESCO declared Anuradhapura a World Heritage for the particular preserved moment of history. The presentation of one cultural layer of the city neglected its sociocultural evolution and multicultural society. Furthermore, it converted the city into an open-air museum for pilgrims and tourists. New Buddhist temples and other similar facilities have been permitted to strengthen the promoted image. The significance of park's role in encompassing a garden city has not been recognized by preservationists. Today, a kilo meter long walk between the historically-significant stupa, Ruwanveli Seya, and the sacred Bodhi tree define the core of the park. The neglect of non-Buddhist layers has caused the slow death

[1] Anuradhapura Preservation Board Act 1961

of the garden city and its park.[1] The emphasis on one phase of history costs city's cultural diversity. Our studies on its current uses and users urged us to synthesize strategies using eco-city and cultural planning to bring the evolved socio-cultural values of Anuradhapura to the centre of decision making.

Our research aim was to strengthen city's liveability. First objective was to collect and process data to emphasize the need to re-interpret Anuradhapura a living monument and restoring its urban structure dominated by the park. Using, testing, and disseminating processed data, our next objective is designing guidelines for the restoration of the royal park. We developed a master plan for the restoration of the royal park by convincing politicians that restoration is not mere preservation and beautification. By reviewing literature and producing them into a useable format, we also ventured into enlarging awareness among stakeholders, and developing educational tools at secondary and tertiary levels.

Making of a Sri Lankan City

"City is a fact in nature, like a cave, a run of mackerel or an ant-heap. But it is a conscious work of art, and it holds within its communal framework many simpler more personal forms of art" (Mumford 1938). Cities continuously evolve with their societies, and do not get alienated from its location or from the society. It is a dynamic representation of diverse understandings between flesh and stone writes Sennett (1994). City's socio-cultural layering is embodied in its city form, built forms, street layouts, institutions, and outdoor as well as indoor spaces. This particular socio-spatial matrix shows an evolving links between human, society and environment. Learning to respect and to respond to the volatile forces of the location, and then evolving designing criteria of additions to that location, humans and societies lay foundations to true ecologically-sustainable cities. Anuradhapura was not an exception. Its origin and crowing as the seat of the king would have been due to the availability of water and fertile land, requirements for the agro-based society. The arrival of Buddhism, evolution of hydraulic civilization, invasions by South Indians and colonial rule and post-colonial shaping make what Anuradhapura is today. The dry zone and flat landscape supplemented by the river, Malwatu Oya, that floods the low lands annually are main natural elements of the city. The circular city form, monolithic stone buildings of vast scale, spatial structure criteria, street network, institutions, and monument protection through continuous maintenance attest to the input of evolving societies. They, along with the exiting life, make Anuradhapura an instructive example for testing sustainable strategies for a historic urban landscape.

Cities in Sri Lanka have been built as political and religious polis.[2] The urban societies may have evolved from antiquity to medieval, then to industrial and post-industrial, but the city form in Sri Lanka has remained politically and/ or religiously centred.[3] The fragmented and nature-represented city has not essentially been sustainable but maintained by the state mechanism for rich and influential. Anuradhapura is an instructive example for such Sri Lankan cities. Its emergence due the river and fertile land and its growth with the evolving way of life of an agro-based society, in which the ruler himself was actively engaged in paddy cultivation, shows the glimpses of a true sustainable development. The paddy fields within the city centre show the importance placed with the production of staple food; rice. The rings that were added eventually show how city's growth was sustained within the evolved value system of a living society. A morphological analysis of the city plan clearly shows the origin with the river and the growth of rings: an administrative centre circled by monasteries, then by reservoirs, and then by forest monasteries. Most importantly, the royal park cut-through those rings thus completing the image of a green city.[4] The city builders added an intricate canal system to distribute the water stored in reservoirs and to connect the city with its suburbs and villages. The hydraulic civilization achieved its pinnacle as a well-established urban society with the shady-green forest and water improved the liveability of otherwise harsh dry zone. Historical documents note that about 5000 Buddhist monks resided in temples and monasteries, giving glimpses of city's population in its heydays. Anuradhapura was well-planned dense and diverse urban space that did not sprawl.

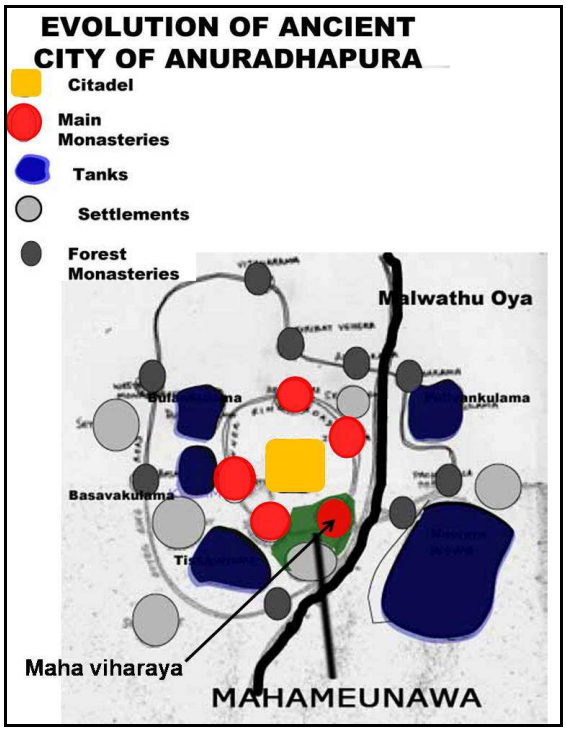


Fig. 3: The rings of Anuradhpaura

[1] Munasinghe (2005)

[2] Refer Ellawela (1969) to understand the emergence of human settlements in early Ceylon (Sri Lanka) and how they developed into urban settlements (pp 115-116).

[3] For example the World Heritage City of Kandy, the last kingdom, is today a religious city.

[4] Munasinghe (2001) for a discussion on city development and the evolution of urban society in Sri Lanka.

Anuradhapura, with extensive green patches and water bodies, was a pleasant place to live. One may, however, argue that the city did not respect the spirit of location but represent a form of colonization of land for converting the unliveable harsh land into a green landscape. The city builders seem to have understood the unfriendly living conditions of the dry zone in converting it to a liveable space. The use of natural features such as the river, strategies to flood lower plains, and planting of endemic trees with broad canopies improved the liveability of the dry barren land. At the same time, intricately carving urban space and forest maintained the ecological footprint of the city. Having come to live in the city, most Sri Lankans continued their rural way of life in a dense and diversified space while paying attention on the public realm for collective social activities. The city builders carefully designed spaces for these activities that brought people with different backgrounds together. The appointment of a city mayor already in 4th century shows that the rulers were sensitive to the provision of services and security.[1] The particular cultural layering of Anuradhapura with different faiths coming together is attested by urban spaces that accommodate diverse social activities and events of various cultures. The remains of various built forms that accommodated different faiths and documented architectural styles and stone carvings that resemble South as well as South-western Indian traditions further affirm the cultural layering. The capital city was a true reflection of a medieval cultural diversity, though dominated by Sinhalese-Buddhists.

Fig. 4: Mahamevna Uyana: a shady green forest

Anuradhapura was an eco-city, not for its extensive green patches but for being a continuous living city for more than fifteen centuries. The way of fashioning the city attests to the interdependency of city and society, compromising social values to live in a multicultural place and fashioning the landscape to make the evolved society home. Most importantly, Anuradhapura was a true metropolis with urban precincts of administration, services, religious, commercial and production activities, and a home to a culturally-diversified society. Historic documents attest to the existence of these urban quarters and city being a meeting place for various societies. It was ruled by kings of various faiths who added their own socio-cultural flavours. The street layout and city's circular growth show the dominance of the metropolis within the region and how the new urban quarters were added. Among the new extensions were *Dwara-Gammanas* the precincts created at main entrances for security as well as *Niyam-Gammana* the precincts created for industrial societies. The city evolved as an ecological whole and none of the precincts were to dictate nature but to accept. The continuous exchange between nature and culture saw them turning into comfortable places of dwelling.

The obligation of colonialists to maintain Buddhist places of worship,[2] their academic interests in studying and collecting antiquities, and post-independent politics that focus attention on preserving the monuments of a majority, they all stripped city's cultural diversity. The interpretation of Anuradhapura as a Buddhist city has been paid off by the increasing number of visitors and inscription on the World Heritage List,[3] but at the cost of its true cultural values. The attempts made to complete the imagined glory seem to have ignored place-ecology and city's *genius loci.* The core of the park has been maintained as a setting for the monuments. The failure to manage its natural and established grades that facilitated the existence of a green forest has made the maintenance of the park impossible, especially during the rainy season. The park has not been presented to the visitors as an important element of the city either. The growth of invasive plants and planting of non-endemic trees as well as the construction of some structures shows the neglect and depreciated liveability.[4] After declaring the sacred city, most of post-Anuradhapura structures and city life were ejected from the fenced-off urban space. However, Buddhist temples or the residences of monks that are unsympathetic to city's historic values were not removed nor such enforced activities were discontinued. The use of colonial-built roads by various politically powerful persons shows some form of disparity in accommodating societies.[5] The documents such as meeting minutes, archived discussions and legal papers of colonial and post-colonial eras attest to the consequences of a single-agenda preservation that made attempts to forcefully-mould city's socio-cultural evolution.[6]

Today, most of the royal park has been neglected, and most of its levels and vegetation destroyed. As a whole, Anuradhapura city centre demands a fresh con-

[1] Mahawamsa, the Chronicle of Sri Lanka, records the appointment of Nagara Gutthika to be responsible for these services

[2] The British signed an agreement with local leaders to protect Buddhist places and monuments in order to garner their support to overthrow the then king.

[3] We have argued that the World Heritage recognition has sometimes cost the true heritage values of cities. Munasinghe (2002)

[4] For example the recentely-built chanting hall of one monastry beside the Sri Maha Bodhi and the high boundry wall built to provide security to that building disfigure the place-legibility. The space fails to facilitate any place making as a result.

[5] Our meetings with the living society showed the dissention between conservation authorities and people.

[6] The protection activities of Anuradhapura was tranferred to a new agency called UNESCO-Sri Lanka Cultural Traingle Project in 1981, but the startegies to empasize Buddhist monument still continue.

servation approach that ensures the continuity of its urban landscape qualities. By paying due attentions to its unique socio-spatial matrix rather than to its individual built elements, our duty is to involve that evolved city life in its next phase of growth in order to strengthen city's liveability.

Fig. 5 & 6: Administrative buildings of Colonial Era

Protecting Anuradhapura as an Eco-city

Ecological footprint is a concept adopted to assess cities in UK. It is a system of comparing human demand with the ecological capacity of place, especially in the case of regeneration. It is a development of the representation of amount of biologically productive land and sea are needed to regenerate the resources a human population would consume, absorb and render harmless corresponding waste.[1] We have used this tool to check the capacity of the historic urban landscape in accommodating the needs and demands of the current society, thus testing the morphology of Anuradhapura: city plan, land utilization and the building stock. The solid-void ratio, building types, indoor-outdoor urban spaces, and spatial structure criteria of the ruined city can provide the glimpses of a thrived city life. This analysis prepares the grounds for shaping an integrated development scenario that is place-oriented in scale and in type to determine the reuse and recycling of built fabric and urban land.[2] The report, *Towards an Urban Renaissance* that notes economic, social and environmental context as dependable surroundings in designing the footprints, shows an instructive strategy.[3] Our point of departure in designing a protection plan by converting the historic city a living monument is an offshoot of this understanding.

Protection often promotes an *exotic idea* of places so that they would attract tourists. UNESCO World Heritage Lists promotes cities to single out such an exotic image by promoting the so-called universal significance as the main criteria for inscription on this world-wide notice board for tourism. The state agencies that plan protection in Anuradhapura see tourism as a reason to protect the historic urban landscape.[4] Anuradhapura, with a continuous layering of fifteen centuries, has its unique strengths to be a tourist *honey-pot.* Yet, the authorities seem to have underlined its Buddhist era as the marketable feature.[5] The emphasis on individual monuments, neglecting the fact that these monuments could not stand alone, has been practicing at the expense of urban landscape qualities of Anuradhapura.[6] The protection attempts that neglected non-Buddhist historic buildings and ejected life from the royal park have been justified by financial success through tourism and the success of political image building as the *saviours* of Buddhism.

Anuradhapura has been disintegrated into two unrelated cities by adding a new town, in which the ecological footprint is much larger than in the historic city. This modernistic grid-iron urban structure planned to accommodate the ejected life is a total alien to the context and an illegible urban space too. The attempts to plant trees along the streets have further strengthened the dominance of the grid-iron structure. Its failure to understand the making of the city and place-legibility is further worsened by the placeless buildings. Some architects, trying to imitate *would-be* physical characters and architectural elements of Anuradhapura era, have added buildings without realising the possible diversity of a city that had evolved for centuries. They have replicated columns, carvings, entrances or materials, yet failing to embrace architectural forms of the lived city. The reluctance to conduct studies to map lead built forms, their changing patterns within an evolving sociocultural setting has reduced the work of these architects to mere

[1] Wackernagel M. and Rees W.E. (1996) *Our Ecological Footprint: Reducing Human Impact on the Earth*

[2] Ec.europa.eu/environment/urban/pdf/Sec_2006_16_en.pdf. The European Commission adopted the Communication COM (2004) 60, *Towards a Thematic Strategy on the Urban Environment*, of January 2004, setting out the Commission's idea for a thematic strategy on the Urban Environment in summer 2005. The four themes; environmental management, urban transport, sustainable construction, and urban design are at cross cutting with nature and possess many strong links with environmental issues. It must be noted that these principles and approaches may not fit the Sri Lankan conditions as social values, orders, and organizations vary significantly yet would prepare the grounds to develop an own system.

[3] www.eukn.org/unitedkingdom/themes/Urban _Policy/Towards-an-urban-renaissance-final-report, The report was written by the Urban Task Force headed by Lord Richerd Rogers

[4] It has been emphasized in our report that Anuradhapura cannot be converted into a dead city such as Pompeii where the life ended abruptly.

[5] UNESCO World Heritage is largely responsible for promoting such single-agenda conservation. Its wording, *universal recognition,* has paved the path for conservationists to emphasize one significant era.

[6] Venice Charter of 1964 emphasized the protection of individual monuments and focused on stone buildings.

façade architecture. A typological analysis of those buildings could have revealed their spaces and spatial integration and how they responded to their setting. The use of some of those built elements has given an undue significance to public buildings, thus becoming illegible. The individual *silo*- type administrative buildings built around the historic city do not represent an evolved urban culture. The street layout in the new town has more to do with the modernist vehicle-dominant development attitudes than the location and society. The new town is an illegible urban space that fails to understand the strength of the royal park in connecting suburbs and other major elements. The ringed urban structure could have defined the city centre, perhaps planning the new town as the next ring or as an extension to the outer-most ring. The existence of underutilized or unclaimed urban spaces suggests that the city needs a comprehensive integrated approach that identifies its urban precincts and strengthens their particular container quality to restore the liveability of the city.[1]

A contextual interpretation of the concepts of eco-city and cultural planning was essential to discuss the protection of this historic city. Urban qualities such as diversity and density are understood differently in Sri Lankan context. There are marked contrasts with western cities when we discuss socio-cultural values, social context, social order and organization, social surroundings, and social capital in Sri Lankan cities too.[2] Anuradhapura's present status-quo, being a *dead monument* for more than six decades further demands such a redefinition to assess activities, events and life styles that emerged as a result. We used cultural planning that was introduced as a strategy to regenerate life in abandon urban precincts and extensive built spaces to rejuvenate the extensive open spaces in Anuradhapura, vacated by city life after the declaration of sacred city: values of visitors as well as the values of those who make a living out of those visitors. Our study on dwelling patterns in the royal park: entry, occupying and leaving, helped us planning the restoration lost life. Our attempt was not to bring back the ejected life but to reiterate the importance of the park as the binding element of the city. This restoring life psychologically rather than physically required various interventions, starting with the declaration of historic urban landscape rather than a sacred city. Then showing the societies how they can be responsible for ensuring the continuity of this historic urban landscape as a living container.

The cornerstones of our proposal were recycling landscapes, buildings, urban spaces, facilitating and achieving excellence in leadership, participation and management and delivering regeneration. As a whole, our plan finds the strength of *Ecological Footprint* in making the city of higher quality of life,[3] and the involvement of cultural planning tools further strengthens its sustainability. For example, we listed various new ways of life that could enhance the socio-economics of Anuradhapura, shifting its dependence from tourism. The principles of sustainable development for policy makers given in the Brundtland Report (1987) seem to support our idea.

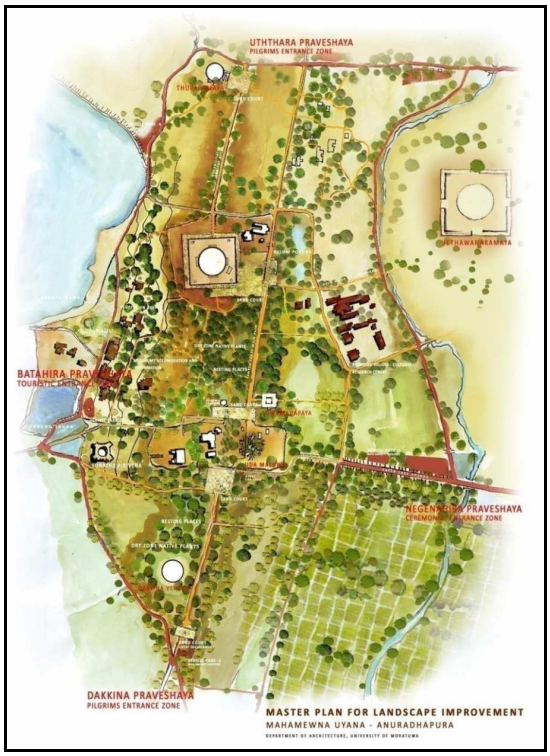


Fig. 7: Restoration plan for the Royal Park

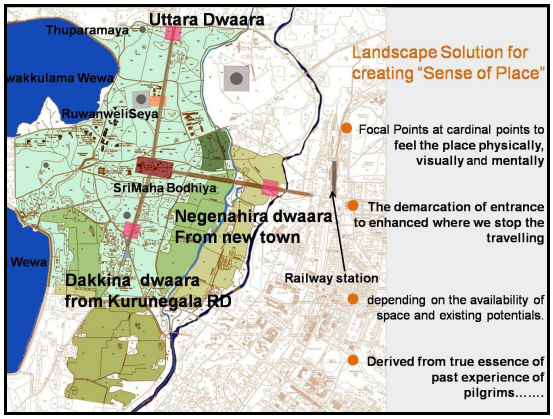
1. Changing current patterns of economic growth, technology, production and management which may have negative impact on the environment and population:
2. Ensuring employment, food, energy, safe water, and sanitary services for all populations:
3. Protecting natural resources for future generations:
4. Integrating economic, environmental and population considerations in policy decision-making and population growth.
5. Strengths in these principles are referring to place-oriented approaches that may instigate the growth of the city and promote a holistic approach, linking development to society, culture as well as to environment.[4]

[1] Eco-city is defined as the one that enhances the well-being of citizens and society through integrated urban planning and management that harness the benefits of ecological systems.

[2] The Green Finger plan adopted in the developing of the urban district called Viikki in Helsinki is an instructive example for integrated development in which the public participation too was integrated in decision making. Viikki was a *tabula rasa* and a predominantly residential quarter but clereverly intertwined with employment generation and a socio-cultural diversity.

[3] Our data suggests that most of urban lands and buildings (about 43%) in Sri Lankan cities are either unused or underused. Among the reasons are buildings outliving their functions and/or societies, uncertain political visions and uneven urbanization patterns.

[4] This integrated planning shall be achieved at different levels: policy level, planning level, spatial development level, and at last building level. The built environment as a whole shall note the uniqueness of the place where they are built and then strengthen the particular genius loci in order to strengthen the container quality of the city space.



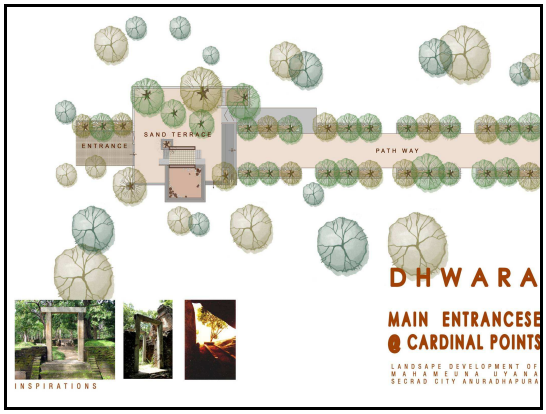


Fig. 8 & 9 show the four entrances and how the rings were used to restore the legibility of the park

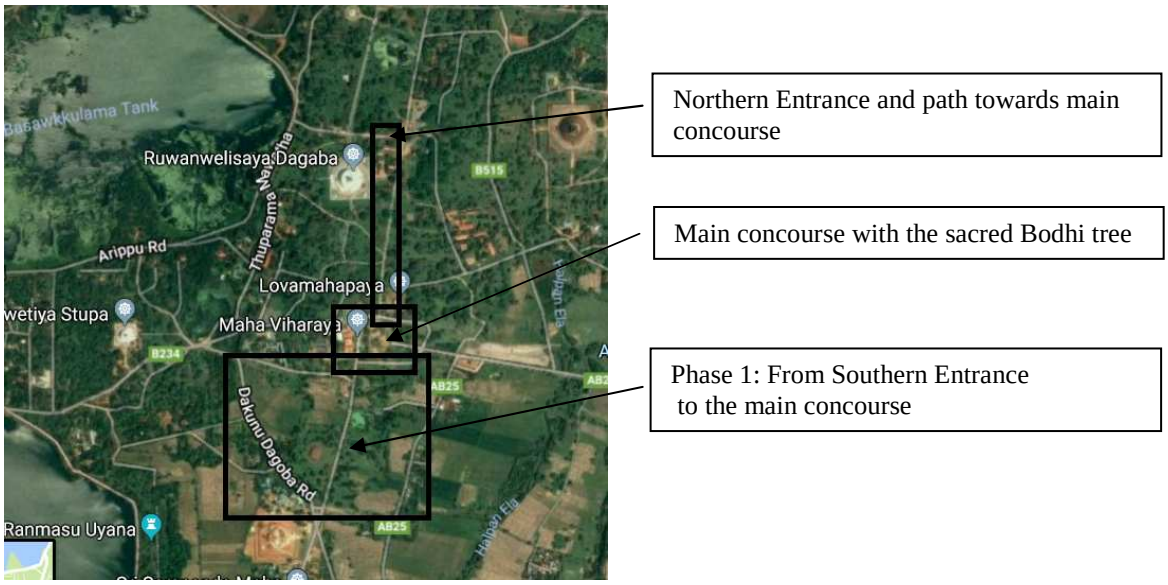


Fig. 10. The central zone identified in our restoration plan and the phase one completed
(Source: Google earth)

Concluding remarks

Ecological footprint, as a concept, could be used at policy making level to determine the scale and type of development as well as to empower communities by accommodating their values in decision making. Furthermore, at planning level this concept controls sprawl by declaring environmental zones or urban precincts, and integrating them in a structure plan. Using these strengths, we re-established the importance of the central zone of the royal park that is dominated by the paths from the Northern and Southern entrance: *Uttra Dwara and Dhakkina Dwara*. Most importantly, the use of four entrances and the emphasis on the central zone facilitated the maintenance of scale and controlling possible sprawl. The paths started off the entrances form a set of concourses with significant monuments. Our restoration plan emphasized the need to re-establish the concourses and further signify the secondary paths that start off from them. As such, we managed to include monuments that had not been paid due attention in the presentation of the historic landscapes thus enhancing educational values. As the royal park covers an area of about 60 hectares with more than 30,000 people involved, our pilot project was focused between the Southern entrance and the concourse where the sacred bodhi tree is. Many consider this concourse and the path to be the most significant within the sacred city. The pilot project included the clearing of invasive plants, replanting of endemic trees, establishment of levels and irrigation networks, conservation of monuments, organization of visitor facilities,[1] and replacement of non-related activities that occupied historic buildings: for example a military cantonment and police barracks were removed to get the historic educational premises back. Yet, the Department of Archaeology has been allowed to function in its historic building of colonial era. The result was rather significant in terms of visitor appreciations and visits paid to abandoned

[1] Anuradhapura attracts over two million visitors on the full moon day of June as the Buddhists consider this as the day of the arrival of Buddhism. The enhanced visitor facilities contributed to the restoration efforts emmensely.

monuments. We saw visitors meandering across the park rather than flocking around a few Buddhist monuments.

Using the concept of cultural planning, a proposal has been made to screen new development thus promoting new place-oriented economic activities or mixing development. However, we reaffirmed that the construction of new buildings or introduction of new activities should not be permitted within the central zone, yet did not propose to demolish recently built structures as they would leave unrepairable vacuums in the city plan. The establishment of the nursery and training given to locals who could then be the natural curators of the park triggered a more sustainable protection. The central zone has been made vehicle free, thus improving the quality of environment and ensuring the longevity of the tree-laden park and historic monuments. This zero-polluted green zone essentially raised the liveability and as such the living standards of Anuradhapura. Our proposal to introduce electric vehicles around the zone is yet to be implemented. The change of government resulted in paying less attention to the completion of the project, again giving us reasons to bring back our earlier contention, *politics of past.* However, visitors do not mind walking in the park as long as the paths are well-maintained and tree providing them with shade. The sound of birdlife, smell of fresh leafs and the breeze that come across the reservoirs make their staying in the park longer. Their encounters with more monuments of various cultural layers that are scattered around the park and views to those reservoirs through shady trees have made their visit more memorable. The vendors and others who make a living within the royal park have also noticed the significance of the completed pilot project and find improvements of their incomes. They find visitors spending more time in the park and as such better incomes for their businesses.

Sustainability has been practiced in many ancient civilisations. Sri Lankans, being Buddhists and Hindus respected the nature as the source of inspiration and their designs were considered as meaningful extensions to nature. Some argue that they were an agro-based society and therefore were forced to respect natural elements such as water and trees. Yet, their designs clearly show that their response to location was more than a forceful one or a mere dependent on nature. The thin built forms with central courtyards did ensure continuous passage of ventilation and sufficient light. Their way of using naturally-produced energy respected and use of water to cool down the interiors attests a healthy living in those building built with clay bricks. The expansion of the city was not preferred at the expense of sustaining a society, the cities with ramparts or other means of demarcation controlled their growth. Traditional way of site selection for human settlements is an important lesson for us to plan ecologically-fit living spaces. Their dependence on the strength of the location brought in the limits of expansion, thus turning the village into a sustainable one. Our particular investigation of a living city, one can argue, cannot be inspired by a traditional village. Yet, such inspirations could bring parallels to the living city that is an ecological whole. Site selection, controlled development in particular sites, they all can be readopted in the case of adding new functions in the used built forms.

It is noted that a combination of the two concepts, eco city and cultural planning, would mark the true continuity of a cultural site by responding to the present as well as future demands. What we create is a futuristic human setting that learns lessons of the past and projects those lessons towards the future. Our proposal to develop urban design guides/ briefs to integrate four basic principles: first, Solution grown from place: second, Making nature visible: third, Design with nature: and fourth, Ecological accounting to inform design. They will result in the making and a continuity of an informed society. Our approach was more like a *conservative surgery* than strict developments or preservations. Our intention was to make the royal park a *living monument* that will continually reflect its making, yet without ruling-out evolution. This is why emphasize on facilitating the making of an ecological society to protect the city of Anuradhapura as an eco-city.

References:

1. Berleant, Arnold (2000). 'The Wilderness City: An Essay on Metaphorical Experience' in *Place and location* Kaija Lehari & Virve Sarpik (eds.), Tallinn: Academy of Arts.
2. Edmonson, Susey (2008). *Ten Tips for Producing top quality research,* Boston: Pearson Allyn & Bacon.
3. Ellawela, H. (1969). *Social History of Early Ceylon,* Colombo: Department of Cultural Affairs.
4. Evans, Gaeme (2001), *Cultural Planning: An Urban Renaissance,* London & New York: Routledge.
5. Greed, Clara H. (ed.) (1999). *Social Town Planning,* London & New York: Routledge.
6. Habermas, Jurgen (1987). *The Theory of Communicative Action: The Critique of Functionalist Reason,* Cambridge: Polity Press.
7. Harvey, David (2000). *Spaces of Hope* Edinburgh: Edinburgh University Press.
8. Jensen-Verbeke (1995). 'Involving People' in *Historic Cities and Sustainable Tourism,* Conference proceedings, Bath pp. 39-51.
9. Larice, Michael, and MacDonald, Elizabeth (eds.) (2007). *The Urban Design Reader,* New York: Routlegde.
10. Lefebvre, Henry (1996). *Writing on Cities,* trans. & ed. by Eleonore Kofman & Elizabeth Lebas, Oxford: Blackwell.
11. Mumford, Lewis (1938). *The Culture of Cities,* New York: Harcourt Brace.
12. Munasinghe, Harsha (1991). *Transformation of Colonial Urban Space in Sri Lanka,* Helsinki: Helsinki University of Technology.
13. Munasinghe, Harsha (2001). Aesthetics of Urban Space through Collaborative Urban Planning' in *Built Environment 3/01*.

14. Munasinghe, Harsha (2004). 'Ecological Housing in Helsinki: Case study of Viikki', *Sri Lanka Architect*, Journal of Sri Lanka Institute of Architects, 4/2004.
15. PLACE 3 (1997). Centre for Excellence for Sustainable Development, US Department of Energy.
16. Scott, A. (2000). *The Cultural Economy of Cities*, London: Sage.
17. Sennette, Richard (1994). *Flesh and Stone: The Body and The City in Western Civilization*, New York: Norton.
18. Thompson, John B. (1970). *Ideology and Modern Culture: Critical Social Theory in the era of Mass Communication*, Cambridge: Polity Press.
19. Wijedasa, K.H.J. (1994). *Towards Sustainable Growth: The Sri Lanka Experience*, Colombo: Central Environmental Authority.

Надійшла до редколегії 12.05.2018 р.

UDC 911.3:338.43–044.922

Lyudmyla Niemets
DSc (Geography), Professor, Head of the Department of Human Geography and Regional Studies
e-mail: soc-econom-region@karazin.ua, ORCID ID: https://orcid.org/0000-0001-9943-384X
Maryna Lohvynova
PhD Student of the Department of Human Geography and Regional Studies
e-mail: logvinova_mari94@ukr.net, ORCID ID: https://orcid.org/0000-0003-3190-710X
Yuriy Kandyba
PhD (Geography), Assistant Professor of the Department of Human Geography and Regional Studies
e-mail: kand77@ukr.net, ORCID ID: https://orcid.org/0000-0003-1155-057X
Lyudmyla Klyuchko
PhD (Geography), Assistant Professor of the Department of Human Geography and Regional Studies
e-mail: liudmylakliuchko@gmail.com, ORCID ID: https://orcid.org/0000-0001-6937-3364
Oleksiy Kraynukov
DSc (Geography), Associate Professor of the Department of Ecological Safety and Environmental Education
e-mail: alkraynukov@gmail.com, ORCID ID: https://orcid.org/0000-0002-5264-3118
V.N. Karazin Kharkiv National University, Svobody Sq., 4, Kharkiv, 61022, Ukraine

TRANSFORMATION OF THE AGRARIAN SPHERE OF UKRAINE: APPROACHES TO STUDY

The relevance of the study is due to the absence in the scientific literature of an unambiguous definition of the concept of "transformation of the agrarian sphere." In our understanding, the transformation of the agrarian sphere is a socio-geographical process that is characterized by a change in the sectoral, territorial structure and system of the agrarian sphere on different scales, caused by the transformation of the entire economic system or certain of its structural elements. The reasons for significant changes in the agrarian sphere of Ukraine is the change in the socio-political, economic and other spheres, the heterogeneity of natural conditions and the demographic situation. The beginning of the agrarian transformation in Ukraine is considered the period of its independence, since there was a transition from the command-administrative economic system to the market one. However, due to the lack of clear goals of transformation, this process did not bring the expected results.

Transformational processes of the agrarian sphere are the driving force of the socio-economic development of the regions, especially in the rural areas, since they contribute to the stabilization of the economic, ecological, social spheres of the life of the rural population; ensure an increase in the quality of life of the population, provide equal opportunities for achieving material, ecological and social well-being, improving the quality of the state of the environment, developing nature management in the national interests of the country and preserving resources for future generations, life expectancy and stabilization of the population of Ukraine.

Scientific novelty of the work consists in studying the transformational processes of the agrarian sphere from the standpoint of social geography, considering the transformation as a socio-geographical process, identifying the factors of these processes and the relationship of the agrarian sphere with the socio-economic development of the regions.

Keywords: agrarian sphere, transformation processes, transformation of the agrarian sphere, agriculture, transformation cycle.

Людмила Нємець, Марина Логвинова, Юрій Кандиба, Людмила Ключко, Олексій Крайнюков. ТРАНСФОРМАЦІЯ АГРАРНОЇ СФЕРИ УКРАЇНИ: ПІДХОДИ ДО ВИВЧЕННЯ

Проаналізовано поняття «аграрна сфера», подано її структуру, визначено співвідношення понять, пов'язаних з аграрною сферою: «аграрний сектор» та «агропромисловий комплекс». Розглянуто сутність понять «трансформація аграрної сфери» з позицій суспільно-географічного підходу. Визначено чинники виникнення трансформаційних процесів в аграрній сфері України. Подано періодизацію аграрних трансформацій на теренах України, їх еволюцію, проаналізовано думки щодо початку процесів аграрної трансформації в Україні та причин небажаних наслідків. Проаналізовано сучасні напрямки протікання трансформаційних процесів в аграрній сфері України. Розглянуто структуру стратегії трансформації аграрної сфери України та досягнення позитивних ефектів у результаті трансформації.

Ключові слова: аграрна сфера, трансформаційні процеси, трансформація аграрної сфери, сільське господарство, трансформаційний цикл.

Людмила Немец, Марина Логвинова, Юрий Кандыба, Людмила Ключко, Алексей Крайнюков. ТРАНСФОРМАЦИЯ АГРАРНОЙ СФЕРЫ УКРАИНЫ: ПОДХОДЫ К ИЗУЧЕНИЮ

Проанализировано понятие «аграрная сфера», представлена её структура, определено соотношение понятий, касающихся аграрной сферы: «аграрный сектор» и «агропромышленный комплекс». Рассмотрена сущность понятий «трансформация аграрной сферы» с позиций общественно-географического подхода. Определены факторы возникновения трансформационных процессов в аграрной сфере Украины. Представлена периодизация аграрных трансформаций на территории Украины, их эволюция, проанализированы мнения относительно начала процессов трансформации в аграрной сфере Украины и причин нежелательного результата. Проанализированы современные направления протекания трансформационных процессов в аграрной сфере Украины. Рассмотрена структура стратегии трансформации аграрной сферы Украины и достижение положительных эффектов в результате трансформации.

Ключевые слова: аграрная сфера, трансформационные процессы, трансформация аграрной сферы, сельское хозяйство, трансформационный цикл.

DOI: 10.26565/2076-1333-2018-24-03

Introduction to the research problem. The agrarian sphere occupies a leading place in the formation, effective development and functioning of all economic systems, this is a nucleus around which a number of socio-economic problems are being solved, regardless of the volume of production of agrarian products and its share in the gross domestic product. After the proclamation of Ukraine as an independent state, there have been significant changes in the socio-political and economic spheres that led to changes in the agrarian sphere. These reforms are the most important component of the socio-economic development of the country and its regions, the driving force for increasing the competitiveness of the agricultural sector, changing the specialization of agriculture, expanding its economic potential, ensuring national food security, create conditions for the growth of incomes and welfare of the rural population, introduction of new technologies, rational use of available natural resources.

The relevance of this research topic is due to the low efficiency of the agrarian sector of Ukraine, a number of problems that arose in the adaptation of agricultural production to market conditions, emergence of new forms of economic structures, complex and contradictory movement of the transformation processes that led to a decrease in the efficiency and competitiveness of agriculture, increasing territorial differences in the development of the agrarian sector. Therefore, there is a need for a comprehensive socio-geographical study of the nature and characteristics of the transformation processes in the agrarian sphere, their impact on the socio-economic development of the country as a whole and its regions.

Literature review. Modern foreign and domestic economic literature is characterized by a profound theoretical and methodical analysis of all areas of transformation processes, including in the agrarian sphere. Among foreign scientists, it should be noted H. Bakhchev [27], who studied the features of the transformation processes in Bulgaria, K. Kovacs [29] and D. Karacsonyi [30] – in Hungary, J. Banski [28] – in Poland. Significant contribution to the development of this problem was made by Russian scientists: M. Gaitz [3], N. Hrazhevska [4], I. Leshchyk [7], V. Mesel-Veselyak [12], S. Mochernyi [13], A. Onyshchenko [14], T. Ostashko [15], T. Pepa [16], H. Pyrih [7], T. Sabluk [19], R. Smolenyuk [20], L. Chernyuk [26], V. Yurchyshyn [14], etc. These scientists studied transformation processes in the agrarian sphere from the standpoint of the economic approach at the state level and did not consider transformation processes at the regional level.

The representatives of the human geography have significant experience in studying transformation processes in the agrarian sphere. Thus, N. Baranovsky considered transformational processes in rural areas, Yu. Kachaev, V. Smal – in the development of the economy, V. Nahirna – in the development of individual branches of agriculture, P. Sukhyi – transformation of agro-industrial complex [23]. Transformation of the agrarian sphere was investigated by H. Balabanov [2], M. Zaiachuk [5], T. Kravets [6], A. Marushchynets [10, 11, 17], V. Nahirna, H. Pidhrushnyi [17], L. Rudenko, Ya. Sosnytska [21, 22], and P. Sukhyi [23]. The contribution to the theoretical and methodological apparatus of human-geographical studies of transformation processes in the agrarian sphere is the work of Ya. Sosnytska (Modern Transformation Processes of Agricultural Production (on the Example of the Volyn Region, 2015) [21] and A. Marushchynets (Transformation of the Agrarian spheres and social and economic development of the Kiev Dnieper area) 2016 [11].

Despite the rather large number of publications on transformational processes in the agrarian sphere, the essence of the concept of "transformation of the agrarian sphere" requires a certain clarification and generalization from the standpoint of the human-geographical approach. Such a study will reveal the territorial features of the course of transformation processes, will help to identify the advantages and disadvantages of such processes in the territories of the regional and local level and their impact on social and economic development. In addition, human-geographical studies of the transformational processes of the agrarian sphere in the territorial aspect with an analysis of the causes of occurrence and peculiarities of the passing, were almost not carried out, which is promising for further research.

The aim of the article is to systematize and generalize human-geographical studies of transformational processes in the agrarian sphere of Ukraine, to reveal their influence on the social and economic development of the regions. According to the goal, tasks were set: to analyze the essence of the concept of "transformation of the agrarian sphere" from the perspective of human geographers, to determine the causes and features of the transformation processes in the agrarian sphere of Ukraine, to analyze the impact of the transformation of the agrarian sphere on the socio-economic development of the regions.

Results. Today there are two approaches to the interpretation of the term "agrarian sphere". According to the first approach, the basis of the agrarian sphere is agriculture. In accordance with the second approach, the agrarian sphere includes social, economic, scientific and technical, environmental aspects of the development of agricultural production and processing of agricultural products, including the entire agro-industrial complex with the existing system of links [11]. The term "agrarian sphere" refers to a complex of branches of the economy that includes agricultural production, processing and marketing of agricultural products, agrarian and socio-cultural relations within rural areas [8].

The notions "agrarian sphere" is associated with such categories as "agrarian sector", "agro-industrial complex" (Fig. 1). The agrarian sector is a broader concept than the "agrarian sphere", since it includes agriculture and fisheries, the food industry, processing of agricultural products, science and education, social sphere of the village, its material and technical and financial support [18]. Concerning the agro-industrial complex, the agrarian sphere is its first basic link [6, 11].

A. Marushchynets calls the agrarian sphere as an industrial-territorial system that consists of three components: agriculture, territory with its natural conditions and resources, population with its labor resources (the

driving force of the functioning and development of the agrarian sphere) [10].

The functions of the agrarian sphere are to ensure the social and economic development of rural areas – development of the village in a spiritual and material sense, development of infrastructure, cultural and spiritual facilities; food – providing the population with food; raw materials – providing enterprises with agricultural raw materials [21].

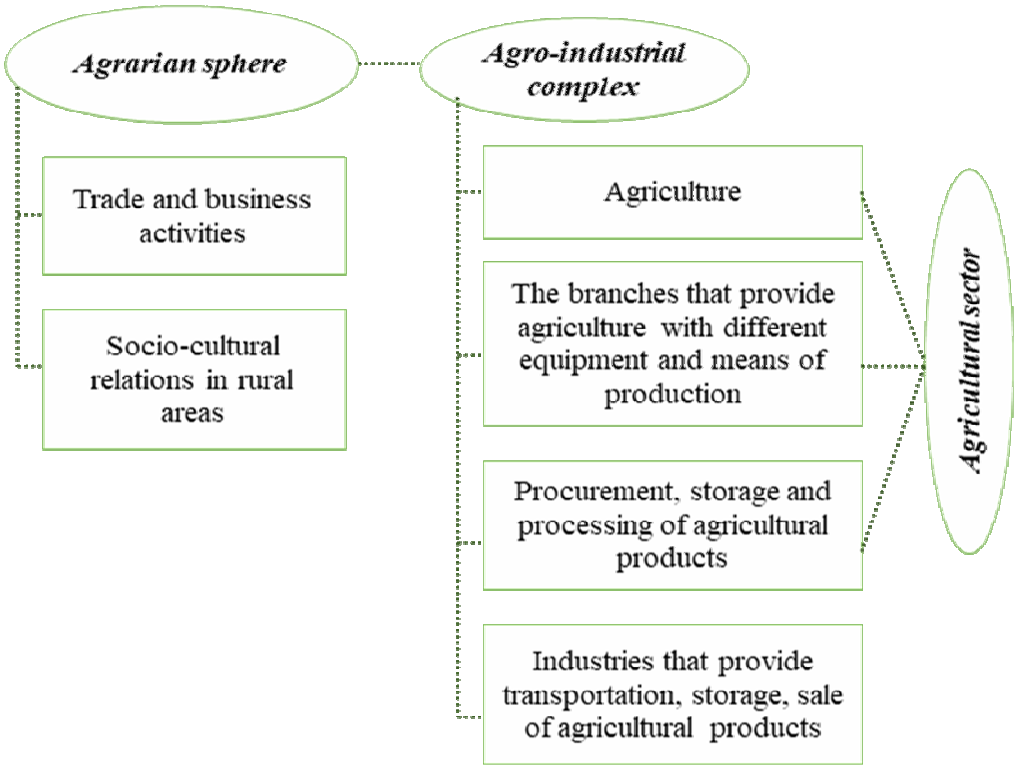


Fig. 1. The correlation of concepts related to the agrarian sphere *(improved by the authors for [6])*

The development of the agrarian sphere is very complicated process, as it proceeds under the influence of various socio-economic factors, it was especially felt during the transition from an administrative-command to a market economy model. This process is defined as a process of transformation, which requires a comprehensive socio-geographical justification and comprehension [10, 22].

The term "transformation of the agrarian sphere" requires a certain clarification, since the study of transformational processes in the agrarian sphere without a clear authoritative definition is impossible. We offer to consider some known definitions of the concept of "transformation of the agrarian sphere."

M. Malik, I. Leshchyk, H. Pyrih (2007) under the term "transformation of the agrarian sphere" is understood as a way of removing contradictions between market requirements and the outdated logic of the behavior of economic entities, which consists in the implementation of organizational, economic, financial and economic, legal, technical measures, aimed at reorganizing enterprises, changing the forms of ownership, management, organizational and legal form, which contributes to the financial recovery of the economy, increasing the output of competitive goods production, increase in production efficiency [7, 9].

T. Kravets (2012) calls transformations in the agrarian sphere as a socio-geographical process that characterizes the historical changes in the form, structure and system of the agrarian sphere, conditioned by the scientific and technological revolution, qualitative changes in economic and social processes [6].

R. Smolenyuk (2014) under agrarian transformations understands the gradual transition of agriculture from the command-administrative to the market system of management, through changes in the aggregate of economic, technological, environmental, social and political processes that ultimately lead to a new quality of economic system of the industry [20].

A. Marushchynets (2016) defines the term "transformation of the agrarian sphere", calling it the process of structural changes, which causes the formation of a new quality of the agrarian sphere and its adaptation to new conditions of functioning within a certain territory [11].

From the standpoint of the human geography of the transformation of the agrarian sphere, according to the system-structural approach, it represents the process of changing the institutional, sectoral, territorial nature of the agrarian sector in the region, conditioned by the transformation of the entire economic system. The main factors that predetermine the existence of such transformations is change in the socio-political, economic, institutional systems, diversity of the natural conditions of the territory, demographic situation, social infrastructure, ecological state (Fig. 2) [2, 17].

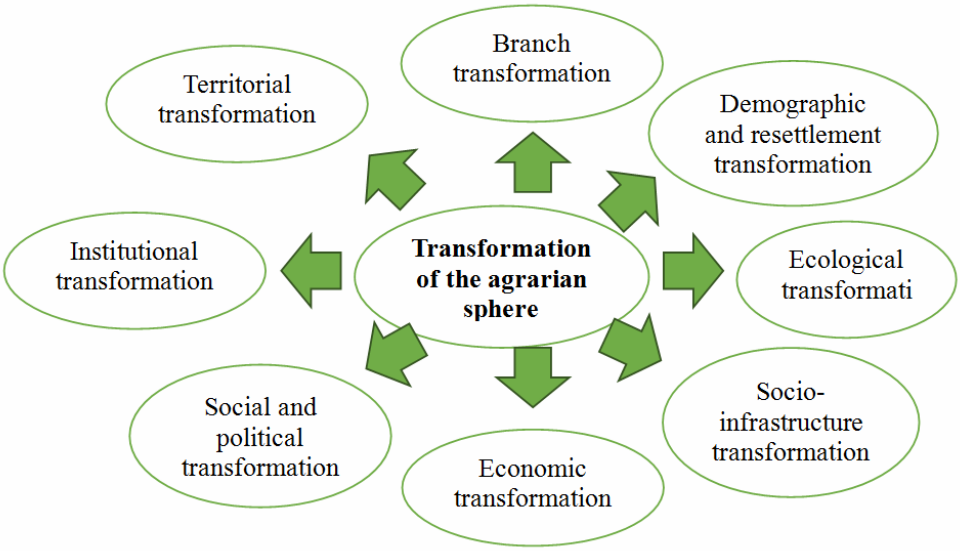


Fig. 2. The structure of the transformation of the agrarian sphere *(based on data [11, 21])*

According to the opinion of I. Leshchyk and H. Pyrih [7], transformation processes in the agrarian sphere are carried out in five directions.

Institutional and economic transformations in Ukraine led to the formation of new forms of management, development of regulatory and legal framework, creation of new markets for agricultural products, change in the organizational structure of the agrarian sector (farms, production cooperatives, private peasant farms, closed and open joint-stock companies, societies with limited liability, etc.). There have been significant changes in the sectoral structure of the agrarian sector, new industries, sub-sectors, types of agricultural activities have been emerged, specialization of agriculture, dynamics of volumes and the structure of agricultural production have changed, and the sown areas have expanded significantly [7, 24].

Land reform, the main task of which was redistribution, transfer into private ownership of most agricultural land, division of the agricultural land and property into shares and their transfer to collective ownership; securing and protecting the right of property of farmers to land [1, 19].

Market transformations consist of liberalization and the formation of the agrarian market, replacing the old planning and distribution system for the marketing of agricultural products with a market-based economic mechanism [15].

Financial stabilization – provides for the improvement of the agricultural sector of the economy, reducing taxes, improving the investment and credit climate, reducing price disproportions, unemployment and stabilizing the incomes of the peasants [7].

Social development – is to support the social resources of rural areas, the creation of appropriate social conditions for the normal functioning and development of agricultural enterprises [7, 25].

The modern transformation in the agrarian sphere of Ukraine is a result, in particular the centuries-old institutional transformation. The Ukrainian transformation model is characterized by a certain instability in the first stage of the transition; creation of new forms of enterprises, new economic and institutional conditions, modern market infrastructure, as one of the ways out of the transformation stagnation; destruction of the agrarian sphere due to underdevelopment of institutional systems; lack of an optimal model of transition to a new socio-economic system, different rates of transformation, impossibility of co-existence of old and new forms of management [3, 13, 26].

The goal of transformation processes in the agrarian sphere of Ukraine, according to T. Ostashko, is: the formation of effective, export-oriented agriculture, which is based on competitive advantages; development of rural areas; ensuring the food security of the state [15].

Most researchers of the agrarian sphere of Ukraine argue that the transformation processes began with independence, in connection with transition from the command-administrative economic system to the free-market system. According to I. Leshchyk and H. Pyrih, transformational processes in the agrarian sphere of the economy began with the development of commodity economy [7]. T. Ostashko, T. Pepa, P. Sabluk believe that crisis phenomena have become aggravated with the transition to a market model of the economy in the agrarian sphere of Ukraine. i.e. transformation processes did not yield the expected results [15, 16, 19]. A. Onyshchenko and V. Yurchyshyn believe that the cause of the decline of the agrarian sphere was the imperfection of agrarian policy and imperfect organization of its implementation [14]. A. Marushchynets notes that the lack of clear goals and goals of transformation is one of the causes of the crisis state of the agrarian sphere [11].

All the transformational processes in the agrarian sphere of Ukraine can be divided into four periods: pre-Soviet, Soviet, post-Soviet reforms, the modern period (Fig. 3) [7].

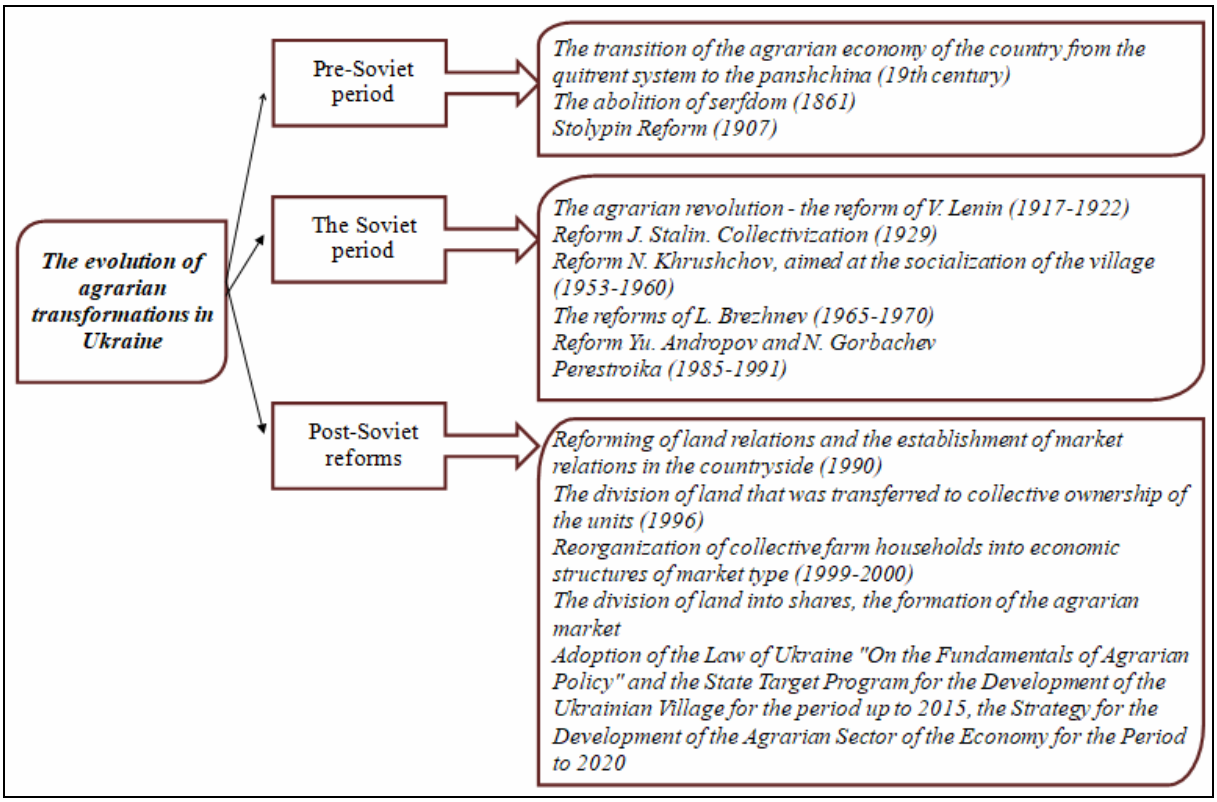


Fig. 3. The structure of the transformation strategy of the agrarian sphere in Ukraine
(improved by the authors for [7])

In the post-Soviet period of the early 90-ies of the twentieth century transformation processes in Ukraine's agrarian sector were characterized by the following changes: land privatization, collective farm reorganization, farming, land relations transformation, obsolete price controls, which led to hyperinflation and disparity of prices. Lack of clear state policy, inconsistency and haste of public authorities, a long period of market transformation quickly led to the decline of the agrarian sphere [2, 11].

Transformation processes in the agrarian sphere of Ukraine since the 2000s are characterized by the creation of new production units on the basis of former collective enterprises, their production assets and land plots, division of land into shares, formation of the agrarian market and infrastructure of the agricultural sector, emergence of agroholdings – horizontally and vertically integrated production structures, strengthening of the regulatory and legal framework for the functioning of the agrarian sphere (adoption of the State Targeted Development Program the Ukrainian village for the period until 2015, the Law of Ukraine "On the fundamentals of agrarian policy", Strategy for the development of the agricultural sector of the economy for the period up to 2020) [5, 12].

Transformational processes in the agrarian sphere are the driving force behind the socio-economic development of the regions, especially in the rural areas [28].

According to the given statements R. Smolenyuk developed a strategic framework for transforming the agrarian sphere through the prism of the concept of "balanced development" (Fig. 4) [20]. The achievements of this development take place taking into account the interests of nature and society in the economic, ecological, social aspects.

As a result of the transformation of the agrarian sphere, several effects are achieved: stabilization of the economic, ecological, social spheres of life of the rural population; ensuring improvement in the quality of life of the population, its confidence in a secure future, providing equal opportunities for achieving material, ecological and social well-being, an efficient economy based on rational consumption of material resources, improving the quality of the environment, establishing nature management in the national interests of the country and preserving resources for future generations, increasing life expectancy and stabilizing the population of Ukraine [4, 11, 29].

So, transformation processes in the agrarian sphere of Ukraine are not yet completed and require further thorough research. The socio-geographic approach to the study of transformation processes in the agrarian sphere will make it possible to identify the current state and changes in the territorial organization of the agrarian sector, changes in the sectoral structure, specialization in the distribution of key industries, and reveal the impact of these processes on the socio-economic development of the regions. This is especially true of the specifics of the organization of the agrarian sector at the regional level, since the transformation processes have certain features of the flow in connection with the heterogeneity of the territory of Ukraine and associated with the natural conditions of the territory.

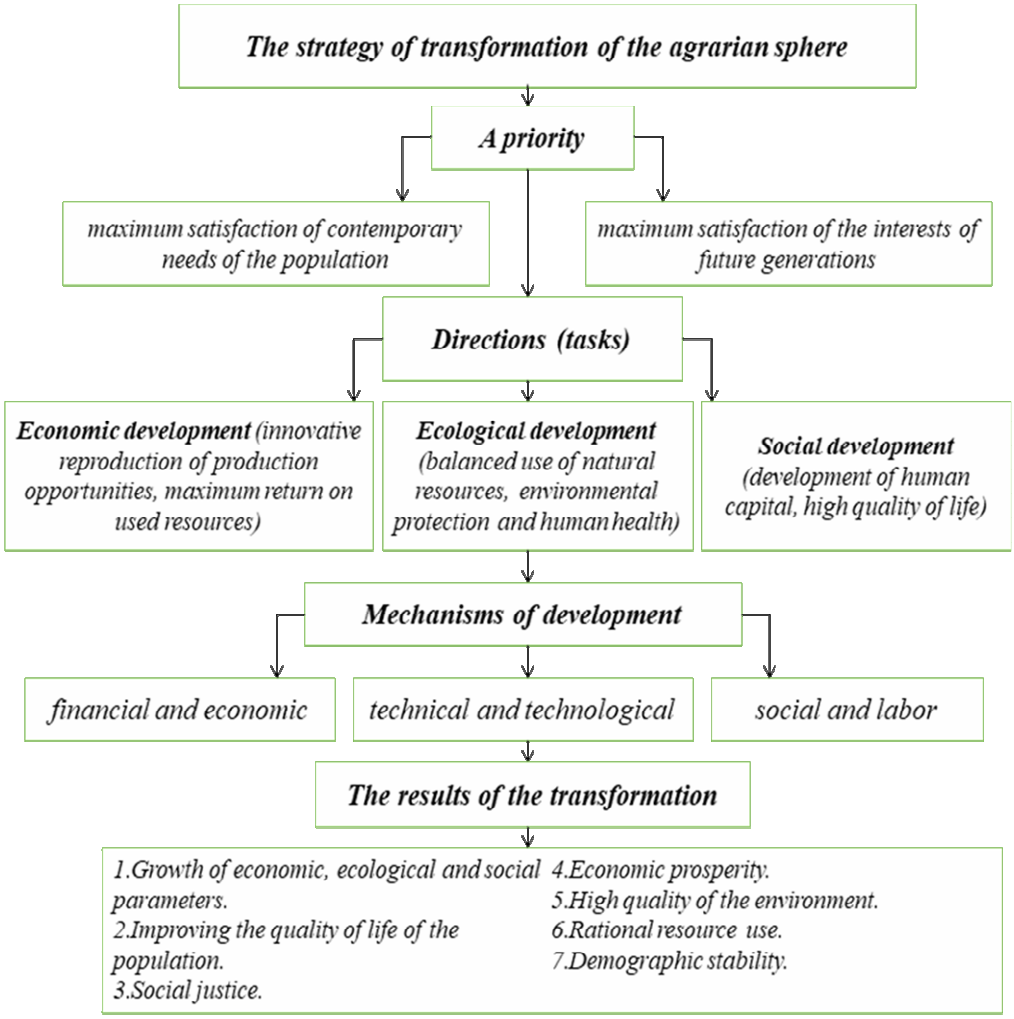


Fig. 4. Strategic structure of transformation of the agrarian sphere *(improved by the authors for [20])*

Conclusions. The conducted research allows to draw the following conclusions. The absence in the scientific literature of an unambiguous definition of the term "transformation of the agrarian sphere" determines the relevance of this research topic. According to the definitions of human geographers, transformation of the agrarian sphere is a human-geographical process characterized by a change in the sectoral, territorial structure and system of the agrarian sphere on different scales, caused by transformation of the entire economic system or its structural elements. Transformation processes in the agrarian sphere of Ukraine arose due to changes in socio-political, economic, institutional systems, diversity of natural conditions of the territory, demographic situation, social infrastructure, ecological status.

Transformation processes in the agrarian sphere of Ukraine began from the time of its proclamation as an independent state, from the command-administrative economic system to a free market with the aim of forming a competitive agricultural product. For the Ukrainian transformation model, the process of transformation is typical in the context of a significant economic downturn in stimulating the privatization processes and imperfection of the agrarian policy, lack of clear goals and mechanisms of action. That is why the expected effects of the transformation on a national scale did not happen.

Therefore, further studies are needed to study the transformational processes of the agrarian sphere from the standpoint of human geography, which will make it possible to consider transformations as a socio-geographical process, to reveal factors and spatial and temporal features of the agrarian sphere, to trace the interrelation of the agrarian sphere with the socio-economic development of the regions. So, despite the length of transformational processes in the agrarian sphere, the heterogeneity of their flow, it is necessary to analyze territorial features of the manifestation of these processes in the regions of Ukraine.

References:

1. Haidutskyi, P.I. ed. (2005). Ahrarna reforma v Ukraini [Agrarian reform in Ukraine]. Kyiv: NNC IAE, 424 [in Ukrainian].
2. Balabanov, H.V. (2000). Transformatsiya struktury silskohospodarskoho vyrobnytstva Ukrainy: rehionalnyi aspekt [Transformation of the structure of agricultural production in Ukraine: regional aspect]. UAPP / PAP, 29 [in Ukrainian].

3. Heiets, V.M., Kvasniuk, B.Ye., Zveriakov, M.I. (1999). Transformatsiya modeli ekonomiky Ukrainy: ideolohiia, protyrichchia, perspektyvy [Transformation of the model of Ukraine's economy: ideology, contradictions, prospects]. Kyiv, Ukraine: Lohos, 497 [in Ukrainian].
4. Hrazhevska, N.I. (2007). Vidobrazhennya transformatsiinykh protsesiv u systemi katehoriy sotsialno-ekonomichnoi dynamiky [Reflection of transformational processes in the system of categories of socio-economic dynamics]. *Ekonomichna teoriia – Economic theory*, 4, 19-29 [in Ukrainian].
5. Zaiachuk, M.D. (2015). Geoprostorova orhanizatsiya fermerskoho ukladu Ukrainy [Geospatial organization of a farmer device in Ukraine]. Bukret, 520 [in Ukrainian].
6. Kravets, T.M. (2012). Suspilno-geografichni aspekty funktsionalnoi transformatsii ahrarnoi sfery Lvivskoi oblasti [Socio-geographical aspects of the functional transformation of the agrarian sphere of the Lviv region]. *Geografiya i turyzm – Geography and Tourism*, 23, 209-216 [in Ukrainian].
7. Leshchyk, I.B., Pyrih, H.I. (2013). Orhanizatsiyno-ekonomichni transformatsii v ahrarnomu sektori ekonomiky [Organizational-economic transformations in the agrarian sector of the economy]. *Stalyi rozvytok ekonomiky – Sustainable development of the economy*, 3, 327-331 [in Ukrainian].
8. Lohvynova, M.O. (2018). Naukovi pidkhody do traktuvannya ponyattya «ahrarna sfera» [Scientific approaches to the definition of the concept «agrarian sphere»]. *Materialy mizhnarodnoyi naukovo-praktychnoi konferentsii studentiv, aspirantiv ta molodykh naukovtsiv Region-2018: suspilno-geografichni aspekty – Proceedings of the conference Region-2018: socio-geographical aspects*. Kharkiv: KhNU, 32-35 [in Ukrainian].
9. Malik, M.Y. (2007). Reformuvannya vlasnosti i restrukturyzatsiya pidpryemstv APK [Property reform and restructuring of agricultural enterprises]. *Ekonomika APK – Economy of agroindustrial complex*, 11, 9-13 [in Ukrainian].
10. Marushchynets, A.V. (2010). Haluzeva ta terytorialna transformatsiya ahrarnoi sfery Ukrainy [Branch and territorial transformation of the agrarian sphere of Ukraine]. *Ekonomika APK – Economy of agroindustrial complex*, 2, 652 [in Ukrainian].
11. Marushchynets, A.V. (2016). Transformatsiya ahrarnoi sfery ta sotsialno-ekonomichnyi rozvytok Kyivskoho Prydniprovya [Transformation of the agrarian sphere and socio-economic development of the Kyiv Dnieper]. Kyiv, 196 [in Ukrainian].
12. Mesel-Veselyak, V.Ya. (2010). Ahrarna reforma i orhanizatsiyno-ekonomichni transformatsii v silskomu hospodarstvi [Agrarian reform and organizational-economic transformations in agriculture]. *Ekonomika APK – Economy of agroindustrial complex*, 4, 3-18 [in Ukrainian].
13. Mochernyi, S.V. (2005). Modeli transformatsiynykh protsesiv ekonomiky (teoretyko-metodolohichni aspekty) [Models of transformational processes of economy (theoretical and methodological aspects)]. *Ekonomika Ukrainy* – Economy of Ukraine, 2, 13-21 [in Ukrainian].
14. Onyshhenko, O.M., Yurchyshyn, V.V. (2006). Silske hospodarstvo, selo i selyanstvo Ukrainy u dzerkali postradyanskoi ahrarnoyi polityky [Agriculture, village and peasantry of Ukraine in the mirror of the post-Soviet agrarian policy]. *Ekonomika Ukrainy – Economy of Ukraine*, 1, 4-14 [in Ukrainian].
15. Ostashko, T.O. (2004). Rynkova transformaciya ahrarnoho sektora [Market transformation of the agrarian sector]. K.: Feniks, 280 [in Ukrainian].
16. Pepa, T.V. (2006). Regionalna dynamika i transformatsiya ekonomichnoho prostoru Ukrainy [Regional dynamics and transformation of the economic space of Ukraine]. Cherkasy: Brama-Ukraina, 440 [in Ukrainian].
17. Pidhrushnyi, H.P., Marushchynets, A.V. (2016). Transformatsiya spetsializatsii silskoho hospodarstva Kyivskoho Prydniprovya u postsocialistychnyi period: metodyka doslidzhennya i terytorialni osoblyvosti [Transformation of the Specialization of Agriculture of the Kyiv Dnieper in the Post-Socialist Period: Research Methodology and Territorial Peculiarities]. *Ukrainskyi geografichnyi zhurnal – Ukrainian geographic journal*, 2, 48-56 [in Ukrainian].
18. Pro osnovni zasady derzhavnoi ahrarnoi polityky na period do 2015 roku : Zakon Ukrainy vid 18 zhovt. 2005 r. № 2982-IV. Retrieved from http://zakon3.rada.gov.ua/laws/show/2982-15 [in Ukrainian].
19. Sabluk, P.T., Mesel-Veselyak, V.Ya., Fedorov, M.M. (2009). Ahrarna reforma v Ukraini (zdobutky, problemy i shlyakhy yikh vyrishennya) [Agrarian reform in Ukraine (achievements, problems and ways of their solution)]. *Ekonomika APK – Economy of agroindustrial complex*, 12, 3-13[in Ukrainian].
20. Smolenyuk, R.P. (2014). Transformatsiya ahrarnoho sektora ekonomiky na zasadakh staloho rozvytku [Transformation of the agricultural sector of the economy on the basis of sustainable development]. *Innovatsiyna ekonomika – Innovative economy*, 6, 14-20 [in Ukrainian].
21. Sosnytska, Ya.S. (2015). Suchasni transformatsiyni protsesy silskohospodarskoho vyrobnytstva (na prykladi Volynskoi oblasti) [Modern transformational processes of agricultural production (on the example of the Volyn region)]. Lutsk: Skhidnoevropeyskyi natsionalnyi universytet imeni Lesi Ukrainky, 226 [in Ukrainian].
22. Sosnytska, Ya.S. (2015). Transformatsiyni protsesy u silskomu hospodarstvi, yak obyekt doslidzhennya suspilno-geografichnymy naukamy [Transformational processes in agriculture as a subject of research by socio-geographical sciences]. *Naukovyi oglyad – Scientific inspection*, 13, 54-60 [in Ukrainian].
23. Sukhyi, P.O. (2008). Ahroprodovolchyi kompleks Zakhidnoukrainskoho regionu [Agro-food complex of Western Ukraine Region]. Chernivtsi: Ruta, 400 [in Ukrainian].
24. Trehobchuk, V.M., Pradun, V.P. (2004) Ahrarna sfera: model staloho rozvytku [Agrarian sphere: the model of sustainable development]. *Visnyk NAN Ukrainy – Bulletin of NAS of Ukraine*, 9, 5-16 [in Ukrainian].

25. Turylo, A.M., Kornukh, O.V. (2014). Ekonomichna transformatsiya yak klyuchove ponyattya suchasnoho hromadskoho rozvytku [Economic transformation as a key concept of sustainable development]. *Naukovyi visnyk Khersonskoho derzhavnoho universytetu. Seriya: Ekonomichni nauky. – Scientific Newsletter of Kherson State University. Economic sciences*, 6(3), 189-191 [in Ukrainian].
26. Chernyuk, L.H. (2011). Transformatsiyni protsesy v ekonomitsi Ukrainy ta yii regionakh: problemy ta perspektyvy [Transformation processes in the economy of Ukraine and its regions: problems and prospects]. *Zbirnyk naukovykh prats VNAU. – Seriya: Ekonomichni nauky. – Collection of scientific papers VNAN. Economic sciences*, 1(48), 252-256 [in Ukrainian].
27. Bachev, H., Tsuji, M. (2001). Structures for Organization of Transactions in Bulgarian Agriculture. *Journal of the Faculty of Agriculture of Kyushu University*, 46(1), 123-151 [in English].
28. Bański, J., Bednarek, M. (2008). Agriculture of Central Europe in the period of economic transformation. *Contemporary changes of agriculture in East-Central Europe, Rural Studies*, 15, 9-22 [in English].
29. Kovacs, K., Osamu, I. (2002). Agricultural Restructuring in Hungary and Its Social Impacts. Transformation and Diversification of Rural Societies in Eastern Europe and Russia. Slavic Research Center Hokkaido University, Sapporo, 247-272 [in English].
30. Karácsonyi, D. (2010). The Ukrainian agrarian sector and the global economic crisis. East European Studies, IWE HAS, 91-138 [in English].

Надійшла до редколегії 05.05.2018 р.

UDC 911.3

Kostyantyn Niemets
DSc (Geography), Professor of the Department of Human Geography and Regional Studies
e-mail: konstantin.nemets@karazin.ua, ORCID ID: https://orcid.org/0000-0002-7262-2111
Kateryna Kravchenko
PhD Student (Geography), Senior Lecturer of the Department of Human Geography and Regional Studies
e-mail: kate4465@gmail.com, ORCID ID: https://orcid.org/0000-0003-4654-3185
Anastasiia Mazurova
MA (Geography)
e-mail: a.v.mazurova@ukr.net, ORCID ID: https://orcid.org/0000-0002-5203-3045
Kateryna Sehida
DSc (Geography), Assistant Professor of the Department of Human Geography and Regional Studies
e-mail: kateryna.sehida@gmail.com, ORCID ID: https://orcid.org/0000-0002-1122-8460
Anatoly Lurie
DS (Geological and Mineralogical Sciences), Professor of the Department of Hydrogeology
e-mail: hydrogeology@karazin.ua, ORCID ID: https://orcid.org/0000-0003-4836-5781
V. N. Karazin Kharkiv National University, Svobody Sq., 4, Kharkiv, 61022, Ukraine

REGIONAL SETTLEMENT SYSTEM AS A BASIS FOR THE FORMATION OF GROWTH POLES (CASE OF KHARKIV REGION)

The article deals with analysis of population resettlement systems of the Kharkiv region in order to allocate the regional growth poles. The analysis of scientific researches in the field of "center-periphery" theories, the theory of "central places" and the study of the supporting framework of resettlement have been carried out. The works by J. Thünen, W. Christaller, A. Lösch, F. Perroux, W. Isard, G. Lappo and other authors have been analyzed. Some aspects of the urban study woldwide are presented. The spatial formational aspects of the modern urban settlement system of Kharkiv region are revealed. There are two stages of formation of the regional growth poles. stage I – 16-17 centuries, formation of the supporting framework of population settlement in connection with settlement development of the regional territory; stage II – 19-20 centuries, active economic, industrial development of Kharkiv region. In accordance with the theory of integral systems of resettlement, the diversified organizational cores of the settlement system by population of the Kharkiv region have been determined. The organizational core of the rank 1 is Kharkiv (the central city in the region), 2 rank`s cities are Lozova and Izium (major cities of oblast significance), 3 rank`s cities are Kupiansk, Balakliia, Liubotyn, Pervomaiskyi, (cities with the predominance of industrial and transport functions), 4 rank`s cities are Bohodukhiv, Vovchansk, Zmiiv, Barvinkovo, Nova Vodolaga, Vysokyi, Dergachi (regional agro-industrial centers), 5 rank`s cities are Panyutyne, Kozacha Lopan, Borova (cities and villages that have an important transport position), 6 rank`s cities are Blyzniuky, Vilcha, Chervonyi Oskil, Kolomak, Zachepilovka (villages with high development of agriculture). Problems and perspectives of evolution of the Kharkiv region resettlement system are revealed.

Keywords: supporting frame of population settlement, growth poles, center-periphery, settlement system, evolution of the settlement system, population core, urban settlement.

Костянтин Нємець, Катерина Кравченко, Анастасія Мазурова, Катерина Сегіда, Анатолій Лур'є. СИСТЕМА РОЗСЕЛЕННЯ РЕГІОНУ ЯК ОСНОВА ФОРМУВАННЯ ПОЛЮСІВ РОСТУ (НА ПРИКЛАДІ ХАРКІВСЬКОЇ ОБЛАСТІ)

У статті розглянуто систему розселення регіону у якості основи формування полюсів росту на прикладі Харківської області. Проведено аналіз наукового доробку у сфері «центр-периферійних» теорій, теорії «центральних місць» та вивчення опорного каркасу розселення. Наведено ретроспективний аналіз дослідження в світовій науці міст та міського простору. Розкрито просторово-часові аспекти формування сучасної системи міського розселення Харківської області. За теорією інтегральних систем розселення виявлено різнорангові організаційні ядра системи розселення населення Харківської області. Визначено проблеми та перспективи еволюції системи розселення Харківської області.

Ключові слова: опорний каркас розселення населення, «полюси росту», «центр-периферія», система розселення, еволюція системи розселення, ядра розселення, міське розселення.

Константин Немец, Катерина Кравченко, Анастасия Мазурова, Катерина Сегида, Анатолий Лурье. СИСТЕМА РАССЕЛЕНИЯ РЕГИОНА КАК ОСНОВА ФОРМИРОВАНИЯ ПОЛЮСОВ РОСТА (НА ПРИМЕРЕ ХАРЬКОВСКОЙ ОБЛАСТИ)

В статье рассмотрена система расселения региона в качестве основы формирования полюсов роста на примере Харьковской области. Проведен анализ научных нароботок в области «центр-периферийных» теорий, теории «центральных мест» и изучение опорного каркаса расселения. Представлен ретроспективный анализ исследования городов и городского пространства в мировой науке. Раскрыто пространственно-временные аспекты формирования современной системы городского расселения Харьковской области. В соответствии с теорией интегральных систем расселения определены разноранговые организационные ядра системы расселения населения Харьковской области. Выявлены проблемы и перспективы эволюции системы расселения Харьковской области.

Ключевые слова: опорный каркас расселения населения, «полюса роста», «центр-периферия», система расселения, эволюция системы расселения, ядра расселения, городское расселение.

 DOI: 10.26565/2076-1333-2018-24-04

Formulation of the problem. Ukrainian regions are experiencing times of deep socio-economic, political and institutional transformations. Modern decentralization of particular importance and require study of these and many other issues, including the definition of regional growth poles. In modern times due to the decentralization policy and attempts to improve the socio-economic development of Ukraine raises the question in determining the growth poles by the state and regions.

For Kharkiv region as one of the most progressive scientific, cultural and economic center of the state, there is a question in determination of the main regional growth poles and the reasons of their origin.

The purpose of the study is analysis of resettlement systems of the population of the Kharkiv region in order to allocate the regional growth poles.

Research of Kharkiv regional resettlement system was conducted on the basis of "center-peripheral" and "growth poles" theories. The first theoretical and methodological researches of framework of settlement pattern belong to the French researcher L. Lullan [27] and to the representatives of the German scientific school: J. Thünen [13], W. Christaller [20], A. Lösch [5]. The authors of the practical theories are F. Perroux [28], W. Isard [25, 26], G. Lappo [4]. Let us note that historically the theory of poles (centers) of growth has gained its development in the economy and has continued to spread to other sciences. Among the founders of the theories of cumulative growth are well-known scientists: J. Friedman [21, 22], I. Wallerstein [30], T. Hagerctrandt [23], J. Boudeville [18]. They developed a number of models of socio-economic development of the regions. In particular, these are the models of growth poles (F. Perroux, J. Boudeville) [18, 28], the growth of urban agglomerations (H. Richardson), the theory of "center-periphery" (J. Friedman) [21, 22], the model of "volcano" (H. Hirsch), model "Wave-innovations" (T. Hagerctrandt) and others. The validity and effectiveness of these models has been confirmed in the practice of regional development in many countries of the world.

In the work of L. Lalanne for the first time with the help of the graph-analytical method, the relationship between the hierarchical structure of cities and the development of transport networks was established, that is, an attempt was made to analyze the structural features of the regional resettlement system [27].

W. Christaller proposed a model of spatial location of settlements around the largest settlement (central), which in future development was called "the theory of central places". W. Christaller during the solution of the issue of improving the administrative-territorial structure of the state through the definition of regularities in urban settlements, it was discovered that settlements are developing similarly to the objects of the natural environment according to the law of mass crystallization around nuclei and represent a framework (hexagonal lattice structure) [20].

Christaller`s study of urban settlement system is presented in a reference frame moving, allowing the system to consider settlement as an established structure and the regularities of settlement systems, allowing them to speak to establish such system characteristics as dynamic, hierarchical self-organization and emergence. Christaller`s model has some disadvantages because it does not take into account the deforming influence of such factors as transport and other communication channels, which will guarantee complicate the developed concept. Ideas of W. Christaller about a hexagonal lattice structure was implemented by A. Lösch, who provided the model of territorial self-organization of society and economic activity – economic landscape is heterogeneous in nature, which further revealed the particular situation of cities as the proportion of urban population grows [5, 13, 20].

F. Perroux developed and formalized the economic theory of growth poles (growth focus), which emphasized inequality as the basic principle of the development of the economy, which in turn affects the development of individual elements of the settlement system. According to F. Perroux, the growth poles can be considered as populated point, from which centrifugal forces emerge and which is the pole of gravity for other settlements. The problematic issue of this theory is the relativity not to real territorial entities, but to the abstract, rather economic than geographic space [28].

On the basis of the theories of W. Crystaller and A. Lösch, W. Isard proposed a concept which allows taking into account the sintering effects in the study of systems: the hexagonal lattice from the correct transforms into incorrect, denser around the sinter center, which is practically proves impossibility of existence of correct hexagonal surfaces on any real territory.

G. Lappo considers cities and settlements in the aspect of urban planning. He offered the concept of urban development and resettlement systems. The key idea of the concept of city development is a combination of functions performed by the city, their scale and territorial orientation. In the concept of resettlement, G. Lappo emphasizes that the uncertainty in the projections of the transformation of resettlement systems causes the development of several trajectories of the resettlement`s development systems simultaneously, ensuring the variability of the system development of various hierarchical levels. G. Lappo emphasizes the interdependence between the territorial differentiation of conditions (natural, historical, cultural, national-demographic and socio-economic) and the resettlement of the population, which in turn can also act as a factor in territorial differentiation and its deepening. If an attempt is made to conditionally disassociate the settlement, it is possible to obtain habitats with an excellent character of resettlement according to such indicators as size of settlements, density of their network, hierarchy, uniformity and unevenness, level of concentration of population and the degree of manifestation of resettlement`s centers of different categories, by which it is possible to find out territorial urbanization structures [4].

The study of the relationship "center-periphery" is presented in J. Friedmann`s works, which establishes the relationship of measures to the level of development of the settlement, depending on its location relative to the settlement`s core. In the "center-periphery" model, he identifies the following economic areas formed by settlement systems: nucleus districts (central regions),

growing areas (peripheral or semi-peripheral districts, located in the proximity of the center and receiving impulses from it), areas of new development and depressed areas (peripheral ones that are almost unrelated to the center and not exposed to it). The nature of the interaction between the center and the periphery determines the direction of information, financial, commodity relations, migration of labor resources. On the basis of the theory of "center-periphery" J. Friedman tried to construct a general theory of regional development, which showed the causality of the uneven development of the territory precisely in the polarization disproportions of development between the nuclei of resettlement by that periphery [21, 22].

Based on the work of J. Friedman, World-system approach was developed by I. Wallerstrain, who considers the development of the history and economy of the world as the interaction of centers and peripheries in differentiated world economies, which determines the redistribution of resources from the periphery to the center, in particular the exploitation of the centers of peripheral territories. According to I. Wallerstein, development is represented by the category of existing or functioning "social systems" in the past, the formation of which is determined by the territorial division of labor [30].

V. Shuper proposed a relativistic theory of central places, which allowed in socio-geographical studies to rely on the relationship between resettlement and space, formalizing research systems of resettlement. According to V. Shuper, any allocation of zones of influence of central places on the basis of two or more functions is conditional [16]. According to P. Toyn in non-strictly fixed central cities, the set of functions in various places is more dynamic [12].

V. Bunge made the assumption that most centers of gravity on the territory are placed in such a way as to minimize overall travel costs, assuming that the centers are located on territories with homogeneous transport conditions. By V. Bunge real distances coincide with geometric distances [1]. In the case of a uniform distribution of population, the centers should be located within the limits of the correct hexagonal lattice. He formulated the hypothesis that the practical application of the Crystaller`s theory is possible only in the case of constant population density.

Evolutionary processes in resettlement systems are disclosed in the works of A. Vazhenin, in particular, the relationship between the evolution of settlement systems and the development of urbanization processes is analyzed, the stability of the systems of central places is determined. In contrast to the classical and relativistic theories of central places that consider static settlement systems, A. Vazhenin described the real dynamics of resettlement systems by applying intermediate hierarchies and linking evolution of settlement systems with urbanization processes [2].

In the works of G. Rydevskyi the center-peripheral processes and their role in the development of urbanization and transformation of settlement systems are considered; study of the change of territorial structures of economy in accordance with the evolution of resettlement systems [9, 10, 29].

Domestic center-peripheral researches are presented in the dissertation researches of I. Pylypenko [7] and E. Marunyak [6]. In the thesis by I. Pylypenko disclosed the socio-geographical basis of the category "center-periphery", the role of the center-peripheral organization in the formation of territorial structures of different levels, developed a scientific-methodological approach to the topological analysis of geospatial at the regional level. E. Marunyak developed a method for evaluating spatial development for various hierarchical levels and developed the concept of an integrated geoplanning process in Ukraine.

Proponents of the theory of polarized development have advanced the benefits of concentration of production, especially "dynamic" industries, in several centers, which, according to their estimates, has a significant economic effect. The concept of growth poles was the basis of the regional programs of many countries. According to most economists, only large industrial enterprises or their aggregate can form the basis for the development of any growth pole. However, the Ukrainian geographer G. Pidgrushny believes that also the enterprises of the tertiary sector of the economy can be the basis for the development of a new growth [8]

The creation of any kind of poles and development centers originally aims at intensifying economic activity in the backward peripheral regions. Polarization at the district level is considered in most cases as a means of territorial deconcentration at the macro level, which can weaken the sharp dominance of certain superregions or supercenters.

T. Hagerctrandt developed the theory of "diffusion of innovations", among the main postulates which states that the territorial diffusion of innovations can be modeled, and has certain distribution laws; is a determining factor in detecting the migration effect for the "center-peripheral" relationship, and its speed depends not on the geometric distance, but on the properties of certain cities [23].

Usually, growth poles are considered as cities, which are stable territorial entities, performing a wide range of functions.

The study of the ontology of cities and urban space was undertaken by Plato, Aristotle, T. More, T. Campanella, O. Spengler, A. Toffler and others. The study of urban ontology was started from the time of ancient Greek philosophers. Philosophical comprehension of nature and the essence of the city was highlighted in the works of Plato and Aristotle. Also, a number of provisions concerning the philosophical understanding of the functioning of the city and the city space were laid down in the works of T. More and T. Campanella [14]. In the utopian work of T. Campanella "The City of the Sun" the author describes the city perfect for the existence of a society, its structure and rule corresponding to it.

Among the latest ideas on urban ontology, one can distinguish the work of E. Amin and N. Thrift "Cities: rethinking the city". In this work, the authors pay considerable attention to the theme of everyday practice in the city, the theory of "collisions", the city as a place of coexistence of global and local, virtual and real [17].

In the works of classic sociologists F. Tennis, G. Simmel, K. Marx, E. Durkheim and M. Weber, the

study of the city took place mainly in the framework of the analysis of the city social structure, the characteristics of the population of different historical periods (for example, society and community by F. Tennis, organic and mechanical solidarity by E. Durkheim) [11].

E. Burgess and H. Hoyt made a great contribution to the development of scientific thought regarding the structuring of urban space. In the scientific work "Growth of cities" E. Burgess s first described in detail the idea of concentric zones in Chicago, which, according to R. Park, E. Burgess and D. McKenzie, are located in the following order: zone I – the central business district; zone II – transition zone, where offices and light industry enterprises are located; zone III – working-class living area; zone IV – zone of residences, there are houses for one family; zone V – suburban area of satellite towns located in a 0.5-1 hour drive from the city center [19].

The multi-core model of spatial urban structure was proposed by American geographers C. Harris and E. Ulman. Rapidly developing cities may have several central business districts. Each center specializes in specific activities and has an impact on the surrounding part of the city. Urban core can be formed around specialized centers (transport nodes, shopping centers, campuses, industrial clusters). The model of the set of centers is more suitable for describing the unique characteristics inherent in specific urban structures than for the identification of universal spatial characteristics in all cities [24].

The study of the economic categories of the city and urban space, in particular the issues of the economic efficiency of urban space, the optimal placement of enterprises, the formation of urban land rent were P. Vidal de La Blache, A. Marshall, D. Hicks, P. Krugman, M. Fujita and others. The study of A. Marshall deserves attention, which suggests that the placement of enterprises in the city is beneficial through the formation of a market of highly specialized labor, the development of new ideas, infrastructure etc.

By J. Boudeville growth poles can be classified as small, classical and industrial cities and large metropolitan areas and the integration of the pole, although autonomous development is possible only for the upper hierarchical levels, while lower levels of growth may be due mainly processes of innovation diffusion (fig. 1) [18].

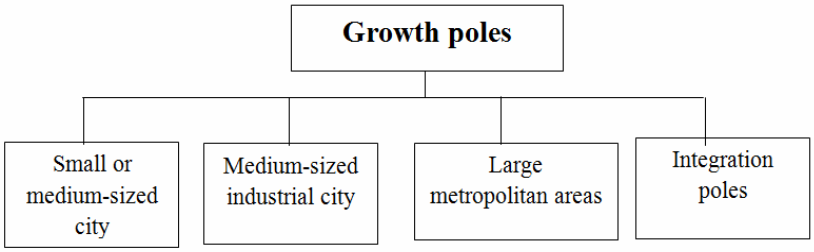


Fig. 1. Classification of cities-growth poles *(made by authors by [18])*

He developed a classification of growth poles, by which the poles are divided into small and medium-sized "classical" cities, specializing in traditional productions and serving the adjacent terrain; medium-sized industrial cities with a diversified structure of the economy that develops through external investment and transfers; large urban agglomerations with a developed and modern structure of the economy, including advanced production, which determines the potential for autonomous growth; poles of integration covering several urban systems and determining the growth of the economy of the entire region and country.

Kharkiv region has powerful economic, scientific innovation, demographic potential, and therefore determine the growth poles in the region has scientific and practical importance. In our view, an important basis for determining growth poles are available demographic and settling potential of the region. Region`s settling system is a closely interconnected urban and rural settlements of various sizes and economic purpose, united developed transport and industrial relations, general production infrastructure, unified network of public centers for social and cultural services and places of recreation [15].

Formation of modern network of Kharkiv region`s city resettlement has begun in the 16th century, and differs in two types of formation of settlements.

- Natural: during settling and agricultural development of the territory (Kharkiv, Izyum, Valky), the 16-17th centuries;
- Artificial: connected with economic development of the territory (Lozova, Pervomaiskyi) or administrative orders of the power (Chuhuev), the 18-19th centuries.

The retrospective analysis of settling development revealed next stages of growth poles in the region (Table 1):

- stage I – 16-17 centuries. Formation reference frame population settlement in connection with the settling development of the territory, forced settlement of the region in the early 17 century that Ukrainians and Russians defended the southern borders of Moscow kingdom;
- stage II – 19-20 centuries. Predefined active economic, industrial development of the region, characterized by labor migration in the Kharkiv region. Most cities of Kharkiv region formed in the first stage, due to settling development. Cities have been arising as artificial and natural way. In the second stage of the formation settling framework was established only four cities. There are Lozova, Pervomaiskyi, Krasnohrad,

Pivdenne. They artificially created thanks to the economic development of the territory.

The system of resettlement of Kharkiv region has historically passed as stages of relatively even development, as well as the stages of reorientation of development vectors in the direction of industrial centers, development poles, the largest of which is the administrative center of the region, Kharkiv city.

Table 1

Formation of the Kharkiv region`s growth poles *(made by authors by [3])*

№	City	Year of establishment	Year of getting city status	Type of formation	Stage of formation
1.	Kharkiv	1630	1669	natural	I
2.	Lozova	1869	1939	artificial	II
3.	Izyum	1637	1685	natural	I
4.	Chuhuev	1533	1638	artificial	I
5.	Pervomaiskyi	1869	1991	artificial	II
6.	Kupiansk	1655	1779	natural	I
7.	Balakliia	1663	1938	natural	I
8.	Merefa	1595	1938	artificial	I
9.	Liubotyn	1650	1937	natural	I
10.	Krasnohrad	1731	1797	artificial	II
11.	Vovchansk	1674	1780	artificial	I
12.	Derhachi	1660	1689	natural	I
13.	Bohodukhiv	1661	1681	artificial	I
14.	Zmiiv	1604	1797	natural	I
15.	Barvinkove	1653	1938	natural	I
16.	Valky	1646	1938	natural	I
17.	Pivdenne	1906	1963	artificial	II

In the theory of central places, W. Christaller proved that under the conditions of such an ideal economic space, focus (or core) of different levels of the hierarchy that draw the settlement of the lower levels necessarily arise. Since urban settlements are concentrated by the overwhelming majority of the population and they are concentrated in a variety of functions, they are the organizational cores of resettlement systems of different hierarchical levels. Their rank by population determines the level of settlement system [14]. Fig. 2 shows the cores of resettlement by population of Kharkiv region.

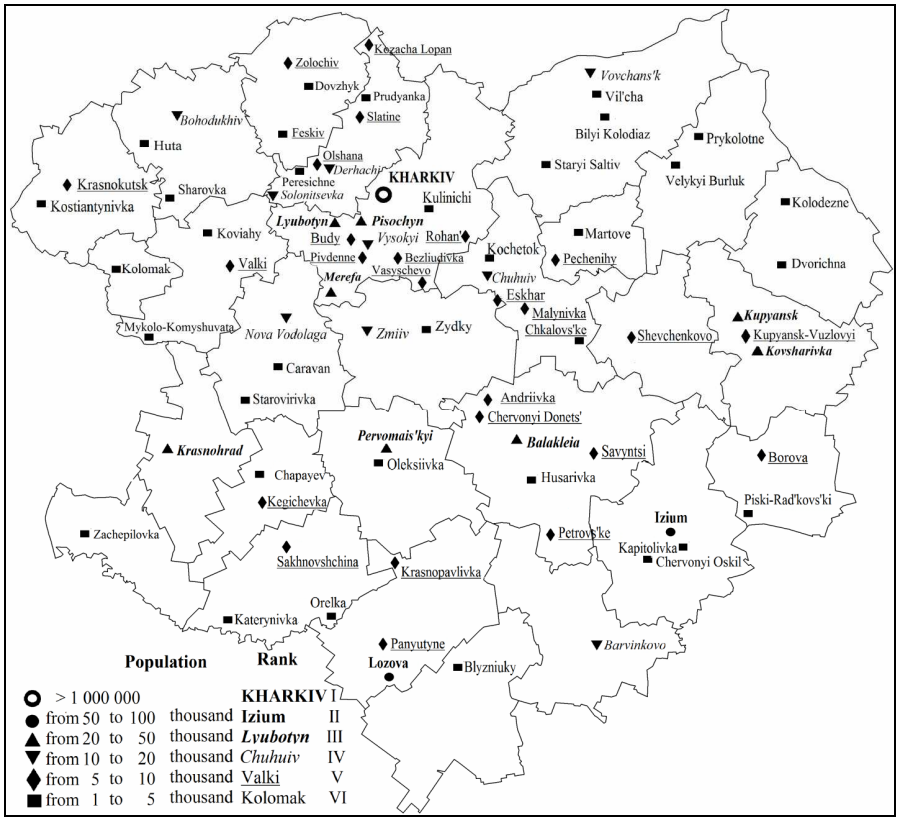


Fig 2. Organizational growth poles settlement system of Kharkiv region, 2016 *(made by authors)*

The analysis of the settlement system of the Kharkiv region reveals a significant slope in the development of the urban settlement system in the region, with the center of gravity in Kharkiv city. Given the political and economic peculiarities of development and administrative significance, Kharkiv city of serves as the organizational center of the settlement system of the Kharkiv region and rank I. Kharkiv city has the largest population in the region.

To the organizational core of the resettlement of the Kharkiv region of the II rank are two cities of regional significance, Lozova and Izium. The population of these cities is two times smaller than population of Kharkiv. A significant population of these cities is associated with their advantageous transport and geographical location (Fig. 3).

The organizational centers of population settlement of the III rank are cities, mainly with industrial and transport functions, Kupiansk, Balakliia, Liubotyn, Pervomaiskyi, cities of regional and district significance.

The core of the settlement of IV rank are the cities that are the agro-industrial centers of the region. There are Bohodukhiv (milk, meat, fruit and vegetable plant), Vovchansk (food industry), Zmiiv (milk and sausage industry), Barvinkovo, Nova Vodolaga, Vysokyi, Dergachi.

Resettlement centers of the V rank are cities and towns of the urban type, which have important transport functions, transport hubs, located in peripheral areas. There are Panyutyne, Kozacha Lopan, Borova and others.

The institutional core of the settlement of the VI rank are the villages with a significant level of agriculture development, such as the Blyzniuky, Vilcha, Chervonyi Oskil, Kolomak, Zachepilovka and others. These are predominantly peripheral development centers.

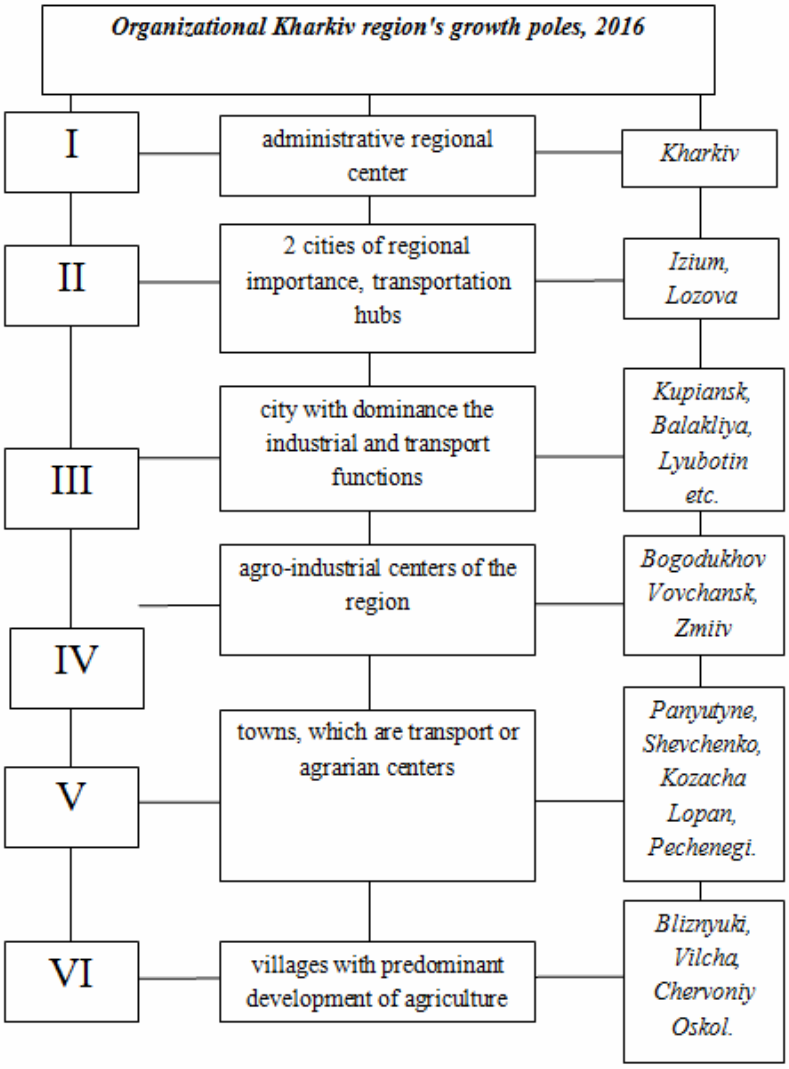


Fig. 3. Organizational Kharkiv region`s growth pole by ranks, 2016 *(made by authors)*

Conclusions. One of the important issues for further evolution of the settlement of the Kharkiv region is uneven development and its center of gravity shift of population from the geometric center area to the regional center Kharkiv city. So for the Kharkiv region effective will such a regional policy aimed at integrated settling development of all network elements. Innovative infrastructure in the Kharkiv region is concentrated mainly in the regional center, in our opinion, development of innovative infrastructure in the growth poles of the region, shall become key for their rapid social and economic development, will promote investment attraction, increase in competitiveness.

In our opinion, the greatest attention should be paid to the development of innovation infrastructure. It should become a key to the rapid socio-economic development of the growth pillars of the II-VI ranks, will promote investment attractiveness and increase competitiveness. Several districts of the region have a powerful resource potential for the formation of new growth poles in the future or the transition to a higher rank. This requires additional research, including agricultural production, tourist and recreational infrastructure, etc.

Thus, for the Kharkiv region, such regional policy will be effective, aimed at the integrated development of all elements of the distribution network: the complex development of all the elements of the resettlement network; the improvement of the planning structure of the settlement system; the creation of the necessary conditions for the attractiveness of the rural areas of the region; the development of inter-district and regional transport and communication networks; the development of cities, which in the past were industrial centers and their resource potential; the development of social infrastructure in the peripheral areas of the region; the engagement of temporarily unemployed labor resources in the agricultural sector; investing in promising industries, taking into account investment passports of cities and districts; the Improvement of the Level and Quality of Life and Working Conditions in the region; the regulation of migration processes.

The urgency and timeliness of the definition of the growth poles for the Kharkiv region is strategic, it will help to reduce the territorial disproportions in the development of the region.

The necessity and timeliness determination of growth poles for the Kharkiv region is of strategic importance and will help reduce regional disparities in development. In particular, such strategy completely corresponds to policy of the EU on territorial planning. The polycentrism in the EU became fundamental in territorial planning at all levels – from all-European to city.

The essence of the European policy consists not in direct subsidizing of the lagging behind regions and ignoring of the most successful regions, and in estimating, using and mutually to increase various competitive advantages of each of them. All regions have equal opportunities to find the competitive niche in the European and international market. Relevance and timeliness of determination of poles of growth for the Kharkiv region has a strategic importance, will allow to promote reduction of territorial disproportions in development and will promote active development.

References:

1. Bunge, V. (1967). Tsentralnye mesta v svete teorii i nablyudeniy [Central places in the light of theory and observations.]. Moscow, 149-163 [in Russian].
2. Vazhenin, A.A. (1977). Evolyutsionnye protsessy v sistemakh rasseleniya [Evolution processes in settlement systems]. Ekaterinburg, 59 [in Russian].
3. Golikov, A.P., Kazakova, N.A., Shuba, M.V. (2012). Kharkovskaya oblast. Regionalnoe razvitie: sostoyanie i perspektivy [Kharkov region. Regional development: state and prospects]. Kharkiv, KhNU, 223 [in Russian].
4. Lappo, G.M. (1997). Geografiya gorodov [Geography of cities]. Moscow, 481 [in Russian].
5. Ljosh, A. (2007). Prostranstvennaya organizatsiya khozyaystva [The spatial organization of the economy]. Moscow, 664 [in Russian].
6. Marunyak, Ye.O. (2016). Sotsialno-ekonomichnyi prostir (metodologiya geoprostorovykh doslidzhen ta praktyka planuvannya) [Socio-economic space (methodology of geospatial research and planning practice)]. *Doctor's thesis.* Kyiv, 503 [in Ukrainian].
7. Pylypenko, I.O. (2015). Tsentro-peryferiyni protsesy i struktury v terytorialniy organizatsii suspilstva [Center-peripheral processes and structures in the territorial organization of society]. *Doctor's thesis.* Kherson, 304 [in Ukrainian].
8. Podgrushnyi, G.P. (2012). Polyusa sotsialno-ekonomicheskogo rosta: problemy formirovaniya i rol v regionalnom razvitii [The Pole of Socio-Economic Growth: Problems of Formation and Role in the Regional Development]. International Scientific and Practical Conference, Minsk, Belarus, 54-56 [in Russian].
9. Ridevskiy, G.V. (2016). Tipologiya gorodskih poseleniy i stadialnost urbanizatsii v Belarusi [Typology of Urban Settlements and Stagiality of Urbanization in Belarus]. Retrieved from http://elib.bsu.by/bitstream/123456789/152317/1/Rideuski.pdf [in Russian].
10. Ridevskiy, G.V. (2013). Tsentr-periferiynye protsessy v rasselenii naseleniya sovremennoy Belarusi [Center-peripheral processes in the resettlement of the population of modern Belarus]. *Regionalnye issledovaniya – Regional Research*, 2, 94-99 [in Russian].
11. Tennis, F. (2002). Obshchnost i obshchestvo: osnovnye ponyatiya chistoy sotsiologii [Community and Society: the basic concepts of pure sociology]. St. Petersburg: Vladimir Dal, 451 [in Russian].

12. Tojn, P., Njubi, P. (1971). Metody geograficheskikh issledovaniy [Methods of geographical research]. *Ekonomicheskaya geografiya – Economical geography*, 1, 271 [in Russian].
13. Tjunen, I. (1926). Izolirovannoe gosudarstvo [The isolated state]. Moscow, *Izd-vo gazety «Ekonomicheskaya zhizn» - Publishing house of the newspaper «Economic life»*, 326 [in Russian].
14. Utopia. City of Sun. Collection. LitMir - e-library. Retrieved from https://www.litmir.me/br/?b=212882&p=10
15. Shabliy, O.I. (2003). Osnovy zahalnoi suspilnoi geografii [Fundamentals of general human geography]. Lviv: Vydavnychyi tsentr LNU im. Ivana Franka, 444 [in Ukrainian].
16. Shuper, V.A. (1990). Nekotorye udivitelnye svoystva kristallerovskikh reshetok [Some surprising properties of crystal lattices]. Izvestiya RAN. Geogr. seriya, 1, 96-100 [in Russian].
17. Amin, A., Thrift, N. (2002). Cities: Reimagining the Urban. Cambridge: Polity Press, 196 [in English].
18. Boudeville, J. (1966). Problems of Regional Economic Planning. Edinburg, 11 [in English].
19. Burgess, E.W., Park, R.E., McKenzie, R.D. (1925). The Growth of the City: An Introduction to a Research Project. The City. Chicago: The University of Chicago Press, 47-62 [in English].
20. Christaller, W. (1967). Central Places in Southern Germany. New York: Englewood Cliffs, 230 [in English].
21. Friedmann, J. (1966). Regional Development Policy: A Case Study of Venezuela. Hardcover: MIT Press, 279 [in English].
22. Friedmann, J. (1979). Territory and Function: The evolution of regional planning. London: Edward Arnold, 355 [in English].
23. Hagerctrandt, T. (1968). Innovation diffusion as a spatial process. Chicago: University of Chicago Press, 350 [in English].
24. Harris, C.D., Ullman, E.L. (1945). The Nature of Cities. Annals of the American Academy of Political and Social Sciences, 24, 7-17 [in English].
25. Isard, W. (1956). Location and Space-Economy A General Theory Relating to Industrial Location, Market Areas, Land Use, Trade, and Urban Structure. New York: The Technology Press of M. I. T. and John Wiley and Sons, Inc., 380 [in English].
26. Isard, W. (1960). Methods of Regional Analysis: An Introduction to Regional Science Hardcover. Cambridge, Massachusetts, 784 [in English].
27. Lalanne, L. (1863). Essai d'une theorie des reseaux de chemin de fer, fondee sur l'observation des faits et ser les lois primordiales qui president au groupements des populations [Test of a theory of railway networks, based on the observation of the facts and the essential laws that preside over the groupings of the populations]. *Comptes Rendus hebdomadaires des séances de l'Academie des Sciences*, 57, 4, 206-210 [in French].
28. Perroux, F. (1991). L'Économie du XXe siècle [The economy of the 20th century]. Grenoble: Presses universitaires de Grenoble, 814 [in French].
29. Rydzeuski, H., Shadrakou, A. (2015). Typology and development of urban settlements in Belarus in 1959-2015 / Proceedings of the VIII International Academic Congress «Applied and Fundamental Studies in Eurasia, Africa and America» (South Africa, Cape Town, 18-20 June 2015). «UCT Press», 210-222 [in English].
30. Wallerstein, I. (2011). The Modern World-System: capitalist agriculture and the origins of the European world-economy in the sixteenth century. California : University of California Press, 440 [in English].

Надійшла до редколегії 15.05.2018 р.

УДК 911.372

Артур Голіков
д. геогр. н., професор кафедри міжнародних економічних відносин
e-mail: golikovartur@ukr.net, ORCID ID: https://orcid.org/0000-0003-4106-4046
Павло Черномаз
к. геогр. н., доцент кафедри міжнародних економічних відносин
e-mail: pavel.chernomaz@gmail.com, ORCID ID: https://orcid.org/0000-0001-8049-1353
Харківський національний університет імені В.Н. Каразіна,
майдан Свободи, 4, м. Харків, 61022, Україна

ВИКОРИСТАННЯ ТЕОРІЇ ЦЕНТРАЛЬНИХ МІСЦЬ З МЕТОЮ ВДОСКОНАЛЕННЯ АДМІНІСТРАТИВНО-ТЕРИТОРІАЛЬНОГО УСТРОЮ ХАРКІВСЬКОЇ ОБЛАСТІ

У статті застосовані положення теорії центральних місць В. Кристаллера для побудови моделі системи населених пунктів Харківської області. Після застосування сітки Кристаллера розрахунок індексу міри несхожості для Харківської області показав близьке до середнього значення, що свідчить про оптимальність моделі. Запропонована модель системи населених пунктів може бути використана з метою удосконалення адміністративно-територіального устрою Харківської області.

***Ключові слова**:* теорія центральних місць, система населених пунктів, адміністративно-територіальний устрій, індекс міри несхожості, коефіцієнт ієрархічності місцеположення.

Артур Голиков, Павел Черномаз. ИСПОЛЬЗОВАНИЕ ТЕОРИИ ЦЕНТРАЛЬНЫХ МЕСТ С ЦЕЛЬЮ УСОВЕРШЕНСТВОВАНИЯ АДМИНИСТРАТИВНО-ТЕРРИТОРИАЛЬНОГО УСТРОЙСТВА ХАРЬКОВСКОЙ ОБЛАСТИ

В статье применены положения теории центральных мест В. Кристаллера для построения модели системы населенных пунктов Харьковской области. После применения сетки Кристаллера расчет индекса меры несходства для Харьковской области показал близкое к среднему значение, что свидетельствует об оптимальности модели. Предложенная модель системы населенных пунктов может быть использована с целью усовершенствования административно-территориального устройства Харьковской области.

Ключевые слова: теория центральных мест, система населенных пунктов, административно-территориальное устройство, индекс меры несходства, коэффициент иерархичности местоположения.

Artur Golikov, Pavlo Chernomaz. USE OF THE THEORY OF CENTRAL PLACES FOR THE IMPROVEMENT OF THE ADMINISTRATIVE-TERRITORIAL DEVICE OF THE KHARKIV REGION

The article applies the provisions of the theory of the central places of V. Kristaller for constructing a model of the system of settlements of the Kharkiv region with the aim of increasing the efficiency of the existing settlement system. Based on the existing administrative-territorial structure, according to which the focus of different levels of hierarchy are the cities of regional and regional importance.

In addition, the hierarchy coefficients are determined for the location of the districts of the Kharkiv region. It was found out that the most convenient geographical location is occupied by Kharkiv, Balaklia, Zmiyiv, Pervomaisky and Chuguevsky districts, the less convenient is the Dvorichansky district. It is determined that the main administrative center and the largest city of the region is Kharkiv. Among other large cities are Lozova, Kupyansk, Krasnograd, Vovchansk, Barvinkovo, Bogodukhiv. These cities form a hexagon around Kharkiv.

To choose the optimal variant of the regionalization of the Kharkiv region, the calculation of the index of the measure of dissimilarity was used. The optimal result of the division of the Kharkiv region includes 10 districts with centers in the cities of Kharkiv, Balaklia, Barvinkovo, Bogodukhiv, Vovchansk, Izyum, Krasnograd, Kupyansk, Lozova, Pervomaisky. After the application of the Kristaller grid, the calculation of the index of the measure of dissimilarity for the Kharkiv region showed a value close to the average, which indicates the optimality of the model. The proposed model of a system of settlements can be used to improve the administrative and territorial structure of the Kharkiv region. The linkage of the proposed model with the decentralization reform implemented in Ukraine and, in particular, in the Kharkiv region, showed that the location of the network of joint territorial communities is very uneven in the allocated areas.

Keywords: the theory of central places, the system of settlements, administrative-territorial structure, the index of the measure of dissimilarity, the coefficient of hierarchy of location.

Постановка проблеми. Важливою умовою розвитку економіки є раціональне розміщення виробничих потужностей і транспортної системи. Як наслідок, це сприяє збалансуванню диспропорцій розселення, а також вирівнюванню купівельної спроможності населення. Дані питання вирішуються в межах просторової економіки. Просторова економіка є відносно молодою наукою. Вважається, що лише з XIX ст. почались дослідження економічного простору, пошук просторових закономірностей у розвитку економіки і зародження просторового (включаючи регіональний) аналізу.

Аналіз досліджень і публікацій. Підвалини просторової економіки були закладені в роботах німецьких вчених Й. Тюнена, В. Лаунгардта, А. Вебера, В. Кристаллера, А. Льоша. Зокрема,

 DOI: 10.26565/2076-1333-2018-24-05

В. Кристаллер і А. Льош одними з перших висвітлили проблему вивчення територіальної диференціації регіональних ринків ресурсів, товарів і послуг. Вальтером Кристаллером була створена теорія центральних місць, яку він вперше сформулював у роботі «Центральні місця в Південній Німеччині» (1933) як закон просторового розміщення населених пунктів навколо більшого «центрального місця». В. Кристаллер намагався скласти абстрактну модель розміщення, перевірити її на декількох конкретних мережах розселення в Європі і застосувати на практиці при освоєнні ще недостатньо обжитих територій. Потім побудови В. Кристаллера застосовувались з метою підвищення ефективності існуючих систем розселення.

Так, ідеї В. Кристаллера широко використовували у своїх дослідженнях вчені з країн Західної Європи (Дж. Гарнер, Е. Кант, Х. Керол, Л. Лаланн, П. Мерлен, А. Персон, П. Хаггет, О. Шлієр) та США (У. Айзард, Б. Беррі, Дж. Браш, У. Гаррісон, М. Дейсі, Дж. Зіпф, Дж. Парр, Е. Ульман).

Застосуванням теорії центральних місць для вивчення розселення населення займалися російські вчені А.А. Важенін [2], С.М. Гусейн-Заде [6], П.П. Ем [23-25], Ю.В. Медвєдков [9], І.О. Худяєв [17], В.О. Шупер [21, 22]. Зокрема, значний внесок у розвиток ідей В. Кристаллера зробив В.О. Шупер, який запропонував релятивістську модифікацію теорії центральних місць. Його учень і послідовник П.П. Ем запровадив концепцію «розмитих центральних місць», здійснив спробу застосувати теорію фракталів для аналізу розподілу центральних функцій в системі розмитих центральних місць на прикладі столичної агломерації Республіки Корея, а також розглянув велике місто як самостійну систему центральних місць. Російський географ Б.Б. Родоман використав положення теорії центральних місць при формулюванні теоретичних основ районування, зокрема, виокремленні вузлових районів та їхніх центрів [13].

В Україні теоретико-методичних проблем просторового аналізу, зокрема й теорії центральних місць, в економічній та соціальній географії торкалися А.П. Голіков, С.І. Дорогунцов, К.А. Нємець, Л.М. Нємець, Я.Б. Олійник, М.Д. Пістун, С.П. Сонько, А.В. Степаненко, О.Г. Топчієв, П.О. Черномаз, О.І. Шаблій та ін. [7, 10-12, 14-16, 18, 19]. Цікавим є міждисциплінарне застосування теорії центральних місць, яке запропонував український археолог О.В. Дяченко для визначення відносних дат і розмірів поселень в археології [8].

Проте у вітчизняній науковій літературі бракує досліджень розвитку конкретних регіонів України з урахуванням теорії центральних місць. Як приклад таких робіт можна відзначити дослідження Чернігівської області у світлі теорії центральних місць, які виконали М.О. Барановський [1], Т.І. Шпарага та М.Л. Циганок [20].

Метою даної роботи є пошук вдосконалення розміщення адміністративних районів у Харківській області, спираючись на моделі теорії центральних місць В. Кристаллера.

Виклад основного матеріалу. Вихідним пунктом своїх побудов В. Кристаллер обрав однорідну поверхню з рівномірним розміщенням ресурсів і однаковою купівельною спроможністю населення. В. Кристаллер довів, що за умов подібного ідеального економічного простору неодмінно виникають фокуси (або ядра) різного рівня ієрархії, які притягують поселення нижчих рівнів. Ці фокуси він назвав центральними місцями (ЦМ) [12, с. 24]. Центральне місце – поселення будь-якого розміру (найчастіше міста різної людності), що служить центром для усього населення даного району, забезпечуючи його центральними товарами, наприклад автомобілями, і центральними послугами, наприклад, медичним обслуговуванням. ЦМ є неоднаковими за своїм значенням: центри більш високого рангу володіють більш широким набором товарів і послуг; центри більш низького рангу мають менший набір товарів і послуг, до того ж забезпечуються частково за рахунок центрального місця більш високого рангу.

Згідно з В. Кристаллером, зони обслуговування і збуту з плином часу мають тенденцію оформлятися в правильні шестикутники (бджолині стільники), а вся заселена територія покривається шестикутниками без просвіту (так звана «решітка Кристаллера»). Центри деяких осередків є вузлами шестикутної решітки більш високого порядку, центри її осередків – вузлами решітки ще більш високого порядку і т. д. аж до найвищого рівня з єдиним центром.

Завдяки цьому мінімізується середня відстань для збуту продукції або поїздок до центрів для покупок і обслуговування. Вид одержаної мережі розселення В. Кристаллер розглянув залежно від трьох головних факторів – збутового, транспортного і адміністративного. У всіх трьох випадках зони обслуговування ЦМ мали форму правильних шестикутників. Різниця полягала лише в кількості ЦМ нижчого рангу, які обслуговуються ЦМ вищого рангу.

Застосуємо теорію центральних місць з метою вдосконалення існуючого адміністративно-територіального устрою Харківщини. Вважаємо, що положення та методичний апарат теорії центральних місць можна застосувати до території Харківської області, оскільки:

– рельєф у більшій частині області рівнинний (однорідна поверхня);

– помірно континентальний клімат (кліматичні умови області сприятливі);

– поширені чорноземні ґрунти, наявні такі корисні копалини, як природний газ, будівельні матеріали (відносно рівномірне розміщення ресурсів).

Єдине, що суперечить поглядам В. Кристаллера, це неоднакова купівельна спроможність населення, пов’язана з нерівномірністю розселення. Розглянемо це питання детальніше. Чисельність наявного населення в Харківській області, за даними обласного управління статистики [5], на 1 лютого 2017 р. становила 2 699 847 осіб, в тому числі міського – 2 177 957 осіб (80,7%), сільського – 521 890 осіб (19,3%). Постійне населення – 2 684 211 жителів, в

тому числі міське населення – 2 158 242 жителі (80,4%), 525 969 сільських жителів (19,6%). Щільність населення – 86 осіб на кв. км.

За адміністративно-територіальним устроєм Харківської області (поділом задля доцільнішого використання людських і природних ресурсів) до її складу входять 27 сільських районів, 17 міст, з яких 7 – обласного значення (Ізюм, Куп'янськ, Лозова, Люботин, Первомайський, Харків, Чугуїв) та 10 – районного значення, 61 селище міського типу, 1542 села, 138 селищ, 60 селищних рад, 381 сільська рада. Адміністративний центр – місто Харків.

Для Харківської області характерна достатньо висока урбанізація, яка постійно зростає. У 2010 р. вона складала 78,9 % [4], у 2017 – вже 80,7%. Загальна площа міст перевищує 1,5% площі всієї області. У табл. 1 представлено розрахунки індексу концентрації населення для міст Харківської області за формулою:

$$I = \frac{1}{2}\sum_{1}^{n}\left|x' - y'\right|,$$

де x' – частка населення міста/району, y' – частка площі міста/району [3, с. 43].

Таблиця 1

Розрахунок індексу міри несхожості для Харківської області
(розрахунки виконані Н. Мірошник)

№	Адміністративно-територіальна одиниця (місто, район)	Населення, жителів усього	Площа, км²	x' (% населення)	y' (% площі)	x'-y'
1	Ізюм	49309	41	1,826362753	0,1304777	1,695885
2	Куп'янськ	56380	33	2,088266483	0,1050186	1,983248
3	Лозова	65524	18	2,426952342	0,0572829	2,369669
4	Люботин	24132	31	0,893828428	0,0986539	0,795175
5	Первомайський	30355	31	1,124322971	0,0986539	1,025669
6	Харків	1438854	306	53,29390888	0,973809	52,3201
7	Чугуїв	33298	13	1,233329148	0,041371	1,191958
усього в містах		1697852	473	62,8	1,5	
1	Балаклійський	81842	1987	3,031356962	6,3233937	3,292037
2	Барвінківський	21408	1365	0,792933822	4,3439519	3,551018
3	Близнюківський	18964	1380	0,702410174	4,3916876	3,689277
4	Богодухівський	38977	1160	1,443674401	3,6915635	2,247889
5	Борівський	16845	875	0,623924245	2,7845845	2,16066
6	Валківський	31801	1011	1,177881561	3,2173885	2,039507
7	Великобурлуцький	22381	1221	0,828972901	3,8856888	3,056716
8	Вовчанський	46496	1889	1,722171664	6,0115202	4,289349
9	Дворічанський	17576	1112	0,650999853	3,5388092	2,887809
10	Дергачівський	94964	900	3,517384504	2,8641441	0,65324
11	Зачепилівський	15227	794	0,563994923	2,5268116	1,962817
12	Зміївський	71654	1365	2,654002245	4,3439519	1,68995
13	Золочівський	26305	969	0,97431447	3,0837285	2,109414
14	Ізюмський	17158	1554	0,635517494	4,9454221	4,309905
15	Кегичівський	21042	783	0,779377498	2,4918054	1,712428
16	Коломацький	7022	330	0,260088812	1,0501862	0,790097
17	Красноградський	44544	985	1,64987127	3,1346466	1,484775
18	Краснокутський	28032	1041	1,038281058	3,31286	2,274579
19	Куп’янський	24553	1280	0,909421904	4,0734494	3,164027
20	Лозівський	28892	1404	1,070134715	4,4680648	3,39793
21	Нововодолазький	32763	1183	1,21351321	3,7647583	2,551245
22	Первомайський	15761	1195	0,583773821	3,8029469	3,219173
23	Печенізький	9979	468	0,369613537	1,4893549	1,119741
24	Сахновщинський	21106	1170	0,781748003	3,7233873	2,941639
25	Харківський	179637	1403	6,65359926	4,4648824	2,188717
26	Чугуївський	46640	1149	1,727505299	3,6565573	1,929052
27	Шевченківський	20426	977	0,75656139	3,1091875	2,352626
усього в районах		1001995	30950	37,113029	98,494733	
загалом		2699847	31423	100	100	128,4473

Наслідки розрахунку I = 1/2*128,4473 = 64,2 свідчать про високий рівень концентрації. (Якщо не враховувати 7 міст обласного значення, то слід зауважити, що для області притаманна розсіяність. У табл. 2 представлено відповідні розрахунки, згідно з якими I=1/2*53,6005425=26,8).

Отже, більша частина населення сконцентрована у великих містах, які розташовані в хаотичному порядку. Через це виникають різні можливості обслуговування населення та його купівельна спроможність.

Таблиця 2

Розрахунок індексу міри несхожості для Харківської області без міст обласного значення
(розрахунки виконані Н. Мірошник)

Адміністративно-територіальний район	x' (% населення)	y' (% площі)	x'-y'
Балаклійський	8,167905	6,420032	1,74787272
Барвінківський	2,1365376	4,410339	2,27380165
Близнюківський	1,8926242	4,458805	2,56618031
Богодухівський	3,8899396	3,747981	0,14195896
Борівський	1,6811461	2,827141	1,14599444
Валківський	3,1737683	3,266559	0,09279063
Великобурлуцький	2,2336439	3,945073	1,71142882
Вовчанський	4,6403425	6,103393	1,46305005
Дворічанський	1,7541006	3,592892	1,83879119
Дергачівський	9,4774924	2,907916	6,56957641
Зачепилівський	1,5196683	2,565428	1,04575985
Зміївський	7,1511335	4,410339	2,74079423
Золочівський	2,6252626	3,130856	0,50559362
Ізюмський	1,7123838	5,021002	3,30861782
Кегичівський	2,1000105	2,529887	0,42987644
Коломацький	0,7008019	1,066236	0,36543396
Красноградський	4,4455312	3,182553	1,26297866
Краснокутський	2,7976188	3,363489	0,56587075
Куп'янський	2,4504114	4,135703	1,68529132
Лозівський	2,8834475	4,536349	1,65290143
Нововодолазький	3,2697768	3,822294	0,55251723
Первомайський	1,5729619	3,861066	2,28810429
Печенізький	0,9959132	1,512116	0,51620316
Сахновщинський	2,1063977	3,780291	1,67389306
Харківський	17,927934	4,533118	13,3948158
Чугуївський	4,6547138	3,712439	0,94227443
Шевченківський	2,0385331	3,156704	1,11817124
загалом	100	100	53,6005425

Якщо виходити з чинного адміністративно-територіального устрою, то фокусами різного рівня ієрархії в Харківській області є міста обласного значення (Ізюм, Куп'янськ, Лозова, Люботин, Первомайський, Харків, Чугуїв), а також міста районного значення (Балаклія, Барвінкове, Богодухів, Валки, Вовчанськ, Дергачі, Зміїв, Красноград, Мерефа, Південне). Ці економічні центри обслуговують товарами і послугами не тільки себе, але й населення своєї округи. На рис. 1 зображено мережу центральних місць Харківської області при збутовій орієнтації (нижчі центри розташовуються в кутах шестикутників, і ринок кожного з них поділений між трьома вищими центрами). Цей принцип скорочує кількість центрів обслуговування нижчого порядку одним центром вищого рівня при шестикутних зонах.

Можна запропонувати внести незначні зміни, що послугують більш раціональному використанню ресурсів області. Але перед цим визначимо головне центральне місце. Для цього виконаємо деякі розрахунки. Визначимо коефіцієнт ієрархічності місцеположення регіонів, для чого скористаємося формулою:

$$K = \sum_{1}^{n} L_i \Big/ \sum_{1}^{n} L_{i\ min},$$

де L_i – кількість кордонів, що необхідно перетнути, щоб дістатися до певного центру району; $L_{i\ min}$ – мінімальна кількість кордонів (для регіону, що займає центральне положення в даній системі) [12, с. 39-40].

Підраховану кількість кордонів, які необхідно перетнути, щоб дістатися з одного району в інший, наведено в табл. 3.

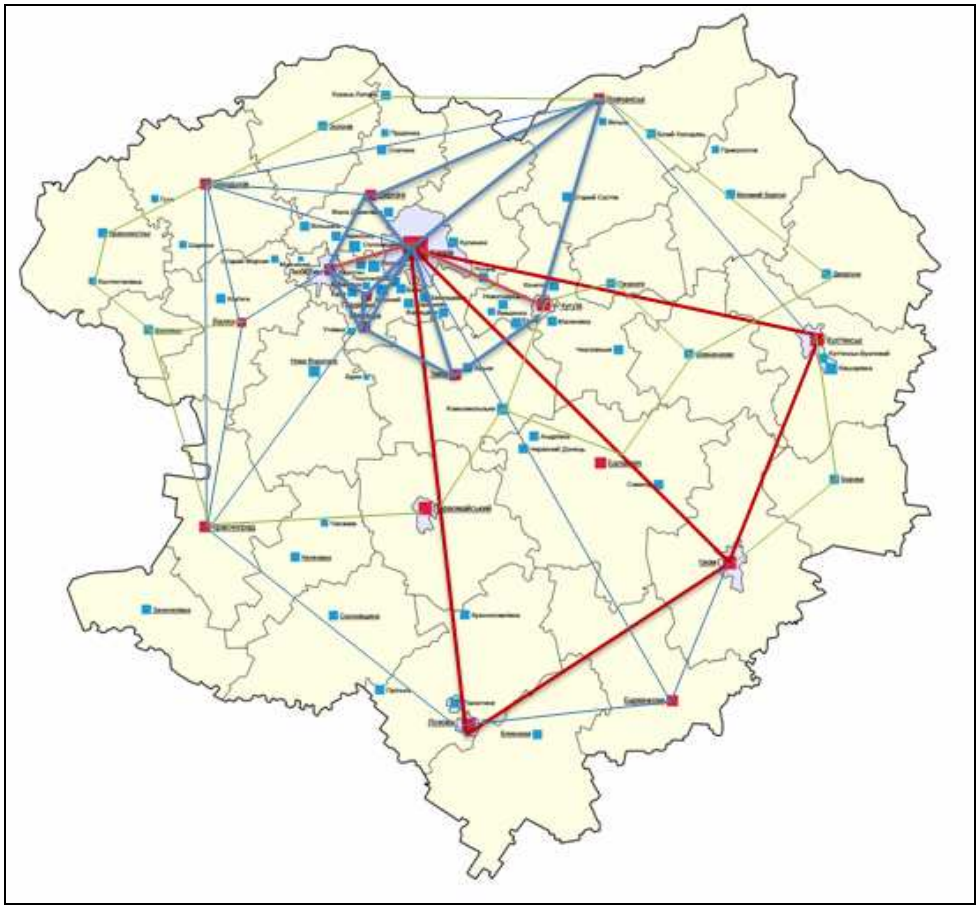


Рис. 1. Мережа центральних місць Харківської області при збутовій орієнтації

Таблиця 3

Коефіцієнти ієрархічності місцеположення районів Харківської області

	назва району	кількість кордонів																										
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	SUM	hierarchy
1	Балаклійський	0	1	2	4	2	3	2	2	3	3	3	1	4	1	2	4	3	4	2	1	2	1	2	2	2	1	1	58	1,017544
2	Барвінківський	1	0	1	5	2	4	3	3	4	3	3	3	5	1	3	5	4	5	2	1	3	2	3	2	3	3	3	77	1,350877
3	Близнюківський	2	1	0	5	3	4	4	5	5	5	3	3	6	2	3	5	4	5	4	1	3	2	4	2	4	3	3	91	1,596491
4	Богодухівський	4	5	5	0	6	1	4	3	1	5	3	3	1	5	3	2	2	1	5	4	2	3	4	4	2	3	4	85	1,491228
5	Борівський	2	2	3	6	0	5	2	3	5	2	5	3	6	1	4	6	5	6	1	3	4	3	3	4	4	3	2	93	1,631579
6	Валківський	3	4	4	1	5	0	3	2	1	4	2	2	2	4	2	1	1	1	5	3	1	2	3	3	1	2	4	66	1,157895
7	Великобурлуцький	2	3	4	4	2	3	0	1	3	1	6	3	4	2	5	5	5	4	1	3	3	3	1	4	2	2	1	77	1,350877
8	Вовчанський	2	3	5	3	3	2	1	0	2	2	4	2	3	3	4	3	5	4	2	4	2	3	1	4	1	1	2	71	1,245614
9	Дергачівський	3	4	5	1	5	1	3	2	0	4	4	2	1	4	3	2	3	2	4	4	2	3	3	4	1	2	3	75	1,315789
10	Дворічанський	3	3	5	5	2	4	1	2	4	0	6	4	5	3	5	7	6	5	1	4	5	4	2	5	3	3	2	99	1,736842
11	Зачепилівський	3	3	3	3	5	2	6	4	4	6	0	3	4	4	1	3	1	4	6	2	2	2	5	1	3	4	4	88	1,54386
12	Зміївський	1	3	3	3	3	2	3	2	2	4	3	0	3	2	2	3	2	3	3	2	1	1	2	2	1	1	2	59	1,035088
13	Золочівський	4	5	6	1	6	2	4	3	1	5	4	3	0	5	4	3	4	2	5	5	3	4	4	5	2	3	4	97	1,701754
14	Ізюмський	1	1	2	5	1	4	2	3	4	3	4	2	5	0	3	5	4	5	1	2	3	2	2	3	3	2	1	73	1,280702
15	Кегичівський	2	3	3	3	4	2	5	4	3	5	1	2	4	3	0	3	1	3	4	2	1	1	4	1	2	3	3	72	1,263158
16	Коломацький	4	5	5	2	6	1	5	3	2	7	3	3	3	5	3	0	2	1	5	4	2	3	4	4	2	3	4	91	1,596491
17	Красноградський	3	4	4	2	5	1	5	5	3	6	1	2	4	4	1	2	0	3	5	3	1	2	4	2	2	3	4	81	1,421053
18	Краснокутський	4	5	5	1	6	1	4	4	2	5	4	3	2	5	3	1	3	0	5	4	2	3	4	4	2	3	4	89	1,561404
19	Куп'янський	2	2	4	5	1	5	1	2	4	1	6	3	5	1	4	5	5	5	0	3	4	3	2	4	3	2	1	83	1,45614
20	Лозівський	1	1	1	4	3	3	3	4	4	4	2	2	5	2	2	4	3	4	3	0	2	1	3	1	3	2	2	69	1,210526
21	Нововодолазький	2	3	3	2	4	1	3	2	2	5	2	1	3	3	1	2	1	2	4	2	0	1	3	2	1	2	3	60	1,052632
22	Первомайський	1	2	2	3	3	2	3	3	3	4	2	1	4	2	1	3	2	3	3	1	1	0	3	1	2	2	2	59	1,035088
23	Печенізький	2	3	4	4	3	3	1	1	3	2	5	2	4	2	4	4	4	4	2	3	3	3	0	4	2	1	1	74	1,298246
24	Сахновщинський	2	2	2	4	4	3	4	4	4	5	1	2	5	3	1	4	2	4	4	1	2	1	4	0	3	3	3	77	1,350877
25	Харківський	2	3	4	2	4	1	2	1	1	3	3	1	2	3	2	2	2	2	3	3	1	2	2	3	0	1	2	57	1
26	Чугуївський	1	3	3	3	3	2	2	1	2	3	4	1	3	2	3	3	3	3	2	2	2	2	1	3	1	0	1	59	1,035088
27	Шевченківський	1	3	3	4	2	4	1	2	3	2	4	2	4	1	3	4	4	4	1	2	3	2	1	3	2	1	0	66	1,157895
																									min				57	1
max	1,736842105																													

Таким чином, найбільш зручне географічне положення займають Харківський, Балаклійський, Зміївський, Первомайський та Чугуївський райони; найменш зручне – Дворічанський район.

Тепер застосуємо погляди В. Кристаллера до районування Харківської області, щоб змінити конфігурацію кордонів для більш збалансованого розподілу населення в районах та більш зручного ведення регіонального господарства. Відзначимо, що головним адміністративним центром і найкрупнішим містом є Харків; серед інших великих міст слід відзначити Лозову, Куп'янськ, а також Красноград, Вовчанськ, Барвінкове, Богодухів. Саме ці міста утворюють шестикутник навколо Харкова (рис. 2).

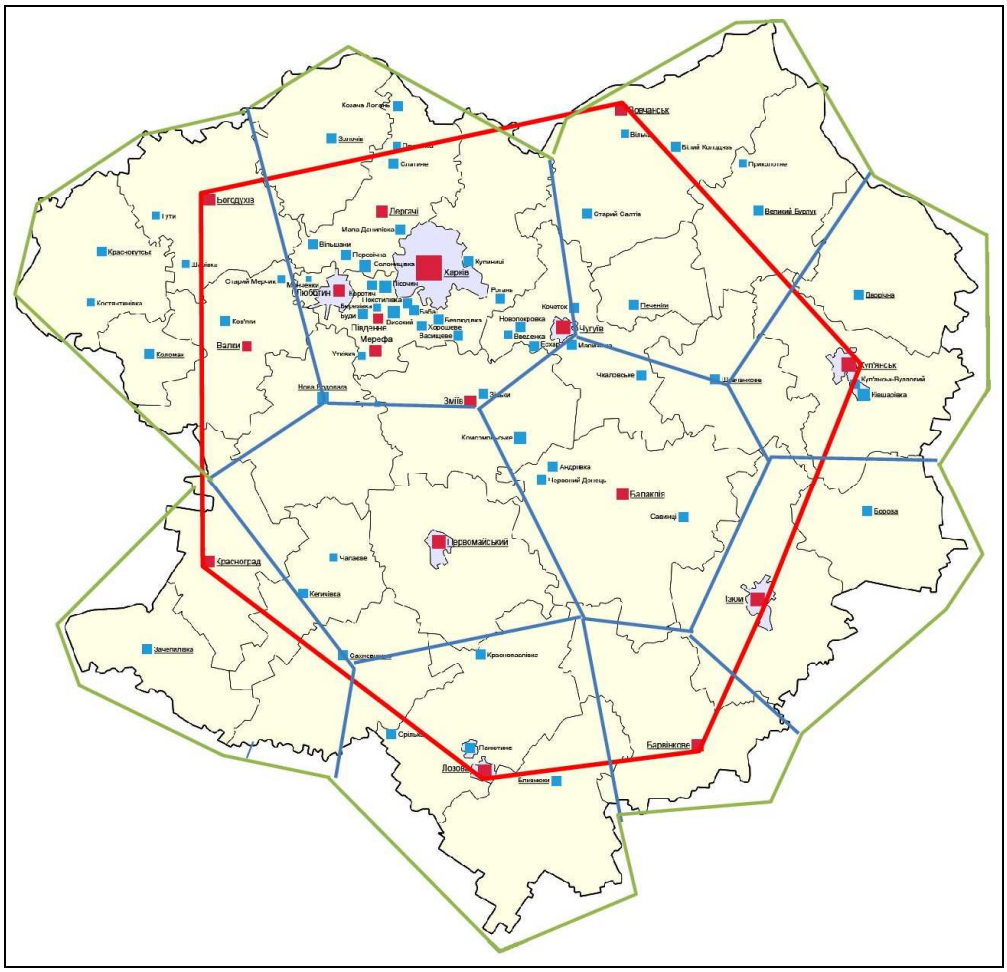


Рис. 2. Оптимальне розташування районів Харківської області

Утворимо шестикутники навколо міст нижчого від Харкова рангу. Під час моделювання було об'єднано одні існуючі райони та розділено інші. На рис. 2 зображено оптимальний результат розташування кордонів районів у межах Харківської області, що включає 10 районів. До Харківського району приєднали Золочівський, Дергачівський райони та частини Чугуївського, Зміївського, Валківського, Богодухівського, Нововодолазького районів (ЦМ – Харків); об'єднали Близнюківський район та частину Сахновщинського району з Лозівським (ЦМ – Лозова); об'єднали Красноградський, Зачепилівський та частини Сахновщинського і Кегичівського районів (ЦМ – Красноград); до Первомайського району приєднали частини Сахновщинського, Кегичівського, Красноградського, Нововодолазького, Зміївського та Балаклійського районів (ЦМ – Первомайський); об'єднали Краснокутський, Коломацький, Валківський райони та частини Красноградського і Нововодолазького районів з Богодухівським (ЦМ – Богодухів, хоча в ідеалі – Шарівка); Барвінківський район трохи розширили за рахунок сусідніх (ЦМ – Барвінкове); до Ізюмського району приєднали Борівський (ЦМ – Ізюм); до Куп'янського району приєднали Дворічанський район та частину Шевченківського району (ЦМ – Куп'янськ); до Вовчанського району приєднали Великобурлуцький та Печенізький райони, а також частини Шевченківського та Чугуївського районів (ЦМ – Вовчанськ, хоча в ідеалі – Білий Колодязь); до Балаклійського району приєднали частини Чугуївського, Зміївського та Шевченківського районів (ЦМ – Балаклія).

Підрахуємо індекс міри несхожості Харківської області після застосування сітки Кристаллера. При цьому додамо дані про населення та площу міст обласного значення до відповідних даних районів, у межах яких вони розташовані (табл. 4).

Таблиця 4

Розрахунок індексу концентрації для міст Харківської області після застосування сітки Кристаллера (з урахуванням міст обласного значення)
(розрахунки виконані Н. Мірошник)

№	Адміністративно-територіальний район	Населення, жит.	Площа, км²	x' (% населення)	y' (% площі)	x'-y'
1	Балаклійський	125000	3200	4,629883	10,18362	5,55374
2	Барвінківський	30000	1600	1,111172	5,091812	3,98064
3	Богодухівський	118000	3800	4,37061	12,09305	7,722443
4	Вовчанський	101000	4100	3,740946	13,04777	9,306822
5	Ізюмський	85309	2541	3,159766	8,086434	4,926668
6	Красноградський	70000	2500	2,592735	7,955956	5,363221
7	Куп'янський	121380	2733	4,495802	8,697451	4,201649
8	Лозівський	131524	3318	4,871526	10,55914	5,687618
9	Первомайський	115355	3081	4,272642	9,80492	5,532278
10	Харківський	1802284	4550	66,75492	14,47984	52,27508
загалом		2699852	31423	100	100	104,5502

Індекс концентрації міст області «I» за схемою В. Кристаллера дорівнює: I = 1/2*104,5502 = 52,3, що є близьким до середньої величини й покращує його значення у порівнянні з сучасним станом. Можемо зробити висновок, що змодельоване нами розташування районів Харківської області є близьким до оптимального.

Одержавши за допомогою даної моделі в першому наближенні нову систему адміністративно-територіального устрою області та використовуючи критерії визначення районів і громад, на наш погляд, можливо оптимізувати транспортну систему, існуючу систему районів, а також межі сільських і селищних рад. Однак така робота вимагає наявності відповідної статистичної бази та спільних зусиль учених, політиків і господарників.

Якщо пов'язати запропоновану нами модель з реформою децентралізації, яка відбувається в Україні, зокрема в Харківській області, то можна відзначити, що розташування мережі новостворених об'єднаних територіальних громад (ОТГ) є дуже нерівномірним. Зараз на Харківщині утворено лише 16 ОТГ, причому майже половина з них, а саме 7 (Золочівська, Малоданилівська, Мереф'янська, Нововодолазька, Пісочинська, Роганська, Циркунівська), сконцентрована на території одного району з центром у Харкові. По дві ОТГ розташовано в районах з центрами в Балаклії (Малинівська, Чкаловська), Вовчанську (Великобурлуцька, Старосалтівська) та Красноград (Зачепилівська, Наталинська), по одній – у районах з центрами в Богодухові (Коломацька), Ізюмі (Оскільська) та Первомайському (Старовірівська). При цьому жодної ОТГ не створено в районах з центрами в Барвінковому, Куп'янську і Лозовій.

Висновки і перспективи подальших розвідок. Згідно з теорією центральних місць В. Кристаллера, існує оптимальна каркасно-мережева структура населених пунктів, яка забезпечує доступ до об'єктів сфери послуг, максимально швидке переміщення між містами та ефективне управління територією. Система населених пунктів має певну ієрархію, число рівнів якої є прямо пропорційним соціально-економічному розвитку території. Із зростанням рівня ієрархії населений пункт надає все більший набір послуг все більшому числу поселень, що знаходяться на нижчих рівнях. Нами було проведено моделювання системи населених пунктів Харківської області з урахуванням положень цієї теорії. Під час моделювання було об'єднано одні існуючі райони та розділено інші. Після застосування сітки Кристаллера розрахунок індексу міри несхожості для Харківської області показав близьке до середнього значення (I=52,3). Це свідчить про те, що змодельоване розташування районів Харківської області є близьким до оптимального. На основі даної моделі, створеної на базі теорії центральних місць В. Кристаллера, в подальшому можуть бути знайдені оптимальні ринкові зони, найкоротші транспортні маршрути і обрані кращі місця для органів адміністративно-територіального управління.

Список використаних джерел:

1. Барановський М.О. Аналіз ієрархії центрів обслуговування за допомогою теорії центральних місць (на прикладі Чернігівської області) / М.О. Барановський // Український географічний журнал. – 1995 – № 1-2. – С. 47-51.
2. Важенин А.А. Иерархии центральных мест и закономерности в развитии систем расселения / А.А. Важенин // Известия РАН. Серия географическая. – 2002. – № 5. – С. 64-71.
3. Голиков А.П. Региональная политика и экономическое развитие: европейский контекст: Учебное пособие / А.П. Голиков, Н.А. Казакова, Ю.Г. Прав. – Харьков: Экограф, 2009. – 270 с.

4. Голиков А.П. Харьковская область. Региональное развитие: состояние и перспективы: Монография / А.П. Голиков, Н.А. Казакова, М.В. Шуба / Под ред. чл.-кор. НАН Украины, проф. В.С. Бакирова. – Х.: ХНУ имени В.Н. Каразина, 2012. – 224 с.
5. Головне управління статистики у Харківській області [Електронний ресурс]. – Режим доступу: http://kh.ukrstat.gov.ua/
6. Гусейн-Заде С.М. О размещении центральных мест при непостоянной плотности населения / С.М. Гусейн-Заде // Географический анализ при планировании народнохозяйственных программ. – М.: Издательство Московского университета, 1986. – С. 37-40.
7. Дорогунцов С.І. Теорії розміщення продуктивних сил і регіональної економіки / С.І. Дорогунцов, Я.Б. Олійник, А.В. Степаненко. – К.:СТАФЕД-2, 2001. – 144 с.
8. Дяченко О.В. Застосування теорії центральних місць в археології для визначення відносних дат і розмірів поселень / О.В. Дяченко // Археологія. – 2011. – № 3. – С. 3-10.
9. Медведков Ю.В. Экономгеографическая изученность районов капиталистического мира. Приложения математики в экономической географии / Ю.В. Медведков. – М.: ИНИОН, 1965. – Т. 2. – 162 с.
10. Нємець К.А. Теорія і методологія географічної науки: методи просторового аналізу: Навчально-методичний посібник // К.А. Нємець, Л.М. Нємець. – Х.: ХНУ імені В. Н. Каразіна, 2014. – 172 с.
11. Пістун М.Д. Основи теорії суспільної географії / М.Д. Пістун. – К.: Вища школа, 1996. – 231 с.
12. Регіональна економіка та природокористування: Навчальний посібник / А.П. Голіков, О.Г. Дейнека, Л.О. Позднякова, П.О. Черномаз. – К.: Центр учбової літератури, 2009. – 352 с.
13. Родоман Б.Б. Территориальные ареалы и сети. Очерки теоретической географии / Б.Б. Родоман. – Смоленск: Ойкумена, 1999. – 256 с.
14. Сонько С.П. В пошуках нових моделей центральних місць Вальтера Кристаллера / С.П. Сонько // Геоінформатика. – 2004. – № 3. – С. 84-91.
15. Сонько С.П. Просторовий розвиток соціо-природних систем: шлях до нової парадигми / С.П. Сонько. – К.: Ніка-Центр, 2003. – 287 с.
16. Топчієв О.Г. Суспільно-географічні дослідження: методологія, методи, методика / О.Г. Топчієв. – Одеса, 2005. – 632 с.
17. Худяев И.А. Эволюционный подход к системам центральных мест: пример Прикубанья / И.А. Худяев, В.А. Шупер // Известия РАН. Серия географическая. – 2004. – № 2. – С. 52-58.
18. Черномаз П.О. Маркетингова географія: теоретико-методологічні основи: Дис. ... канд. географ. наук: 11.00.02 / Черномаз Павло Олексійович. – Х.: ХНУ імені В.Н. Каразіна, 2000. – 172 с.
19. Шаблій О.І. Основи загальної суспільної географії: Підручник / О.І. Шаблій. – Львів: Видавничий центр ЛНУ ім. І. Франка, 2003.– 444 с.
20. Шпарага Т.І. Сфера послуг Чернігівської області у світлі теорії центральних місць / Т.І. Шпарага, М.Л. Циганок // Економічна та соціальна географія. – 2014. – Вип. 1. – С. 77-86.
21. Шупер В.А. Релятивистская теория центральных мест и расселение в постиндустриальную епоху / В.А. Шупер // География мирового развития: Сборник научных трудов. – М.: Товарищество научных изданий КМК, 2010. – Вып. 2. – С. 177-194.
22. Шупер В.А. Самоорганизация городского расселения / В.А. Шупер. – М.: Российский открытый университет, 1995. – 166 с.
23. Эм П.П. Большой город как самостоятельная система центральных мест (на примере Москвы) / П.П. Эм // Региональные исследования. – 2017. – № 3. – С. 34–42.
24. Эм П.П. Применение теории фракталов для изучения систем размытых центральных мест / П.П. Эм // Известия Российской академии наук. Серия географическая. – 2014. – № 6. – С. 7-16.
25. Эм П.П. Размытость или релятивизм: сравнение подходов теории центральных мест (на примере Республики Корея) / П.П. Эм // География мирового развития: Сборник научных трудов. – М.: Товарищество научных изданий КМК, 2016. – Вып. 3. – С. 269–285.

References:

1. Baranovskyi, M.O. (1995). Analiz iyerarkhii tsentriv obsluhovuvannya za dopomohoyu teorii tsentralnykh mists (na prykladi Chernihivskoi oblasti) [Analysis of the hierarchy of service centers through the theory of central places (on the example of Chernihiv region)]. *Ukrainskyi geografichnyi zhurnal – Ukrainian Geographic Journal, 1-2,* 47-51 [in Ukrainian].
2. Vazhenin, A.A. (2002). Ierarkhii tsentralnykh mest i zakonomernosti v razvitii sistem rasseleniya [Hierarchies of central places and regularities in the development of settlement systems]. *Izvestiya RAN. Seriya geograficheskaya – Izvestiya RAN. Geographic series,* 5, 64-71 [in Russian].
3. Golikov, A.P., Kazakova, N.A., Prav, Yu.H. (2009). Regionalnaya politika i ekonomicheskoe razvitie: evropeyskiy kontekst [Regional policy and economic development: the European context]: Kharkov: Ekograf, 270 [in Russian].
4. Golikov, A.P., Kazakova, N.A., Shuba, M.V. (2012). Kharkovskaya oblast. Regionalnoe razvitie: sostoyanie i perspektivyi [Kharkov region. Regional development: state and prospects]. Ed. member-cor. NAS of Ukraine, prof. V.S. Bakirov. Kharkov: V.N. Karazin KhNU, 224 [in Russian].
5. Holovne upravlinnya statystyky u Kharkivskiy oblasti [The Main Department of Statistics in the Kharkiv Region]. Retrieved from http://kh.ukrstat.gov.ua/ [in Ukrainian].

6. Guseyn-Zade, S.M. (1986). O razmeshchenii tsentralnykh mest pri nepostoyannoy plotnosti naseleniya [On the location of central places with variable population density]. *Geograficheskiy analiz pri planirovanii narodnokhozyaystvennykh programm. – Geographical Analysis in the Planning of National Economic Programs.* (pp. 37-40). M.: Publishing house of Moscow University [in Russian].
7. Dorohuntsov, S.I., Oliinyk, Ya.B., Stepanenko, A.V. (2001). Teorii rozmishchennya produktyvnykh syl i regionalnoi ekonomiky [Theories of placement of productive forces and regional economics]. K.: STAFED-2, 144 [in Ukrainian].
8. Dyachenko, O.V. (2011). Zastosuvannya teorii tsentralnykh mists v arkheologii dlya vyznachennya vidnosnykh dat i rozmiriv poselen [Applying the theory of central places in archeology to determine the relative dates and sizes of settlements]. *Arkheologiya – Archeology*, 3, 3-10 [in Ukrainian].
9. Medvedkov, Yu.V. (1965). Ekonomgeograficheskaya izuchennost rayonov kapitalisticheskogo mira. Prilozheniya matematiki v ekonomicheskoy geografii [Economogeographical study of the regions of the capitalist world. Applications of mathematics in economic geography] (Vols. 2), M.: INION, 162 [in Russian].
10. Niemets, K.A., Niemets, L.M. (2014). Teoriya i metodologiya geografichnoi nauky: metody prostorovoho analizu: Navchalno-metodychnyi posibnyk [Theory and methodology of geographic science: methods of spatial analysis: Educational and methodical manual]. Kh.: V.N. Karazin KhNU, 172 [in Ukrainian].
11. Pistun, M.D. (1996). Osnovy teorii suspilnoi geografii [Fundamentals of the theory of social geography]. K.: Vyshcha shkola, 231 [in Ukrainian].
12. Golikov, A.P., Deyneka, O.H., Pozdnyakova, L.O., Chernomaz, P.O. (2009). Regionalna ekonomika ta pryrodokorystuvannya: Navchalnyi posibnyk [Regional Economics and Nature Management: Tutorial]. K.: Tsentr uchbovoi literatury, 352 [in Ukrainian].
13. Rodoman, B.B. (1999). Territorialnye arealy i seti. Ocherki teoreticheskoy geografii [Territorial Areas and Networks. Essays on theoretical geography]. Smolensk: Oykumena, 256 [in Russian].
14. Sonko, S.P. (2004). V poshukakh novykh modeley tsentralnykh mists Valtera Krystallera [In search of new models of Walter Cristaller's central places]. *Geoinformatyka – Geoinformatics*, 3, 84-91 [in Ukrainian].
15. Sonko, S.P. (2003). Prostorovyi rozvytok sotsio-pryrodnykh system: shlyakh do novoi paradyhmy [Spatial development of socio-natural systems: the path to a new paradigm]. K.: Nika-Tsentr, 287 [in Ukrainian].
16. Topchiyev, O.H. (2005). Suspilno-geografichni doslidzhennya: metodologiya, metody, metodyka [Socio-geographic research, methodology, methods, techniques]. Odesa, 632 [in Ukrainian].
17. Khudyaev, I.A., Shuper, V.A. (2004). Evolutsionnyi podkhod k sistemam tsentralnykh mest: primer Prikubanya [Evolutionary approach to systems of central places: an example of Kuban]. *Izvestiya RAN. Seriya geograficheskaya – Izvestiya RAN. Geographic series*, 2, 52-58 [in Russian].
18. Chernomaz, P.O. (2000). Marketynhova geografiya: teoretyko-metodologichni osnovy [Marketing geography: theoretical and methodological foundations]. *Candidate's thesis.* – Kh.: V.N. Karazin KhNU, 172 [in Ukrainian].
19. Shabliy, O.I. (2003). Osnovy zahalnoi suspilnoi geografii: Pidruchnyk [Fundamentals of General Social Geography: Textbook]. Lviv: Vydavnychyi tsentr LNU im. I. Franka, 444 [in Ukrainian].
20. Shparaha, T.I., Tsyhanok, M.L. (2014). Sfera posluh Chernihivskoi oblasti u svitli teorii tsentralnykh mists [The sphere of services of Chernihiv region in light of the theory of central places]. *Ekonomichna ta sotsialna geografiya – Economic and social geography*, 1, 77-86 [in Ukrainian].
21. Shuper, V.A. (2010). Relyativistskaya teoriya tsentralnykh mest i rasselenie v postindustrialnuyu epokhu [Relativistic theory of central places and resettlement in the post-industrial era]. *Geografiya mirovogo razvitiya – Geography of World Development*, (Vols. 2), (pp. 177-194), M.: Tovarishhestvo nauchnyh izdaniy KMK [in Russian].
22. Shuper, V.A. (1995). Samoorganizatsiya gorodskogo rasseleniya [Self-organization of urban settlement]. M.: Russian Open University, 166 [in Russian].
23. Em, P.P. (2017) Bolshoy gorod kak samostoyatelnaya sistema tsentralnykh mest (na primere Moskvy) [The big city as an independent system of central places (on the example of Moscow)]. *Regionalnye issledovaniya – Regional studies*, 3, 34-42 [in Russian].
24. Em, P.P. (2014). Primenenie teorii fraktalov dlya izucheniya sistem razmytyh tsentralnykh mest [The application of the theory of fractals for studying systems of fuzzy central places]. *Izvestiya RAN. Seriya geograficheskaya – Izvestiya RAN. Geographic series*, 6, 7-16 [in Russian].
25. Em, P.P. (2016). Razmytost ili relyativizm: sravnenie podkhodov teorii tsentralnykh mest (na primere Respubliki Koreya) [Fuzziness or relativism: a comparison of approaches central place theory (on the example of the Republic of Korea)]. *Geografiya mirovogo razvitiya – Geography of World Development*, (Vols. 3), (pp. 269–285), M.: Tovarishhestvo nauchnykh izdaniy KMK [in Russian].

Надійшла до редколегії 28.03.2018 р.

Наукові повідомлення

UDC 911.3

***Daria Shiyan*[1]**
PhD (Geography), Senior Lecturer of the Department of Physical Geography, Local History and Tourism
e-mail: shiyandv2017@gmail.com, ORCID ID: https://orcid.org/0000-0003-4338-3702
[1]Kryvyi Rih State Pedagogical University, Gagarin av. 54, Kryvyi Rih, 50086, Ukraine
***Tetiana Kazakova*[1]**
Assistant of the Department of Physical Geography, Local History and Tourism
e-mail: tkazakova1810@gmail.com, ORCID ID: https://orcid.org/0000-0002-0411-270X
Sergii Sonko
DSc (Geography), Professor, Head of the Department of Ecology and Life Safety
e-mail: sp.sonko@gmail.com, ORCID ID: https://orcid.org/0000-0002-7080-9564
Uman National University of Horticulture, Instytutska str., Uman, Cherkasy region, 20305, Ukraine

SPATIAL ORGANIZATION OF TOURIST ATTRACTION NETWORK OF KRYVORIZHZHIA

Technogenic tourism, as a relatively young trend in tourism, begins to play a significant role in Kryvbas, one of the oldest industrial regions in Ukraine. It has preserved the industrial heritage of the previous industrial and technological structure. Considering the considerable length and the total area of Kryvbas, classical methods of spatial research, in particular, the model of spatial optimization of access areas of Thiessen-Voronoi, can be effectively applied to studying, in particular, its tourist resources.

In our case, 48 points that correspond to certain tourist attractions form a network with different levels of transport access. The basis was the digital map of Kryvbas, made in MapInfoProf environment in previous author's works. Next, with the special option of MapInfoProf, Voronoi polygons were developed which became the tool for further spatial analysis. Actually, the results of such analysis allowed to clarify the recreational and technogenic zoning of Kryvbas, as well as to study main laws of spatial organization of tourist attraction network of the region.

Peculiarities of the modern spatial organization of tourist attraction network of Kryvorizhzhia encourage the conclusion on the presence of two major regions of the development of technogenic tourism within Kryvyi Rig. The first region is more developed Central-Southern with higher density and smaller average area of Voronoi polygons. The second one is the Northern with smaller number and larger average area of Voronoi polygons, as well as one that is more promising for the development of technogenic tourism. The results of the study will be useful in planning routes for tourist logistics.

Keywords: tourist, technogenic, route, logistics, polygon, Voronoi, zoning.

Дарья Шиян, Тетяна Казакова, Сергій Сонько. ПРОСТОРОВА ОРГАНІЗАЦІЯ МЕРЕЖІ ТУРИСТИЧНИХ ОБ'ЄКТІВ КРИВОРІЖЖЯ

До сьогодні туристичні об'єкти Криворіжжя досліджувались багатьма географами, але переважно у туризмознавчому аспекті. Зважаючи на доволі значну площу і оригінальну конфігурацію Кривбасу як старопромислового регіону виникає проблема формування мережі туристичних об'єктів, а, відтак, дослідження її просторової організації. Для цього в роботі вперше застосовані такі методи просторового аналізу як полігони Вороного. Результати такого аналізу дозволили уточнити рекреаціно-техногенне районування Кривбасу, а також дослідити головні закономірності просторової організації мережі туристичних об'єктів регіону. Результати дослідження будуть корисними при плануванні маршрутів в межах туристичної логістики.

Ключові слова: туристичний, техногенний, маршрут, логістика, полігон, Вороной, районування.

Дарья Шиян, Татьяна Казакова, Сергей Сонько. ПРОСТРАНСТВЕННАЯ ОРГАНИЗАЦИЯ СЕТИ ТУРИСТИЧЕСКИХ ОБЪЕКТОВ КРИВОРОЖЬЯ

До сегодняшнего дня туристические объекты Криворожья исследовались многими географами, но преимущественно в туризмоведческом аспекте. Учитывая довольно большую площадь и оригинальную конфигурацию Кривбасса как старопромышленного региона, возникает проблема формирования сети туристических объектов, и, таким образом, исследования ее пространственной организации. Для этого в работе впервые использован такой метод пространственного анализа как полигоны Вороного. Результаты этого анализа позволили уточнить рекреационно-техногенное районирование Кривбасса, а также исследовать главные закономерности пространственной организации сети туристических объектов региона. Результаты исследования будут полезными при планировании маршрутов при осуществлении туристической логистики.

Ключевые слова: туристический, техногенный, маршрут, логистика, полигон, Вороной, районирование.

 DOI: 10.26565/2076-1333-2018-24-06

Problem statement. The spatial organization of the Ukrainian economy has unique features, due to the complicated history of the development of the domestic economy. It is noteworthy that branches of modern specialization (in particular, export one) which were formed at the end of the 19th century and today define the face of our state in the international geographical division of labor. Thus, the coal and metallurgical complex of Donbas and Prydniprovia forms about 40% of the Ukrainian exports [3] and these regions have been supporting such specialization for more than a century. At the same time, with the development of the market economy, opening borders after the collapse of the former great state, the Ukrainian economy gradually diversified, in particular due to the development of branches of manufacturing industry, services, small and medium businesses and tourism. Spaciously "overlapped" old traditional industries, these new ones create unique combinations of mines and kindergartens, waste hens and hospitals, dumps and recreation areas. In some 10-15 years, in our eyes, these new industries, aimed at maintaining the viability of our cities, are increasingly gaining in living space. How harmonious these combinations can be is a complicated and little studied issue. The authors have repeatedly studied these issues in their previous publications [10, 19].

Review of recent publications. Although industrial heritage tourism (or industrial tourism) is not a new phenomenon, it has acquired increasing importance as part of the cultural offering presented by a growing number of destinations. In fact, it can be a source of profitable differentiation for them, taking advantage of particular past and present industrial resources to generate potentially distinctive and memorable experiences [23, 25].

There are some works deal with a problem, accentually for old industry regions [6, 16].

Industrial or technological tourism is designed to "revive" the regions of old industrial development. In particular, giant industrial facilities in mining and industrial regions can cause significant interest to tourists with individual needs [2, 22, 24, 26, 27].

Among domestic scientists, the issue of tourism development both on the basis of natural and man-made landscapes is insufficiently studied [12, 13]. As for the use of tourism in the industrial heritage, such works belong mainly to the authors [6].

Another aspect of the novelty of our study is the use of GIS technologies (spatial analysis) and any other types of modeling for tourism research. The following works can be found [1, 4, 15].

Despite its industrial functions, Kryvyi Rig has become a powerful branch of production and consumption of services and consumer goods from the traditional mining and metallurgical center that is quite natural for the market economy. In our eyes and with our participation, the widespread development of market relations gradually reformatted the effect of factors of placing the economy in the direction of the predominance of consumer factor [20]. Achievements of the old production and technological structure are of interest to tourists today that is reflected in activities of local authorities [14]. Despite the results of previous studies of tourist resources of Kryvbas, the problem of their territorial organization and, moreover, the use optimization is not studied enough and, therefore, requires study. Moreover, the logistics of tourist services are gradually becoming more important [18].

Considering the considerable length and the total area of Kryvbas, classical methods of spatial research, in particular, the model of spatial optimization of access areas of Thiessen-Voronoi, can be effectively applied to studying, in particular, its tourist resources. The main aspect of the novelty of our research is almost complete lack of scientific works on the logistics of tourist services in the old industrial regions where technogenic tourism is actively developing [8]. The main assumption (hypothesis) of our study is the possibility of logistic optimization of tourist flows specified on separate recreational and man-made subareas of Kryvbas (Fig. 1).

Statement of basic materials. The development of tourism industry occurs in the presence of certain resources. Each type of tourism must have its own resource base. Therefore, the analysis and assessment of resourcefulness of the territory for the development of a particular type of tourism is to determine: 1) tourism content; 2) corresponding natural and social objects to the content; 3) territorial structure of natural objects of tourism – regional approach; 4) object and subject of assessment; 5) criteria and indicators of assessment; 6) methods of evaluation using point scales. Provision with resources for the development of technogenic tourism has already been investigated including appropriate zoning [7].

It must be agreed with Denisik G.I., who notes that Krivbass is the most unique region in terms of the recruitment and territorial structure of industrial anthropogenic landscapes [5]. Indeed, a relatively small area of Kryvorizhzhya (4.1 thousand km²) formed the most diverse groups of anthropogenic landscapes. The region is a contemporary landscape unique – here almost all known varieties of industrial landscapes of Ukraine are spatially united. It is estimated that within the limits of the city of Kryviy Rih, which is the residential and industrial core of the region, the most widespread are residential (34.1%), industrial (31.9%) and transport (15.0%) anthropogenic landscapes.

Anthropogenic landscapes of Kryvbass are investigated from the 1960's. To date, the classification of anthropogenic landscapes has been developed, their zoning and compilation maps have been carried out. For the purposes of development of technogenic tourism the classification of industrial landscapes of Kryvbas is of greatest importance. So Kryvbas owns all the most attractive industrial landscapes on the territory of Ukraine.

Kryvyi Rih recreational and technogenic subdistrict is characterized by the most complete combination of industrial landscapes of all kinds. The city of Kryvy Rih is provided with a developed hotel industry, several travel agencies and agencies, a transport system of local, domestic and international level (airport Lozovatka). In the estimation of the regional assessment of resource-based technogenic tourism, the heterogeneity of the provision of specific objects of the Kryvy Rih recreational

and man-made micro-districts is determined. Each of the microdistricts is characterized by the presence of: 1) significant areas of mining and industrial landscapes (quarries, dumps, sludge, mine failures); 2) interesting in terms of production technology (ore dressing, iron ore extraction and granite, pig iron, steel, heavy machinery production, etc.); 3) territorial integrity - the compactness of the placement of individual industrial enterprises; 4) raw material homogeneity of production facilities.

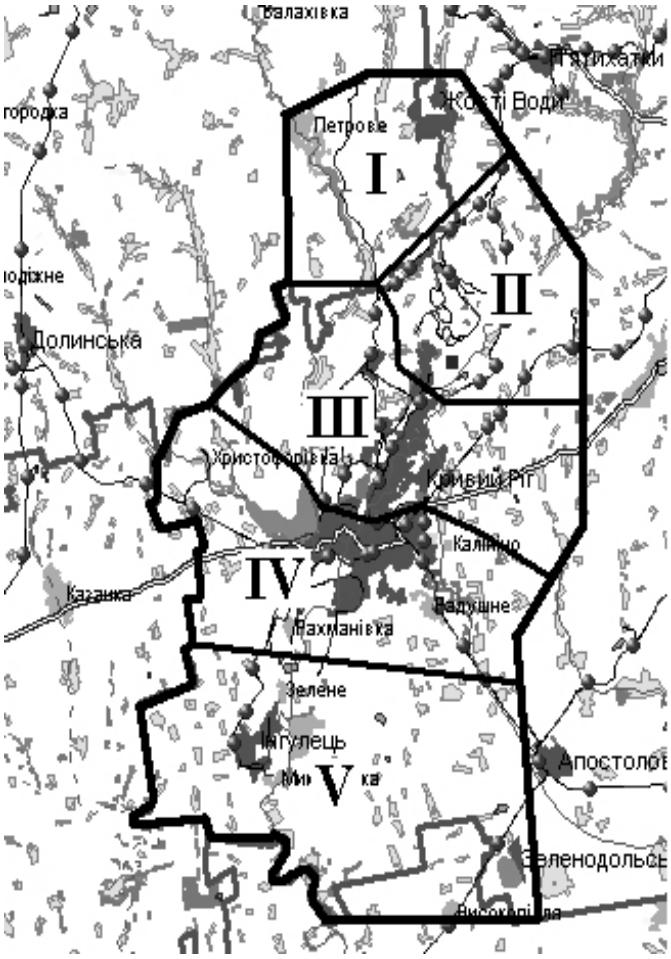


Fig. 1. Recreational and technogenic zoning of Kryvbas (Kazakova, 2006). Recreational and technogenic sub-regions: I. Petrovsky; II.North; III.Central; IV.South; V.Inguletsky

Territorial heterogeneity of the structure of locating production facilities and associated industrial anthropogenic landscapes made it possible to divide Kryvyi Rig sub district into 5 micro districts (Fig. 1).

Petrovsky RT sub-regions. Somewhat distant from the city of Krivoy Rog. It is located predominantly in the Petrovsky district of Kirovograd region, where open-source deposits of magnetite quartzite are being developed and, therefore, a young mining and quarrying complex of Central Mining and Processing Plant is being developed near the village Petrovo. The complex is represented by two quarries: quarry No. 3 (Petrovsky deposit, developed since 1977), quarry number 4 (Artemivske deposit) is located near the village Yesipivka Petrivsky district. The development of this facility began in January 1985.

It is expedient, from the point of view of the territorial compactness, to include the industrial center of Zhovti Vody, where the main production is also metallurgical, in the sub-regions. Historical and industrial interest are the old pre-revolutionary surface developments of iron ores in the area with Gannivka, where until 1917 worked Zhovtorichinsky mines. An extremely interesting target for TT is the Eastern Mining and Processing Plant, which is Europe's largest producer of natural uranium. The production of sulfuric acid, both technical and improved, is also interesting for the Eastern GOK. The plant is the largest producer in Ukraine.

Northern RT sub-regions. In its composition Northern Iron Ore Mining Company is one of the largest mining companies in Europe. The main types of technological activities are the extraction and enrichment of magnetite iron ores, the production of lignite and iron ore concentrate. The main objects are Ternivske and Ganivske ore managements (2 large quarries up to 365 m deep, several significant dumps with an area of over 1000 hectares each), crushing and concentrating factories number 1 and number 2, shops for the production of niches № 1 and № 2, a mining and transport workshop with a fleet of large-tonnage cars (100-120 tons), a slag

economy workshop with a huge gutter size of over 1000 hectares.

Also located on the territory of the sub-regions are: a closed underground mine (Pershotravnevyi), an operating mine of the Kryvorizh Iron Ore Plant with dumps, modernized operating mine Central GOK (age 70), working Kolomoyevsky granite quarry with a dump, failing mine shafts of mines them, old pre-revolutionary and pre-war iron ore quarries.

Central RT sub-regions. The main resource base is represented by mining and metallurgical enterprises, the leading of which is Central GOK with its structural subdivisions. There are 2 iron-ore quarries with numerous dumps. Quarry No. 1 (depth 300 m, length 4,1 km) is the main supplier of crude ore for processing and enrichment at the plant. The history of the career began in 1957 when the first cubic meters of the mountain mass were lifted. Quarry No. 2 is preserved and is now covered with open-pit rock quarry No. 1, since it was intended for the extraction of oxidized quartzites, the enrichment of which today has become unprofitable. Shlama Storage - one of the largest in Kryvbass. The "tailings" (recycling wastes) of the enrichment of iron quartzites are transported here. Its size reaches 1793 hectares. In order to prevent leakage of highly mineralized water to underground waters and the river Ingulets, a drainage system unique in its size is constructed at 16.3 km (with 9 drainage pumping stations). Also, the structural units of mineral processing of CGOK are characterized by high attractiveness: crushing, concentrating (iron ore concentrate with iron content is 67% - the highest indicator among the Krivbass and Ukraine's GOK) and the planting of the factory.

In addition to the man-made objects of the CGOK in the territory of the Central RT of the sub-regions, there are working mines of the CJSC – them. R. Luxemburg with a failure zone and old mining, “Zhovtneva”, them. “Bolshevik” with dumps and pre-revolutionary promotional objects, “Rodina” with a failure zone and an old quarry (from 1886). The mine “Sukhaya Balka” is represented by the existing mines “Jubileinaya” and them. “Frunze” with faulty zones and dumps. Within the microregion of the existing “Artem-1” mine, OJSC "Mittal Steel Kryviy Rih" has a working mine of “Artem-1” with failure and mooring zones and its own iron ore quarry and a closed mine. A separate place is the closed “October” granite quarry with dumps and lakes, which formed from underground and atmospheric waters and used by the population in rest.

Among the enterprises of other complexes, the following may be of particular interest to tehnogenyqe tourism (TT): 1) Kryvy Rih Central Mining Equipment Mining Plant – is engaged in the production of parts and assemblies of quarry excavators, crushing plants, ore grinders, conveyors, slurry pumps, agglomeration equipment and other mining equipment; 2) Kryvy Rih silicate plant, which manufactures bricks, ceramic tiles, concrete products, wall blocks, concrete pavement slabs; 3) "Polstar" and Open Society "Krivorozhskij sewing factory" “Start" - enterprises of light industry, producing clothes of wide assortment; 4) "Kryvorizhlib" (products - bread products, cakes); "Kryvorizhskiy combine of bread products" - the main producer and supplier of flour to bread enterprises of Kryvorizhya; 5) Joint-Stock Company Electrozavod for the production of the complex distribution device KRUV-6B, electrical equipment for mines, electric appliances of a wide range, electric furnaces for baking bread, etc.; 6) Diesel Plant - produces a crane and performs major overhaul of heavy-duty vehicles for the GOK; 7) Joint-stock company «Veretennowoolly-ward factory» - the enterprise of light industry which makes yarn from synthetic fibers.

Southern RT sub-regions is characterized equally both in mining and in factory landscapes. One of the most powerful mining and metallurgical combines of Europe "Mittal Steel Kryviy Rih" with coking plant and iron-ore “Novokryvorizh GOK” is the district-forming enterprise. This is a unique enterprise with a full metallurgical cycle. The plant was founded since 1934. The main products of the plant now are reinforcing rolled steel wire rolled wire, as well as related products - gaseous and liquid nitrogen, gaseous argon, benzene, gaseous and liquid oxygen, coke, neon-helium mixtures, ammonium sulfate, blast furnace slag. The structural subdivisions of the plant are blast furnace and coke production, rolling production, sludge management, etc.

Novokryvorizh mining and concentrating complex "Mittal Steel Kryviy Rih" production - agglomerate and iron ore concentrate. Interest for TT is typical of the mining and metallurgical combines structural units: 1) 3 quarries (No. 1 – closed, № 2 and № 3 – are being developed) and dumps of ore management; 2) slime economy with 2 hydrotransitions – “Mirolyubivsky” and “United”; 3) crushing and concentrating factories. Closed RU “Dzerzhinsky” with several mines (“Saksagan”, “Giant-Deep”) and a deep quarry, own enrichment factory and a small drainage.

"Southern Mining and Processing Plant". Has specialization in extraction and enrichment of ferruginous magnetite quartzites of the “Skeletavsky” deposit with the production of iron ore concentrate and blast furnace sinter. In the structure of the plant there are several interesting objects for TT: 1) mining management in the quarry-giant (310 m deep and 3 km in diameter) several tall dumps 2) Mining and transport shop with automobile and railroad delivery of ore and rocks (length of tracks at the plant is truly an invaluable figure - 352 km); 3) slag economy with 3 large storages – “Voykivsky”, “Hrusovatsky” and “United” (total area 603 ha and the length of the pulp conduits for the provision of sludge more than 60 km); 4) crushing and concentrating complex with 2 crushing and 2 concentrating factories. The concomitant products on the South GOK are sand from the dumping crushing rock, crushed stone.

A number of prerevolutionary mines, from which the remains of mining, 100-year-old quarries and dumps.

For TT to machine-building enterprises, three plants are best suited. The first – “Kryvy Rih turbine plant Konstar” - is engaged in the production of gas turbine equipment and drive gas turbine engines. "Kryvorizhgirmash" is an enterprise producing mining equipment – drilling and auxiliary machinery for mining, as well as equipment for the tunneling of drilling bitumen. The range of products of the plant includes: drilling machines, drilling equipment, underground equipment for drilling in mines, perforators, machines for loading

and moving mountain mass, bucket mine loader, trolleys and pushers, piston pneumatic motors, and others. The third one is “KryvorizNDPI Research Institute”. On it you can get acquainted with the production of equipment and spare parts for the mining and processing complex, foundry casting, the production of metal constructions of any complexity, the production of conveyors and screens, the development of combines for rock breeding, etc.

The construction branch of the Southern RT sub-region is represented by the most powerful in its field of the state enterprise "Kryvyi Rih Cement". Created in 1951. It is the only enterprise in Ukraine that uses the Japanese dry method of cement production. The plant produces high-grade cement, portland cement, sulfate-resistant slag-portland cement.

Other enterprises: 1) «Krivorozhsky smirnyky plant» production of dry earth pigments - iron meric, mummy, hollow, talc; paint and varnish products - oil paints, liquid ruby rubbers, enamels, soils, water-dispersion paints, bituminous varnishes; 2) enterprises of the footwear industry of light industry - Ukrainian-Polish LLC "Mikels-Ukraine" and subsidiary company "Rainford" LLC "Yunist" for the production of special footwear, model men's and women's shoes; 3) OJSC Krivoy Rog Bakery No. 1 with baking bread, biscuits, confectionery.

Separately from the city is the “Khristoforovsky plant” of refractory blocks and concrete - near the city of Kryviy Rih in the same name Krivoy Rog district of Dnipropetrovsk region.

Ingulets RT sub-region is characterized by predominance of mining and metallurgical objects. The main district-forming enterprise is Inguletsky GOK: a large (350 m deep) quarry with a capacity of 70 million tons / year, 3 complex large waste, 3 concentrating factories for the production of iron ore concentrate (63.9% iron content), crushing a factory with 4 stages of crushing and a huge tailing pond in the valley of Ingulets. Former RU Ingulets is represented by a failure zone, old prerevolutionary mines, closed by small quarries with accompanying dumps ("Visnyk"). In Ingultsi, a joint Ukrainian-French food industry enterprise "Nadezhda" is interested in the production of baking yeast.

The sub-region includes Kryvorizskaya power station in Zelenodolsk (Apostolic district of the Dnipropetrovsk region), as this enterprise produces electric current and provides it to the city of Kryviy Rih. The inclusion of the “KRTES” diversifies the resource base for TT tours in the neighborhood and in the Kryvyi Rig region in the subarea as a whole. Also, in Zelenodolsk, for TT can be attracted to "Plant Continent", which is engaged in the production of galvanized wire.

Table 1

List of tourist attractions in Kryvorizhzhia *[29]*

№	Attraction name	№	Attraction name	№	Attraction name
1	Botanical Garden	17	Orthodox-Pokrovsky Monastery	33	Catholic temple “Assumption of the Blessed Virgin Mary”
2	Museum of Mining Techniques	18	Museum of Military and Labor Glory “Rodina Mine”	34	Monument to “Muse of Creativity”
3	Petliakova Square the center of the old town of Terny	19	Geological Sight of Nature “Amphibolites”	35	Museum of Southern Enrichment Plant
4	Ternov Museum of Local Lore	20	Memorial “Memory Clock”	36	Karachuniv granite quarry
5	Former railway bridge of Chervona flat-bottom valley	21	Holy Transfiguration Cathedral	37	Geological Sight “Rocks МОДРу”
6	Memorable sign-stele for heroes “Underground workers”	22	Geological Sight of Nature “Slate Rocks”	38	Boat station
7	Train station Rokuvata	23	95 kvartal of Kryvyi Rig	39	Park named after F. Mershavtsev
8	Musical fountain	24	Monument to liberators of Kryvyi Rig	40	Geological Park in the open air
9	Monument to the dead miners	25	Monument to Cossack Rig	41	Monument to St. Nicholas the Wonderworker
10	Management of PJSC “ЦГЗК”	26	St. George bell tower	42	Kryvyi Rig Museum of Local Lore
11	Orthodox St. Volodymyr’s Monastery	27	Flower clock	43	Theater of Drama and Muses of Comedy named after T.G. Shevchenko
12	Theater “Academy of Movement”	28	3D video gallery of Kryvyi Rig Museum of Local Lore	44	Sculpture “Friend”
13	Kryvyi Rig School of Seafarers	29	Kryvyi Rig State Circus	45	Memorial sign to the victims of the Holodomor
14	Monument to Afghan Warriors	30	Museum of Metallurgical Combine of PJSC “ArcelorMittal Kryvyi Rig”	46	Kryvyi Rig Synagogue
15	Memorable sign for defenders of Kresiv dam	31	Building of the station “Kryvyi Rig-Golovny”	46	Geological Museum КТУ
16	Dam of Kresiv Reservoir	32	Monument “Railway Train”	48	First Urban Botanical Garden

Since the time of this zoning, certain changes have occurred in the concept of technogenic tourism, as well as in practical approaches to the use of tourist resources of the region. In particular, activating tourist flows in Kryvbas, as well as increasing curiosity of local residents to visit local attractions, encouraged tour operators to saturate tourist routes not only with traditional objects of industrial heritage (quarries, dumps, sludge dumps, mines, steel making enterprises, pipes, mechanical engineering products, etc.) but also those that have the historical and cultural importance.

In particular, today, in Kryvyi Rig there are 48 tourist attractions that are actively involved in tourism (Table 1). Given the rather significant list of attractions and a significant area of the entire region in Table 1, there is a need to take into account the spatial heterogeneity of the network of tourist attractions. First of all, this is necessary to optimize the planning of various tours.

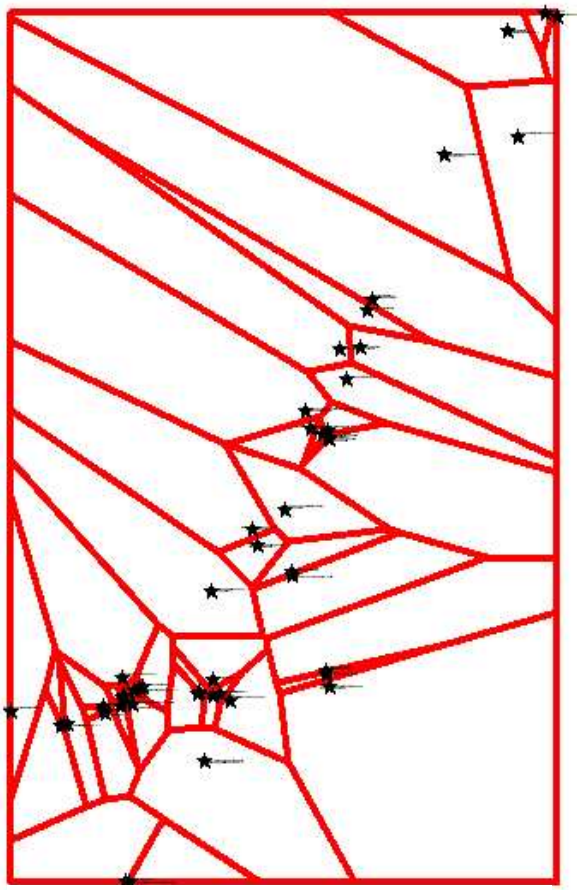


Fig. 2. General scheme of Voronoi polygons throughout the city of Kryvyi Rih

Fig. 3. Fragment of the scheme of Voronoi polygons in inner-city areas with the highest density of tourist attractions

Methodological approaches to such optimization may include both traditional methods for systematizing information, in particular, databases and the latest ones, such as geographic information systems. Traditional methods, such as creation of geographic databases of environmental tourism objects, have already been used by authors in previous publications [9, 21].

In general, tourist logistics of large spaces always requires some optimization, which in the list of possibilities of modern GIS is embodied in the tools of the spatial analysis. Among them, we chose Voronoi polygons which represent the areas formed on a given set of points in such way that the distance from any point to the given point is less than to any other point of the whole set. The construction of Voronoi polygons takes place in such way that each area contains only one point. Boundaries of Voronoi polygons are the segments of perpendiculars set up to the sides of triangle sides in the Delaunay triangulation which can be constructed with respect to the same point set. Voronoi polygons option in MapInfoProf GIS allows you to build such polygons from the specified list of points. At the same time, points and polygons can be located on both the same and on different layers. According to the authors of MapInfoProf software, this operation may be useful in cases where it is necessary to show areas of impact around service centers with the help of polygons. As a result, the researcher gets areas that are as close as possible to the point of interest. In this case, Voronoi polygons can be created on the original layer or to choose points on one layer and received Voronoi polygons placed on the other.

In our case, 48 points that correspond to certain tourist attractions form a network with different levels of transport access. The basis is the digital map of Kryvbas

done in MapInfoProf [17] and contains 8 main layers of the topographic basis. Then, fields of the database are created in the new layer corresponding to the list and names of individual tourist attractions. After choosing all attractions within the layer, Voronoi polygons were constructed on their basis with the special option MapInfoProf (Fig. 2, 3).

Conclusions. Old-industrial regions of Ukraine, such as Kryvbas, are at the stage of rebirth. But unlike Donbass, it takes place in a peaceful evolutionary way. With the exception of the industrial powerful logistic and cultural and tourist potential, modern Kryvbas can become an attractive region for the development of modern types of tourism.

1. Given the large area and length of the region to analyze its tourist potential, classical methods of spatial analysis such as zoning and optimization, such as the construction of Tissen-Voronoi landfills, can be effectively applied. These methods were implemented in GIS MapInfoProf.

2. The combined analysis of created layers in MapInfoProf and zoning schemes (Fig.1) made it possible to state the following:

- The largest spatial density of tourist attractions (22 out of 48) is observed in the Central (III) and Southern (IU) recreational and man-made sub districts. Thus, in the list of objects only 4 (Geological Sight "Rocks MODRu", Karachuniv granite quarry, Geological Sight of Nature "Amphibolites" and Geological Sight of Nature "Slate Rocks") are conditionally technogenic tourist attractions. The rest (the overwhelming majority) is historical-cultural, architectural and sacred heritage.

- In the same (III and IV) tourist technogenic sub districts the lowest values (in km) of relations between the center and periphery of certain Voronoi polygons are observed which is explained by the density of residential buildings in the city and the largest density of roads (Fig. 3). Given that most of the hotel facilities are concentrated in the central districts of the city; this gives significant advantages to tour operators when organizing budget radial tours for short distances.

- Due to the relative "lack of capacity" for tourist attractions of the areas of I, II and V sub districts such as those where potential technogenic tourism attractions are located (ditches, quarries, mines, sludge and dumps) their territory requires more active tourist development. Regarding tourism logistics, these remote sub districts will require the organization of more "specialized" tours for motivated tourists.

3. Peculiarities of the modern spatial organization of the network of tourist attractions in Kryvorizhzhia, studied in our work, lead to the conclusion that there are two major regions of the development of technogenic tourism within the city of Kryvyi Rig. The first region is more developed Central-Southern with higher density and smaller average area of Voronoi polygons (in IV and V recreational and technogenic sub districts). The second one is the Northern with smaller number and larger average area of Voronoi polygons, as well as one that is more promising for the development of technogenic tourism (in I, II and III recreational and technogenic sub districts).

Application in spatial studies of the network of tourist attractions the method of Thiessen-Voronoi polygons can be useful for establishing general patterns of their spatial organization and, hence, for optimizing tourist flows of logistics.

References:

1. Aleksandrova, A.Y. (2016). Typology of countries of the world according to the development level of international tourism. *Geography and Natural Resources*. 37(1), 18-25. doi: https://doi.org/10.1134/S1875372816010030 [in English].
2. Brown, I.J. (1989). Mining and Tourism in Southern Australia. Industrial Archaeology Review, 12(6), 55-66 [in English].
3. Burakovskyi, I. Ukrainskyi eksport: pidsumky 2016 roku ta pohlyad v maybutnie [Ukrainian exports: the results of 2016 and a vision to the future]. Retrieved from http://www.ier.com.ua/ua/publications/articles?pid=5503 [in Ukrainian].
4. Christaller, W. (1964). Some considerations of tourism location in Europe: The peripheral regions-under-developed countries-recreation areas. *Papers of the Regional Science Association*, 12, 95. doi: https://doi.org/10.1007/BF01941243 [in English].
5. Denysyk G.I. (2005). Kryvbas – unikalnyi poligon dlya vyvchennya promyslovykh landshaftiv Ukrainy [Kryvbas is a unique testing ground for industrial landscapes in Ukraine]. *Teoretychni, regionalni, prykladni napryamy rozvytku antropogennoi geografii ta landshaftoznavstva. II mizhnar. nauk. konf.*, 89-91 [in Ukrainian].
6. Joly, N. (2003). Creating a New Image for an Old Industrial Region. An Analysis of Touristic Iconography in the Ruhr Area, Erde, 134(1), 23-41 [in English].
7. Kazakova, T.A. (2006). Raionuvannia terytorii Prydniprovia dlia tekhnohennoho turyzmu [The zoning of the SubDnipro territory for technogenic tourism]. *Ekologiya i ratsionalne pryrodokorystuvannia: Zbirnyk nauk. prats Sumskoho derzh. peduniversytetu im. A.S. Makarenka*, 230-237 [in Ukrainian].
8. Kazakov, V.L. (2013). Orhanizatsiya industrialnoho turyzmu: systemnyi pidkhid [Organization of industrial tourism: a systematic approach]. *Materialy I Mizhnarodnoho naukovo-praktychnoho forumu.* Kryvyi Rih: Vyd. R.A. Kozlov, 17-21 [in Ukrainian].
9. Kazakova, T.A., Shiyan, D.V. (2015). Vykorystannya mozhlyvostei suchasnykh geoinformatsiinykh tekhnolohiy v rozvytku ekoturyzmu v Dnipropetrovskiy oblasti [Using the possibilities of modern geoinformation technologies in the development of ecotourism in the Dnipropetrovsk region]. *Region-2015: stratehiia optymalnoho rozvytku. Mater. Mizhnar. nauk.- prakt. konf.* Kharkiv: KhNU imeni V.N. Karazina, 95-97 [in Ukrainian].

10. Kazakova, T.A., Sonko, S.P. (2015). Postindustrialni tendentsii formuvannya terytorialnoi struktury staropromyslovoho regionu Kryvbasu (na prykladi rozvytku tekhnohennoho turyzmu) [Postindustrial trends in the formation of the territorial structure of the old industrial region of Kryvbas (on the example of the development of technogenic tourism)]. *Materialy Vseukrainskoi naukovo-praktychnoi internet-konferentsii «Stratehichni perspektyvy turystychnoi ta hotelno-restorannoi industrii v Ukraini: teoriia, praktyka ta innovatsii rozvytku»*. «VPTs Vizavi, m. Uman», 23-25 [in Ukrainian].
11. Keum, K. (2010). Tourism flows and trade theory: a panel data analysis with the gravity model. *The Annals of Regional Science*, 44(3), 541-557. doi: https://doi.org/10.1007/s00168-008-0275-2 [in English].
12. Kiptenko, V., Lyubitseva, O., Malska, M., Rutynskyi, M., Zanko, Y., Zinko, J. (2017). Geography of Tourism of Ukraine. In: Widawski K., Wyrzykowski J. (eds). The Geography of Tourism of Central and Eastern European Countries. Springer, Cham. doi: https://doi.org/10.1007/978-3-319-42205-3_13 [in English].
13. Pirozhnik, I. (2017) Geography of Tourism of the Republic of Belarus. In: Widawski K., Wyrzykowski J. (eds) The Geography of Tourism of Central and Eastern European Countries. Springer, Cham, 19-77. doi: https://doi.org/10.1007/978-3-319-42205-3_2 [in English].
14. Prohrama rozvytku promyslovoho turyzmu v Ukraini na 2013-2015 roky: Rishennya Kryvorizkoi miskoi rady vid 30.01.2013 № 1680 [Program of development of industrial tourism in Ukraine for 2013-2015: Decision of Krivoy Rog City Council dated January 30, 2013 № 1680]. Retrieved from http://irm.kr.ua/uk/projects/promislovij-industrialnij-turizm/176 [in Ukrainian].
15. Prueksakorn, K., Gonzalez, J.C., Keson, J. et al. (2018). A GIS-based tool to estimate carbon stock related to changes in land use due to tourism in Phuket Island, Thailand. *Clean Techn Environ Policy*, 20, 561. doi: https://doi.org/10.1007/s10098-017-1455-5 [in English].
16. Rudd, M.A., Davis, J.A. (1998). Industrial Heritage Tourism at the Bingham Canyon Copper Mine. *Journal of Travel Research*, 36(3), 85-89 [in English].
17. Shyian, D.V. (2011). Doslidzhennya zakhvoriuvanosti naselennya staropromyslovoho regionu za dopomohoyu GIS (na prykladi Kryvbasu) [Investigation of the morbidity of the population of the old-industrial region with the help of GIS (for example, Kryvbas)]. *Geografiya ta turyzm: Nauk. zb.* /Red. kol.: Ya.B. Oliynyk (vidp. red.) ta in. K.: Alterpres, Vyp. 16, 207-217 [in Ukrainian].
18. Smyrnov, I.H. (2009). Lohistyka turyzmu. Navchalnyi posibnyk [Logistics tourism]. K.: Znannia, 444 [in Ukrainian].
19. Sonko, S.P., Kazakova, T.A., Shyian, D.V. (2017). Staropromyshlennyi region Krivbassa v usloviyakh postindustrialnoi ekonomiki: ternistyi put ot geologii k tehnogennomu turizmu [Old-industrial region of Kryvbas in the post-industrial economy: a thorny path from geology to technogenic tourism]. *Geograficheskie aspekty ustoichivogo razvitiia regionov. II mezhdunarodnaia nauchno-prakticheskaia konferentsiia* (Gomel, 23-24 marta 2017 g.). Gomel: GGU im. F. Skoriny, 197-202 [in Russian].
20. Sonko, S.P. (2004). Suchasni metodolohichni novatsii v kontseptsii enerho-vyrobnychykh tsykliv [Modern methodological innovations in the concept of energy-production cycles]. *Naukovi zapysky Vinnytskoho derzhavnoho pedahohichnoho universytetu im. M. Kotsiubynskoho. Seriia: Geografia*, 7, 134-140 [in Ukrainian].
21. Sonko, S.P. (2015). Vykorystannya geoinformatsiinykh tekhnolohiy v orhanizatsii ekolohichnoho turyzmu (na prykladi obiektiv PZF Cherkaskoi oblasti) [Use of GIS in ecotourism organization (for example, protected areas Cherkasy region)]. *Teoriia, praktyka ta innovatsii rozvytku turystychnoi ta hotelno-restorannoi industrii. Materialy Mizhnarodnoi naukovo-praktychnoi konferentsii 28-29 travnia 2015 r.* Uman: Vyd., polihr. tsentr «Vizavi», 127-132 [in Ukrainian].
22. Summerby-Murray, R. (2002). Interpreting De-Industriaiised Landscapes of Atlantic Canada: Memory and Industrial Heritage in Sackville, New Brunswick. *Canadian Geographer-Geographe Canadien*, 46(1), 48-62 [in English].
23. Vargas-Sánchez, A. (2015). Industrial Heritage and Tourism: A Review of the Literature. In: Waterton E., Watson S. (eds). *The Palgrave Handbook of Contemporary Heritage Research*. Palgrave Macmillan, London, 219-233. doi: https://doi.org/10.1057/9781137293565_14 [in English].
24. Vargas-Sánchez, A., Plaza-Mejía, M.A., Porras-Bueno, N. (2009). Understanding Residents` Attitudes toward the Development of Industrial Tourism in a Former Mining Community. *Journal of Travel Research*, 47(3), 373-387 [in English].
25. Vishnevsky, V., Aleksandrov, I., Polovyan, A. Environ Dev Sustain (2011). Scenarios of the old industrial regions' development: selecting the methodology. *Environment, Development and Sustainability*, 13(1), 65-78. doi: https://doi.org/10.1007/s10668-010-9248-6.
26. Xie, P.F. (2006). Developing Industrial Heritage Tourism: A Case Study of the Proposed Jeep Museum in Toledo, Ohio. *Tourism Management*, 27(6), 1321-1330 [in English].
27. Zavialova, M.V., Skrynko, N.V. (2015). Industrialnyi turyzm: regionalnyi aspect [Industrial tourism: regional aspect]. *Efektyvna ekonomika*, 18-24 [in Ukrainian].
28. Kulturni symvoly nashoho mista [Cultural symbols of our city]. Retrieved from https://krmisto.gov.ua/ua/tour/detail/id/18.html#ox:407&oy:1627&oz:5& [in Ukrainian].

Надійшла до редколегії 19.03.2018 р.

UDC 911. 3

Galina Zavarika
PhD (Geography), Associate Professor of Department of International Economic and Tourism
e-mail: dgalina_10@ukr.net, ORCID ID: https://orcid.org/0000-0001-5601-9331
Volodymyr Dahl East Ukrainian National University, Donetska str., 43, Severodonetsk, 93406, Ukraine

TRANSFORMATION OF TOURISM OF THE EASTERN UKRAINE IN THE CONTEXT OF A CONFLICT

The impact of conflict on tourism has been analized in the paper. The purpose of the work is to identify the transformational changes in the state of tourism in the east of Ukraine as a result of the conflict. Analytical, deductive, statistical, systemic, comparative-geographic methods of research have been used to analyze the main indicators of tourism development. It has been proved that all types of tourism suffer from the conflict, and the total number of tourists was significantly reduced. The conflict has once set a promising direction for the economic development of the eastern regions of Ukraine on the brink of total disappearance. The necessity of studying the experience of eliminating the negative consequences of conflicts on the development of the tourism industry and developing a strategy for its further development in the Donetsk and Luhansk regions has been established. For the first time a comprehensive analysis of the status of Donbass tourism in different periods has been conducted, namely: on the eve of the conflict and during the conflict, which showed that staying Ukraine in a state of a conflict led to the emergence of new social and geographical peculiarities of tourism development in the east of Ukraine. It has been revealed that the conflict leads to instability in the development of tourism, tourists worrying about their safety refuse to visit a country or region. This inevitably leads to a decrease in the number of international tourist arrivals and revenues from tourism, a decrease in the number of tourist objects and collective accommodation facilities. It has been determined that the tourist attractiveness and image of the eastern region was almost lost as a result of the conflict. The main provisions, the actual material and conclusions of the article can be used for further research on the development of tourism in the Donbas and the creation of a concept for overcoming the negative consequences of the conflict in the period of 2014-2018 in Ukraine for the development of the national tourism industry.

Keywords: tourism, conflict, tourist flow, image, risk.

Галина Заваріка. ТРАНСФОРМАЦІЯ ТУРИЗМУ СХОДУ УКРАЇНИ В УМОВАХ КОНФЛІКТУ
В статті проведено аналіз стану туризму в Донецькій та Луганській областях напередодні та в період конфлікту. З'ясовано, що туризм зазнав значних негативних змін у своєму розвитку, відбулося значне зниження туристичних потоків у східних областях, зменшилася кількість туристичних об'єктів, колективних засобів розміщення. Визначено, що туристична привабливість та імідж регіону майже втрачено в результаті конфлікту. Виділено перелік основних негативних наслідків впливу конфлікту на туризм як на сході так і загалом в Україні

Ключові слова: туризм, конфлікт, туристичний потік, імідж, ризик.

Галина Заварика. ТРАНСФОРМАЦИЯ ТУРИЗМА ВОСТОКА УКРАИНЫ В УСЛОВИЯХ КОНФЛИКТА
В статье проведен анализ туризма в Донецкой и Луганской областях накануне и в период конфликта. Выяснено, что туризм претерпел значительные негативные изменения в своем развитии, произошло значительное снижение туристических потоков в восточных областях, уменьшилось количество туристических объектов, мест коллективного размещения. Определено, что туристическая привлекательность и имидж региона почти утрачены в результате конфликта. Выделено перечень основных негативных последствий влияния конфликта на туризм как на востоке так и в целом в Украине.

Ключевые слова: туризм, конфликт, туристический поток, имидж, риск.

Introduction. Not the last place among a large number of tourism problems is the conflict in the East of the country. It sows panic and does not help attract tourists.

The conflict has already caused Ukraine considerable social, demographic, environmental and economic problems that undoutly will be reflected in tourism, they have already led to a significant reduction in tourist flows not only in the eastern regions, but also throughout the country.

The annexation of the Crimea, events in the east and south of Ukraine today caused changes in the structure and volumes of external and internal tourism flows. The occupation of the Crimea led to the loss of about 30% of the recreational and tourist potential.

The problem is also the increased level of instability in a global scale, the terrorist threat to tourists, in particular in relatively stable economically developed countries, which could not even be thought of, predicted, become available today. Unfortunately, this global negative trend does not depart from Ukraine and our tourists who visit other countries.

Consideration of the main obstacles of tourism development is directly related to the domestic economic problems of country sustainable development. Indeed, for all the complexities and contradictions inherent in the conflict period, the country sustainable development must testify the viability of the idea, its conformity to national interests and priorities.

Research on the problems of tourism development was reflected in the works of V. Azar, O. Amosha, I. Balabanova, M. Birzhakova, D. Vedenina, A. Grischuk, V. Danilchuk, S. Demyanenko, V. Kifiak, M. Kruglov, A. Mazaraki, O. Macari, M. Malskoy, N. Podolchak, J. Poplavskoy, A. Terebukh, T. Tkachenko, V. Tsybukha, V. Fedorchenko, G. Harris,

 DOI: 10.26565/2076-1333-2018-24-07

A. Chudnovsky, L. Shulgina. However, the problems of tourism sustainable development were considered only occasional in the special literature, both foreign and domestic. These are the works of E. Bogdanov, D. Bowen, R. Braymer, S. Vanhill, D. Gilbert, L. Hryniv, M. Doleshnyi, A. Durovich, I. Zorin, M. Kabushkin, V. Quarterly, O. Kuzmin, K. Coopera, N. Raskina, V. Fedorchenko, D. Fletcher, V. Tsybukha and others.

Therefore, it is necessary to continue actively to develop research on this issue.

Great deals of works are devoted to the study of the theoretical foundations of conflict situations in the world and in Ukraine. It is important to bear in mind that this issue is extremely complex. The essence of this question is being investigated nowadays by different educators and scholars: Averin A., Aziz Kh., Baidyk O., Drakos K., Zavarika G., Zelenko O., Tkachuk L. and others. Most of the authors describe the aspects of the impact of conflict situations on tourism activities.

Thus, the Russian philosopher Averin A.N., developing an expertise in the area of state regulation of demographic and migration processes, implies that migration can be caused by political, economic, social, and spiritual processes. The author has focused on the reasons which include military, national, ethnic, religious conflicts, terrorism, environment and climatic factors [1].

As regards O. Beidyk‘s conclusions, who argues that the armed conflicts of various sizes and power always have a proportional “effect” on tourism development which reduces the image of the country, destroys the tourist infrastructure and leads to the destruction of the historical and natural heritage , they are not in doubt [2].

The author agrees with L. Tkachuk‘s opinion who believes that due to the growing political instability the tourism sector faces serious challenges and negative opinions of the situation in the country causes a decline in the tourist flow [13].

The tourist attraction of the region was noted by such scholars as Myshechkin G.V. and Anasova O.S. In particular, they indicate the possibilities of tourism development in Donetsk region. Moreover, they choose those objects that are potentially interesting for tourists and offer such directions of tourism development as industrial tourism, business tourism, ethno-tourism, pilgrimage [11].

However, the state of this issue in the regional aspect, namely in Lugansk and Donetsk regions is not sufficiently well developed [5, 6, 7].

By reason of the armed conflict we lack of new scientific works. It is worth paying attention to O.O. Zelenko‘s work on the prospects of Lugansk region tourism development in the conditions of military and political instability. The author draws implications that various types of tourism have the right to exist and stresses the necessity to develop tourism in the region, including farm holiday, medical, religious and industrial tourism [8].

Objectives hypothesis. Tourism in the eastern regions of Ukraine has only recently started to form. It was connected with the history of the region development. Historically, the industry has developed in this area and even the public opinion has been formed that tourism can not be developed in the east. But in the pre-conflict period in the eastern regions such tourism types as: rural, curative and health, religious, and industrial started to develop. The tourist industry in the Donbass region suffered the greatest blow after the start of hostilities in 2014. The military conflict has once put forward a promising direction of economic development of the eastern regions of Ukraine on the brink of total disappearance.

All of the above shows the need to study the experience of eliminating the negative effects of conflicts on tourism development, and to develop a strategy for its further development in the Donetsk and Luhansk regions. Consequently, in view of the foregoing, one can speak of the relevance of the topic of the study.

The purpose of the paper is to analyze the state of tourism of eastern Ukraine in the pre-conflict and conflict periods.

Methodology. The research methodology combines the empirical (observation, comparison) and theoretical (systematization and classification) methods of scientific knowledge. During the process of writing the article the historical method and the synthesis of the results also are used. Analytical, deductive, statistical, systemic, comparative-geographic methods of research have been used to analyze the main indicators of tourism development.

Results and discussion. The events of 2014-2018 in Donbass (Donetsk and Luhansk regions) caused the decline of local tourism, which, before the start of hostilities, came out of a crisis and gradually began to gain momentum.

About the gradual development of tourism in the Donetsk region one can find out from the statistical data provided by the central and regional authorities for the collection and processing of statistical data. The main indicators of tourism development in the Donetsk and Luhansk regionss in the pre-conflict period have been shown in tables 1-4.

As can be seen from the data presented, the conflict in the Donbass has not been the only reason for reducing the number of tourist flows in the region. Since 2011 there has been a gradual decline in the number of tourists visiting the Donetsk region.

The main reason for such a decrease is likely to be economic problems and a decline in the standard of living, which negatively affected the tourist visits of the Donetsk region. Even the fact that the capital of the Donetsk region in 2012 hosted key games of the European Football Championship did not save the situation.

The data presented in Table 2 shows that during the key period of the tourist infrastructure, in particular, such a key element as hotels has practically not developed. Moreover, there is a slight decrease in the number of collective accommodation facilities and visitors who stayed in them.

A little bid better in comparison with Donetsk, the main tourist indicators of Luhansk region look like.

Table 1

Tourist streams in the Donetsk region on the eve of the conflict [14]
(persons)

Years	Number of tourists served by subjects of tourist activity	Of the total number of tourists:			Number of excursionists
		foreign tourists	tourists-citizens of Ukraine who traveled abroad	domestic tourists	
2000	77675	1646	22116	53913	19898
2001	112912	1742	25443	85727	24314
2002	111783	3476	28569	79738	20079
2003	158909	5137	34018	119754	23587
2004	93739	1332	34346	58061	23190
2005	106534	1008	39880	65646	26357
2006	125568	1263	54585	69720	25520
2007	151924	1720	64507	85697	20469
2008	155869	3538	61760	90571	21979
2009	123073	3137	50211	69725	14831
2010	138833	3078	60497	75258	30852
2011	88461	1113	50486	36862	7084
2012	90928	1109	52942	36877	9459
2013	91011	1110	53214	36901	9501

Table 2

Collective placements in the Donetsk region. in 2011 – 2013 [9]

Years	Number of collective placement units, units			Number of seats, units			Number of people placed		
	Total	Including		Total	Including		Total	Including	
		hotels and similar accommodation facilities	specialized placement tools		hotels and similar accommodation facilities	specialized placement tools		hotels and similar accommodation facilities	specialized placement tools
2011	494	140	354	51033	6351	44682	410028	191548	218480
2012	483	135	348	51066	7577	43489	471705	238745	232960
2013	458	139	319	48859	7570	41289	454175	233969	220206

Table 3

Tourist streams in Lugansk region in 2000 – 2013 [14]
(persons)

Years	The number of tourists served by the subjects of tourist activity of Ukraine – total	Of the total number of tourists:			Number of excursionists
		foreign tourists	tourists-citizens of Ukraine who traveled abroad	domestic tourists	
2000	23710	476	1931	21303	9487
2001	28788	439	2852	25497	13342
2002	41335	515	3714	37106	23615
2003	42126	850	4655	36621	26215
2004	41662	603	5147	35912	28639
2005	48898	17	6913	41968	34889
2006	50881	162	10761	39958	30993
2007	59096	158	14088	44850	39984
2008	53279	126	15487	37666	21022
2009	44341	163	11584	32594	29940
2010	35880	162	13304	22414	20062
2011	15558	94	9284	6180	1854
2012	21981	120	12231	9630	6839
2013	22015	122	12300	9603	6741

Table 4

Collective means of placement in Luhansk region in 2011-2013 [10]

Years	Number of collective placement units, units			Number of seats, units			Number of people placed		
	Total	Including		Total	Including		Total	Including	
		hotels and similar accommodation facilities	specialized placement tools		hotels and similar accommodation facilities	specialized placement tools		hotels and similar accommodation facilities	specialized placement tools
2011	112	60	52	7123	2859	4264	142399	95943	46456
2012	109	45	64	6195	1749	4446	141113	90788	50325
2013	105	51	54	5741	2078	3663	145289	101945	43344

At the beginning of the second decade of the XXI century there was a marked decline in the overall tourist flow, however, in 2012 the tourist sector of Lugansk region managed to return some lost positions.

Of the data presented in Table 4, it can be seen that the hotel sector in the Luhansk region has almost not developed. Significant reduction of collective accommodations in 2013 compared with 2011 is observed.

For a long time, the territory of Donetsk and Lugansk regions, whose economic potential was dominated by a strong industrial base, was not considered as attractive tourist areas. However, at the beginning of the twenty-first century a number of leading scientists and experts talked about the possibility of developing the tourist potential of the Donbas region. In particular, the tourist attractiveness of the region was noted by such scholars as GV Myshechkin and O.S. Anosova In the article devoted to the analysis of the possibilities of development of the tourism industry in the Donbass, they note: "Donbass (meaning Donetsk and Lugansk regions) has significant opportunities for tourism development: outstanding geological, hydrological and botanical monuments of nature, rich historical past of the region, numerous historical and cultural monuments, resort complexes, dozens of unique productions, etc. Modern Donbass is the most densely populated region of Ukraine. All this can not but attract the attention of domestic and foreign tourists "[11].

Then they point out to those objects that are potentially interesting for tourists. According to their information, in 2012 in Donetsk region was concentrated 16% of sanitary-resort establishments of Ukraine. Within the region there is 110 km of coast of the Sea of Azov with unique sandy beaches, at the state level there are 113 protected areas, including two national parks ("Holy Mountains", "Meotida"), Khomutovsky step, "Stone" reserve Graves", lakes of Slovyansk district of karst origin, Krasnolimansky forest with unique climate, regional landscape parks (RLP)"Kleban-Bik","Zuevsky","Polovets steppe","Donetsk ridge", landscape reserve" Bestash "etc. [11].

In addition, the Donbass has the potential to develop such areas of tourism as: industrial tourism, business tourism, ethno-tourism, pilgrimage. Also in the Donetsk region there were public organizations of national minorities: the Greek diaspora in the Priazovye (Mariupol city), the German diaspora in the Telmanovsky district, the Jewish community in Donetsk, etc. [11].

Extremely promising for Donbass is the development of industrial tourism. A peculiar tourist attraction card of the region was the Artemivsk Sparkling Winery, the salt mines of Soledar city.

"Green tourism" is also perspective. In Luhansk region, before the beginning of 2013, several directions on the development of this type of tourism were introduced at once, namely : green, industrial, recreational, cognitive, sports, etc. Despite the fact that the Lugansk region belongs to the group of industrial regions, it had every chance, despite this fact, to reposition itself on the national market of tourist services as a tourist-attractive region [11].

Several significant tourist objects are located in the Luhansk region, in particular, 7 territories and objects of the nature reserve fund, among them are such natural monuments as Aidar Terrace and Congresses Yar, Lugansk Nature Reserve, 6 parks - memorials of the garden park art, 13 wildlife sanctuaries, 48 nature monuments, 14 nature reserves [7].

Green tourism received a significant spread on the eve of the conflict in Lugansk region. In 2007 the Luhansk Regional Branch of the Union for the Promotion of Rural Green Tourism Development in Ukraine was founded. In two years, the division of the union numbered about 10 estates, the number of which grew from year to year [7].

In addition, the work on inventory of attractive tourist facilities and the entire tourist infrastructure was intensified, work was carried out on the certification of rural homesteads, tourist guidebooks "Lugansk region - the dawn of Ukraine", "Magic Lugansk region. Holidays in the countryside "," Routes in Lugansk "[8].

Thanks to the enthusiasts of tourism industry development in the eastern regions of Ukraine, in the first decade of the XXI century Donbass Territory began to gradually attract tourists. Thus, according to Forbes magazine, in 2011, according to the level of tourist attractiveness, Donetsk ranked 9th, Lugansk - 40th, Artemivsk - 44th, Mariupol - 50th. In 2012, the results were somewhat better: Donetsk - 3rd place, Artemivsk - 32nd, Lugansk - 42nd, Mariupol - 46th. All this points to positive developments, but to a significant improvement in the image of the region was still far away [8].

The tourist potential and attractiveness of the East of Ukraine for travelers increased significantly after the holding of separate matches of the final part of the European Football Championship in 2012. Within the frame-

work of the preparation for this event, large-scale infrastructure projects have been implemented, new cultural institutions have appeared, which became a tourist "highlight the region ". Similar changes took place not only in Donetsk, where international football meetings were held on the new stadium, but also in other cities of Donbass. In particular, on June 2, 2012, in honor of the championship, a museum dedicated to the outstanding Brazilian football player Pele [8] was officially opened in Luhansk.

In general, according to the results of the tourist enterprises of the region in 2013, Eastern Ukraine was visited by 170,39 thousand people, which is on 1,5% more compared with 2012. Domestic tourism (by number of visitors) by the results of 2013 (comparatively with 2012) increased by 6% and amounted to 70.7 thousand people. The volume of tourist services provided for the relevant period has increased by 6,4% and amounted to 581,7 million UAH. In the budget of the Donetsk region for the provision of tourist services in 2013 12.9 million UAH were received [8].

The conflict in the Donbass 2014-2018 was one of the main reasons for deepening the social and economic crisis in Ukraine. It affected all the Ukrainian economy, and tourism was no exception. Over the past four years there has been a decline in indicators in many industries: the number of tourists, the number of tourist facilities, the total tourist flow.

In particular, the state statistics authorities recorded a decrease in the number of tourists who traveled to Ukraine. This trend has been reflected in Table 5.

Consequently, according to official statistics posted on the website of the State Statistics Service, it can be seen that over the last two military years, the number of foreign tourists, compared with 2013, has more than doubled. The most foreigners who arrived in Ukraine in 2016-2017 were from Moldova, Belarus, Russia, Hungary, Poland, Romania, Slovakia, Turkey, Israel, Germany.

Other indicators of arriving foreign citizens to Ukraine, in particular, cultural and sports exchanges, have been significantly decreased (Table 6-7).

Table 5

Entry of foreign citizens-tourists to the territory of Ukraine during the conflict [14]

2013	2014	2015	2016
488496	146804	137906	126845

Table 6

Entrance of foreign citizens to the territory of Ukraine for sports and tourism exchange in 2013-2015 [14]

2013	2014	2015
5841872	2814021	720253

Table 7

Tourist streams in Ukraine for 2013 – 2016 [14]

Years	Number of citizens of Ukraine who traveled abroad	Number of foreign citizens who visited Ukraine	Number of tourists served by subjects of tourist activity Of Ukraine	Foreign tourists	Tourists-citizens of Ukraine who traveled abroad	Domestic tourists	Number of excursionists
2013	23761287	24671227	3454316	232311	2519390	702615	657924
2014	22437671	12711507	2425089	17070	2085273	322746	1174702
2015	23141646	12428286	2019576	15159	1647390	357027	125471
2016	23257145	12578165	2009478	14975	16168178	364142	134048

The given statistical materials show a very noticeable decrease in connection with the conflict of the general tourist flow in all directions. This applies to both external and internal tourism.

The conflict between 2014 and 2018 negatively affected the development of Ukraine's tourist infrastructure. In particular, there is a decrease in the number of sanatoriums and health facilities (Table 8).

The reduction in the number of tourist facilities in the period from 2013 to 2014 was due to the fact that a significant number of them was in the zone of Russian occupation in the Crimea, or in the territory of the ATO in the Donets Basin. A further decrease in the number of sanatoriums and health facilities in 2016 was caused by the deepening economic crisis.

Also, according to official statistics, for the last three years the decline in the profitability of the tourism industry, as shown in Figure 1, has been recorded.

Thus, in connection with the beginning of the ATO, there is a significant decline of the tourism industry in the area of hostilities. This can be argued, based on statistics provided on the website of the Main Department of Statistics in Donetsk Region. In particular, the data presented here indicate a reduction in tourist flows (Table 9).

The given data shows a catastrophic reduction of tourist flows in the Donetsk region. The number of for-

eign tourists visiting the region in the first years of the conflict decreased by almost ten times, the number of domestic tourists for the same period also decreased by five - six times.

Table 8

Sanatorium and spa facilities in 2013 – 2016 [3]

Years	Sanatoriums and boarding houses with treatment	Sanatorium-preventorium	Houses and holiday resorts	Camps and other recreation facilities	Children's health and recreation facilities
2013	477	165	271	1916	18549
2014	320	118	90	1400	13977
2015	309	79	76	1399	9743
2016	301	77	71	13979	8945

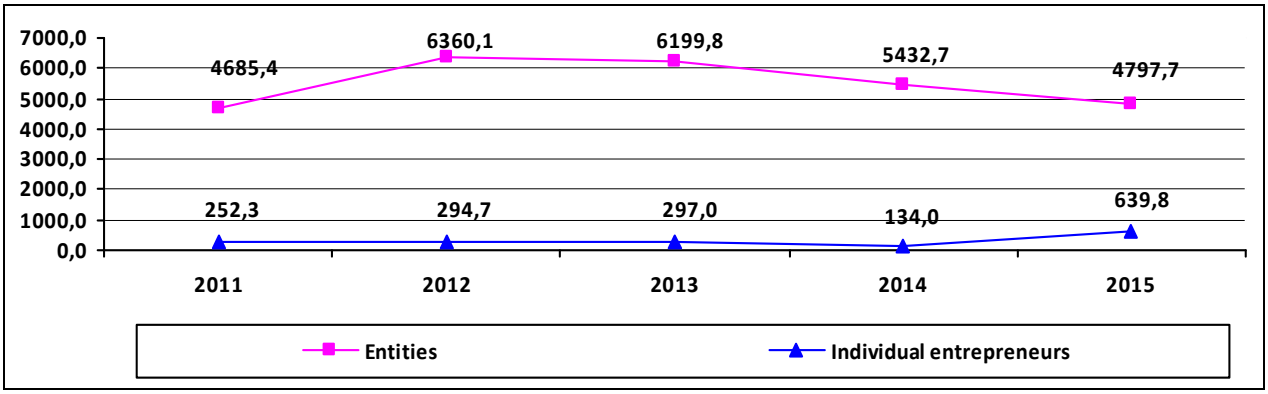


Fig. 1. Income from provision of tourist services, mln.UAH [14]

Table 9

Tourist streams in the Donetsk region in 2013-2016 [14]

Years	The number of tourists served by the subjects of tourist activity of Ukraine – total	Foreign tourists	Tourists-citizens of Ukraine who traveled abroad	Domestic tourists	Number of excursionists
2013	113917	1222	80426	32269	10005
2014	14834	147	6767	7920	630
2015	13978	149	6015	7154	590
2016	13478	154	5075	6785	584

During the years of the conflict, the number of objects of tourist infrastructure in the Donetsk region has been significantly decreased. This tendency is clearly traced in Table 10 below. The given data will show that in the conditions of the conflict the number of tourist objects in the Donetsk region has been decreased by five - six times. Some of the collective facilities were in the occupation zone, part of it was destroyed, part of it was closed due to a significant reduction of the tourist flow to the region.

Even more reduction of tourist flows due to the beginning of the conflict is observed in the Lugansk region (Table 11).

Table 10

Children's recreation and holiday facilities in the Donetsk region in 2013 – 2016 [3]

Years	Number of institutions, units		They have seats, units	
	Total	including health improvement facilities	Total	including health improvement facilities
2013	1093	61	19107	19107
2014	590	25	9200	9200
2015	324	18	5800	5640
2016	275	15	4571	4821

Table 11

Tourist streams in the Luhansk region in 2013 – 2016 [14]

Years	The number of tourists served by the subjects of tourist activity of Ukraine - total	Foreign tourists	Tourists-citizens of Ukraine who traveled abroad	Domestic tourists	Number of excursionists
2013	34699	33	21709	12957	6684
2014	791	2	762	27	–
2015	939	-	872	67	-
2016	1896	-	1814	82	-

So, we see that the tourist sector of the Lugansk region has suffered the most from the conflict. The small flow of foreign tourists that had been before, in 2016 was almost completely interrupted. However, the largest decline was the number of domestic tourists, who, according to statistics, visited the region quite actively for the last pre-war year.

This is also due to the fact that in 2015, by the orders of the head of the regional state administration - the head of the military-civilian administration from 07.04.2015 № 127 and from 05.2015 to 511 were forbidden to conduct tourist trips, excursions and campaigns in the region. By order of the head of the regional state administration - from 09.08.2016 № 464 the ban on tourist trips, excursions and hikes in the region was canceled, except for the Stanichno-Luhansk, Novoaydarsky and Popasnyansky districts located along the line of collision between the checkpoints of the first and second boundaries.

In connection with the beginning of hostilities in the Luhansk region, the number of tourist objects of different destination were significantly decreased. In particular, the number of children's recreation and holiday facilities were decreased significantly (Table 12).

The number of other tourist objects were also significantly decreased (Table 13). The catastrophic reduction of the tourist flow could not but negatively affect the development of tourism infrastructure. The given data shows a significant reduction of hotels, and other means of collective accommodation.

Thus, we can state that the events of 2014-2018, connected with the conflict led to the crisis of the tourist industry of the Donbas.

Table 12

Children's recreation and holiday facilities of the Luhansk region in 2013 – 2015 [14]

Years	Number of institutions, units		They have seats, units		The number of children who were in institutions, persons	
	Total	including health improvement facilities	Total	including health improvement facilities	Total	including health improvement facilities
2013	788	36	9720	9720	53558	17036
2014	193	2	225	225	9836	287
2015	167	5	1695	1695	9398	2429

Table 13

Collective means of placement Lugansk region in 2013 and 2014 [10]

Years	Number of collective placement units, units			Number of seats, units			Number of people placed		
	Total	Including		Total	Including		Total	including	
		hotels and similar accommodation facilities	specialized placement means		hotels and similar accommodation facilities	specialized placement means		hotels and similar accommodation facilities	specialized placement means
2013	105	51	54	5741	2078	3663	145289	101945	43344
2014	21	13	8	1682	585	1097	9715	5195	4520

Many of the sites that previously caused interest in tourists are in the occupied zone or in the danger zone. So, during the conflict, in the Donetsk region, 21 institutions of cultural and tourist sphere were damaged and losses were incurred for 18353379 thousand UAH. Among them, and the Kleban Bick Landscape Park, which is located between 2-d and 3-d lines of defense (part of the park has been mined); during the construc-

tion of defensive buildings in the Volodarsky district, mounds were damaged [7].

The situation is also not better in the Luhansk region. Like O. Zelenko noted, pondering of the consequences of the military conflict for the development of tourism in Lugansk region: "Today, from 18 regions of Lugansk region, its tourist and recreational resources can offer only 10 districts, namely: Bilovodsky, Bilokurakinsky, Kreminsky, Markovsky, Milovsky, Novoaydarsky , Novopskovsky, Svatovsky, Starobilivsky and Troitsky districts. Two more districts: Stanichno-Lugansky and Popasniansky are although under the control of the Ukrainian authorities, but close proximity to the "line of collision" of the warring parties, and now the inadequate condition of the existing housing and communal infrastructure does not allow them to be considered even as potentially attractive territories for development tourism in the near future"[8].

In addition, with the onset of the conflict, most of the green tourism objects located in different areas were forced to close [8].

The Lugansk natural reserve, which is still in the zone of active armed confrontation, has suffered from the conflict. Even those regions of the Luhansk region, where there were no military actions, remain unattractive for tourists and travelers. First of all, they are located in the area of anti-terrorist operation, on the territory of which all important routes are blocked by block posts and the passport regime is in force. In addition, much of the local infrastructure, in particular, roads are in poor condition, due to the fact that heavy military equipment has long been moving along them. The lack of effective infrastructure was a typical problem of the eastern regions of Ukraine before the start of the Anti-Terrorist Operation. In 2013, the international organization "Fredrich Ebert Stiftung" conducted a study of the state of roads in various regions of Ukraine. According to expert opinions, the infrastructure of Luhansk region is characterized by "outdated rolling stock of passenger transport; incompatibility of the transport infrastructure with modern requirements; low throughput of national roads; loss-making of transport due to the provision of numerous travel privileges under conditions of insufficient budget financing; heavy traffic in the streets of the regional center and low traffic safety on the roads.

Table 14

Distribution of tourists serviced by tour operators and travel agents according to the trip purpose of and types of tourism in 2016 by region, persons [14]

	Served tourists, all	Including the purpose of travel						Of these, children are 0-17 years old
		service, business, training	leisure, rest	treatment	sport	special	others	
Ukraine	***2250107***	***176230***	***1902900***	***79412***	***2982***	***768***	***87815***	***199956***
Regions								
Vinnitsa	11348	5	11321	22	-	-	-	1681
Volyn	16525	6	15648	871	-	-	-	1448
Dnipropetrovsk	24296	207	23037	918	134	-	-	4143
Donetsk	9753	69	9240	56	7	-	381	1550
Zhytomyr	2597	2	2595	-	-	-	-	398
Zacarpathiy	6705	76	6532	12	-	-	85	1267
Zaporozhye	21016	278	19789	949	-	-	-	2458
Ivano-Frankivsk	74919	-	72273	334	-	-	2312	3587
Kyiv region	11001	6	10815	151	7	22	-	1763
Kirovograd region	2181	20	2137	24	-	-	-	315
Luhansk	577	4	535	38	-	-	-	40
Lviv	138048	658	74267	61645	406	127	945	9291
Mikolaiv	5575	2	5561	10	2	-	-	610
Odesa	43355	12721	30002	35	74	276	247	2854
Poltava	3383	123	3076	122	22	40	-	689
Rivne	4266	3	4247	16	-	-	-	595
Sumy	5665	1559	3862	27	-	-	217	283
Ternopol	2934	41	2764	-	129	-	-	914
Kharkiv	19122	89	18529	455	12	37	-	2386
Kherson	4647	2	2987	1646	-	-	12	544
Khmelnitsky	9319	10	8782	24	-	-	503	1088
Cherkassy	2624	1	2542	63	-	-	18	566
Chernivtsi	11731	185	11309	29	51	1	156	1275
Chernihiv	3869	4	3861	4	-	-	-	340
Kyiv	1814651	160159	1557189	11961	2138	265	82939	159871

[1] *Excluding the temporarily occupied territory of the Crimea Autonomous Republic, the city of Sevastopol and parts of ATO zone.*

First of all, there is a lack of a clearly formulated strategy for tourism development, its main directions have not been defined.

The legislative framework, including the legal mechanisms for the transfer of objects to private entrepreneurs, which they are ready to turn into popular tourist establishments, needs to be improved. It is also necessary to develop the principles of exempting such objects from excessive tax pressure, at least at the stage of formation.

The intensification of efforts to promote tourism opportunities in Luhansk and Donetsk regions, both at the local and state level is not less important.However, this is impossible without creating a region brand, which will show potential tourists, with what, they should become familiar first of all, if they visit the eastern regions of Ukraine.

And finally, the key issue that can not be solved without active state support is the development of the Donbas infrastructure, which had been in decline before the war. It has always been a factor that frightened potential tourists from visiting the region.

The analysis of the impact of the conflict on tourism in the eastern regions could not but be entirely frightened on the country, so we propose to stay on this issue as well.

According to the world rating of the foreign tourists number, compared to the data of 2013, Ukraine lost half of the position dropped from 14 to 25th place, and reduced the number of visitors from 24671 thousand people to 12721 thousand people. According to the State Statistics Service in 2016, the regions of Odessa, Kyiv, Lviv and Ivano-Frankivsk are tourist-developed regions as it was before. Thus, 43355 tourists were served in the Odessa region, in Kyiv region and Kyiv - 1825652, in Lviv - 138048, and in Ivano-Frankivsk regions - 74919. Totally in Ukraine it was serviced 2250997 people [14] (Table 14).

Kherson, Odesa and Mykolayiv regions enjoy popularity. But, there the service does not correspond to the value of process that grew up in times after the occupation of the Crimean peninsula. Although in the southern part of the country last year rested about 3 million people. In other directions, such as the Carpathians, Chernobyl and Pripyat, and others - the number of tourists increased by 20%.

Israel is also in a state of war constantly and it does not prevent the country from developing economies and tourism. We really need to take the experience of this country. Ukraine is a brand, its image needs to be developed and promoted, no matter what. It is also useful for public relations and for the economy of our country.

So, it can be noted that the favorable geographical location, attractive tourist resources, the presence of sights, developed tourist infrastructure and skilled labor resources do not guarantee the successful development of tourism. In fact, a paradoxical situation arises when countries with less attractive natural and cultural-historical backgrounds than Ukraine have a significantly higher ranking of tourist attractiveness in the world market for tourist services. It is a fact that in the conditions of globalization, in order to increase the rating of tourist attraction, it is necessary not only to monitor the indicators of tourism development, but to use actively the levers of geo-differentiation and positioning of the tourist space to reflect the distinctive features of national tourist product offer.

Conclusions, recommendations and future research. The analysis of statistical data allows us to assert that in the pre-conflict period, attention was not paid to tourism in the region. Tourism in Lugansk and Donetsk regions was not perceived as a strategic sphere, the development of which would contribute to the revitalization of the social situation and economic growth. This was due to its low growth rate, which was manifested in abandoned infrastructure, relatively small number of hotels, lack of legislative guarantees of the activities of local tour operators. As a result, the number of tourists visiting the region during the pre-conflict period was relatively small compared with other regions. The conflict between 2014 and 2018 only deepened the existing problems and contributed to the emergence of new ones.

Today, Ukraine needs significant investment in tourism development, first of all, in tourism infrastructure, which is one of the main reasons preventing the growth of the tourist sector due to its obsolete nature and the inability to meet the needs of potential consumers.

The current state of tourism of the east of Ukraine can be defined as complex and controversial, as there are serious social and geographical problems of the theoretical and applied nature. Social and economic processes are becoming more unpredictable, which leaves its imprint on the development of tourism. Significant changes of the political map of the world, structural changes in the international economy, the finding of Ukraine in a state of conflict led to the emergence of new social geographical features of the development of tourism in the east of Ukraine.

References:

1. Averyn, A.N. (2017). Gosudarstvennoe regulirovanie demograficheskikh i migratsionnykh protsessov v Rossiyskoy federatsii [State regulation of demographic and migration processes in the Russian Federation]. M.: LLC Prospekt [in Russian].
2. Beidyk, O.O., Koroma, N.S., Syrovets, S.Yu. (2016). Svitovyi turystychnyi rukh: stan, tendentsii ta perspektyvy rozvytku v konteksti suchasnykh geopolitychnykh zahroz [World Traveler Movement: Status, Trends and Development Prospects in the Context of Contemporary Geopolitical Threats]. *Geography and Tourism: Sciences. ed.* / ed. count Lyubitseva O.O. and others. – K.: Alpha-PIC, 37, 3-15 [in Ukrainian].
3. Dytyachi zaklady ozdorovlennya ta vidpochynku v Donetskiy oblasti u 2013, 2014, 2015 rr. [Children's recreation and recreation facilities in the Donetsk region in 2013, 2014, 2015]. The Main Department of Statistics in Donetsk Region. Retrieved from http://www.donetskstat.gov.ua/statinform1/tourism3.php [in Ukrainian].

4. Dytyachi zaklady ozdorovlennya ta vidpochynku Luhanskoi oblasti v 2013, 2014, 2015 rr. [Children's recreation and recreation facilities of Luhansk region in 2013, 2014, 2015] The Main Department of Statistics in Lugansk Region. Retrieved from http://lg.ukrstat.gov.ua/sinf/turizm/turizm.php.htm [in Ukrainian].
5. Zavarika, H.M. (2015). Rozvytok krain v postkonfliktnykh sytuatsiyakh [Developing countries in post-conflict situations]. *Galician Economic Herald*. Ternopil, 2 (49), 106-113 [in Ukrainian].
6. Zavarika, H.M. (2016). Teoretychne obhruntuvannya konfliktnoi modeli suspilstva [Theoretical justification of the conflict model of society]. *Geography and Tourism: Science. ed.* / ed. count Lyubitseva O.O. and others. – K.: Alfa-PIC, 37, 189-198 [in Ukrainian].
7. Zelenko, O.O., Zavarika, H.M. (2017). Suspilno-geografichni aspekty rozvytku turyzmu «kraynioho» skhodu Ukrainy [Socio-geographical aspects of tourism development of the «extreme» East of Ukraine]. *I All-Ukrainian Distance Scientific and Practical Conference of Young Scientists «Tourism of Modern Issues and Prospects»*, Ternopil, FOP Osadzha Yu.V. [in Ukrainian].
8. Zelenko, O.O. (2015). Perspektyvy rozvytku turyzmu Luhanshchyny v umovakh voyenno-politychnoi nestabilnosti [Prospects for tourism development in Lugansk region in conditions of military-political instability]. *Scientific herald of Mukachevo State University. Economics series*, 2(4), 2, 138-143 [in Ukrainian].
9. Kolektyvni zasoby rozmishchuvannya v Donetskii oblasti za 2013, 2014 rr. [Collective placements in the Donetsk region for 2013, 2014] The Main Department of Statistics in Donetsk Region. Retrieved from http://www.donetskstat.gov.ua/statinform1/tourism3.php [in Ukrainian].
10. Kolektyvni zasoby rozmishchuvannya Luhanskoi oblasti u 2013 ta 2014 rr. [Collective means of placement of Luhansk region in 2013 and 2014] The Main Department of Statistics in Lugansk Region. Retrieved from http://lg.ukrstat.gov.ua/sinf/turizm/turizm.php.htm [in Ukrainian].
11. Myshechkin, H.V., Anosova, O.S. (2013). Turystsko-rekreatsiynyi potentsial Donbasu: mistse u zahalnoukrainskomu masshtabi, problemy ta perspektyvy. [Tourism and recreation potential of Donbass: place on the national scale, problems and prospects]. *Bulletin of DITB*, 17, 326-329 [in Ukrainian].
12. Sait Luhanskoi ODA (2018). [The site of the Lugansk Regional State Administration]. Retrieved from http://loga.gov.ua/ [in Ukrainian].
13. Trachuk, L.M. (2016). Vplyv politychnoi nestabilnosti na rozvytok turystychnoi destynatsii [Influence of political instability on development of tourist destination]. *Geography and Tourism: Science. ed.* / ed. count Lyubitseva O.O. and others. K.: Alpha-PIC, 37, 26-35 [in Ukrainian].
14. Turystychni potoky v Ukraini za 2013, 2014, 2015, 2016 rr. (2017). [Tourist streams in Ukraine for 2013, 2014, 2015, 2016]. State Statistics Service of Ukraine. Retrieved from http://www.ukrstat.gov.ua/ [in Ukrainian].

Надійшла до редколегії 23.03.2018 р.

UDC 911.2:379(477.81–751)

***Zoya Karpiuk*[1]**
PhD (Geography), Senior Lecturer of the Department of Physical Geography
e-mail: karpyuk.zk@ukr.net, ORCID ID: https://orcid.org/0000-0002-8073-3129
Yurii Khmeliovskyi
Teacher of Geography, Rokytne NPK «School I-III degrees – lyceum»
October str., 8, Rokitne, Rokitnovsky district, Rivne region, 34208, Ukraine
e-mail: uzefin@gmail.com, ORCID ID: https://orcid.org/0000-0002-2908-7248
Mykola Pavlushenko
Teacher of Geography, Kupel Secondary School No. 1
Tarasenko str., 1, Kupel, Rokitnovsky district, Rivne region, 34223, Ukraine
e-mail: mikola.pavlushenko@gmail.com, ORCID ID: https://orcid.org/0000-0002-3969-7517
***Roman Kacharovskyi*[1]**
Master of Geography, Engineer of the Educational Laboratory of the Regional Atlases
e-mail: romankacharovsky@ukr.net, ORCID ID: https://orcid.org/0000-0002-6096-4800
[1]*Lesia Ukrainka East European National University, Potapova str., 9, Lutsk, 43025, Ukraine*

TOURIST-RECREATIONAL OPPORTUNITIES OF THE ROKYTNE DISTRICT OF THE RIVNE REGION

There was discovered and analyzed spatial differentiation of tourist recreational resources of Rokytne district, Rivne region: natural, historical and cultural, social and economic. There were reviewed information possibilities of the model of the mapping card of Rokytne district offered by the authors for forming tourist recreational regional addiction, the important elements of which are interesting natural objects, first of all attractive natural landscapes and natural reservoirs: «Kamianyi Brid», «Kut» on river L′vy, «Kosykh», «Smolarna» on Stvyz, boulder type moraine belt «Gorby» near the village Staryky, lakes Bile, Bilske, Tuhove, Chorne, reservoirs Osnytske and «Kobyla»; the wealth of flora and fauna, a significant number of unique areas of the natural reserve fund, including hard-to-reach protected bogs «Syra Pogonia» and «Perebrody» of Rivne natural reserve, memorials of nature of national importance «Juzefinska dacha», «Urochyshche Netreba» and famous known outside the region botanical nature monument of local significance «Juzefinska dacha» – the remnants of the former castle manor of the princes of Radziwill; ecologically clear environment; significant historical and cultural heritage: temples and ancient Slavic graves near the villages Bilovizh, Glyne, Rokytne, Juzefinskyi burial ground of thirty burial mounds, historical and architectural monuments, memorials to the dead: victims and liberators during Second World War, in battles in Afghanistan, victims during the Chernobyl tragedy, fighters for independence, Ukrainian statehood, artistic and ethnographic sights; authentic customs and everyday life, the traditions of the local population. There was analyzed the material and technical base of the territory, the state of its infrastructure, the availability of transport. There were defined the most appropriate types of tourist recreational activities. The listed opportunities meet the criteria for motivation for the development of tourism: recreational, ecological and amateur, culturally cognitive, religious pilgrimage, sentimental. The results of these scientific researches are the follows: inverting existing resources and objectively assessing real opportunities, necessary for active promotion of the tourist potential of the district, forming of its recreational attractiveness, optimal territorial organization and tourism planning at the local and regional levels.

Keywords: tourist and recreational resources, tourist and recreational potential, information model, type of tourism, Rokytne district, Rivne region.

Зоя Карпюк, Юрій Хмельовський, Микола Павлушенко, Роман Качаровський. ТУРИСТИЧНО-РЕКРЕАЦІЙНІ МОЖЛИВОСТІ РОКИТНІВСЬКОГО РАЙОНУ РІВНЕНСЬКОЇ ОБЛАСТІ

У роботі проаналізовано просторову диференціацію туристично-рекреаційних ресурсів Рокитнівського району Рівненської області, розглянуто інформаційні можливості пропонованої авторами моделі туристичної карти Рокитнівщини для формування туристично-рекреаційної привабливості району. Визначено найдоцільніші види туристично-рекреаційної діяльності. Перелічені можливості відповідають критеріям мотивації для розвитку зеленого, аматорського, культурно-пізнавального, паломницького, релігійного, сентиментального видів туризму, відновлення життєвих сил, загального оздоровлення туристів і рекреантів.

Ключові слова: туристично-рекреаційні ресурси, туристично-рекреаційний потенціал, інформаційна модель, вид туризму, Рокитнівський район, Рівненська область.

Зоя Карпюк, Юрий Хмелевский, Николай Павлушенко, Роман Качаровский. ТУРИСТСКО-РЕКРЕАЦИОННЫЕ ВОЗМОЖНОСТИ РОКИТНИВСКОГО РАЙОНА РОВЕНСКОЙ ОБЛАСТИ

В работе пронализирована пространственная дифференциация туристко-рекреационных ресурсов Рокитнивского района Ровенской области, рассмотрено информационные возможности предлагаемой авторским коллективом модели туристской карты района с целью формирования его туристско-рекреационной привлекательности. Определены наиболее целесообразные виды туристско-рекреационной деятельности. Перечисленые возможности отвечают критериям мотивации по развитию зеленого, аматорского, культурно-познавательного, паломнического, религиозного, сентиментального видов туризма, восстановлению жизненных сил, общего оздоровления туристов и рекреантов.

Ключевые слова: туристско-рекреационные ресурсы, туристско-рекреационный потенциал, информационная модель, вид туризма, Рокитнивский район, Ровенская область.

 DOI: 10.26565/2076-1333-2018-24-08

The problem in general and its connection with important scientific or practical tasks. The imbalance between the costs of psycho-physiological forces that are closely related to their livelihoods and their restoration, as well as the deterioration of the environment, the growth of production concentration and the rate of urbanization, lead to an increase in morbidity and decrease of the average life expectancy. In such conditions increases the role of non-market benefits, for instance vacation and rehabilitation, tourism and recreation. The restoration of the psycho-physiological state is a rather complex and long-lasting process, requiring specific forms and methods, especially active with usage of natural conditions and resources. The quality of the organization of recreational time, which is necessary for a simple and expanded reproduction of physical and moral forces and human health, directly depends on the opportunities available for it. The essential help is the informatization through the use of modern electronic technologies, guides and cartographic materials – one of the most visible and effective forms of presentation and generalization of information. To create this informative capacity resource, the tourist-recreational possibilities of the territory are analyzed in detail: natural, anthropogenic, historical and cultural resources, socio-economical preconditions of development; the laws of spatial differentiation of resource provision are taken into account, the needs of real and potential development of the sphere are analyzed. This is especially important in the context of decentralization processes, transformation of powers to local self-government bodies, which involves the effective use of local potential, the adoption of optimal management decisions, including the local authorities of tourism and recreation, which are impossible without a qualitative inventory of available resources, objective estimation of real possibilities.

An analysis of recent researches and publications in which the solution to this problem was initiated and based on the author opinion. The first version of the «Tourist map of Rivne oblast» (M 1: 1 000 000) with a short list of tourist routes and an explanatory text to the map is contained in the «Atlas of the Rivne oblast», which was published in 1985 [3]. Modern tourist maps of Rivne oblast with illustrations of the most interesting sights, objects of natural reserve fund of national and local significance, resorts, sanatoriums and boarding houses, etc. are listed in the editions of the NNVZ «Kartografiya»: «Meet Ukraine» (2008) [1, p. 90-91], «Travel Necklace of Ukraine» (2010) [13, p. 102-103]. Some articles about the architectural rarities of some of the settlements of the region, illustrated with modern photographs and ancient engravings and watercolors, are in the guidebooks, particular in the «Ukraine: the West» (2009) [8, p. 26-45, 211-212, 218], «Ukraine: fortresses, castles, palaces» (2010) [9, p. 197-210, 464-468] and other publications.

A number of scientific articles have been published. The issue of the necessity of the publication, which will cover the synthesized information on natural and historical-architectural objects, infrastructure, tourist routes of the region, is devoted to the article by F.V. Zuzuk, Z.K. Karpiuk, O.V. Antypiuk [7]. Research in the direction of creation of information and cartographic projects that allow to generalize and polarize the multifaceted history of the development of material and spiritual culture of the region, analyze the state of the tourist infrastructure, transport accessibility, recreational possibilities of nature reserves for stimulation of tourist and recreational activities and regional development were carried out by Z.K. Karpiuk, R.E. Kacharovskyi, O.V. Antypiuk [4; 10; 11; 17]. L.T. Sulik, D.A. Krychevska [18], who analyzed the peculiarities of their placement and outlined the prospects of network expansion, were engaged in the typification of eco-tides and eco-routes of the Volyn Polissia physical and geographical area in order to optimize ecotourism activities in the region.

Allotment of previously unsettled parts of the general problem to which this article is devoted. Information about Rokytne district in the above-mentioned editions is either sparse or absent. Complex researches on the study of the spatial differentiation of tourist and recreational resources of the Rokytniv district are held for the first time. Information and cartographic project «Tourist card of Rokytne district of Rivne oblast» [19] was developed by students of geography of general educational institutions of Rokytne district Yu. Khmeliovskyi and M. Pavlushenko, published in the formats A2, A0. The basis for research was the relevant developments in the Volyn oblast [2; 4; 7; 10; 11; 17; 18].

Formulation purposes of article. The results of scientific research are used to promote the tourist and recreational potential of the Rokytne district of Rivne oblast, which will ensure the regulation and coordination of activities at the regional and local levels in order to attract more potential consumers, and in the long run, the prospect of strengthening the financial capacity of the district. In practice of the territorial organization and planning of tourist and recreational the most important becomes the question of studying the types and forms of tourism that are most appropriate to develop in this district, taking into account the available resource base. These are the recreational tourism for rest; cultural-cognitive to meet the needs in the knowledge of customs, life and other components of the culture of the inhabitants of the district; ecological and amateur, related to the need to stay in ecologically clean places, fishing, gathering mushrooms and berries; pilgrimage, religious with the purpose of searching in spiritual centers, places of removal from the worldly vanity, rest and prayer, healing of the soul and body; and sentimental – trips for the purpose of visiting left behind for certain reasons, but not forgotten family places, relatives or acquaintances. To write an article and develop a tourist map of Rokytne district there were used special materials of structural subdivisions of regional and district state administrations specializing in the formation of regional policy in the field of tourism, recreation, culture and transport; literary, scientific, statistical and cartographic sources; personal discoveries of creators; there were also materials developed by using CoralDRAW X7 (64-Bit), Adobe Photoshop CS5.

Presentation of the main materials with full jus-

tification of the received scientific results. The territory of Rokytne district with an area of 2356.0 km^2, extending from the north to the south for 130.0 km, lies in the boundary between the two rivers of L'vy and Stvyga at the most waterlogged northeastern part of Rivne oblast within the flat-wavy accumulative plain – the Poliska lowlands, in the present-day topography of which the main role play sandy anthropogenic deferrals. Climat conditions are moderately continental with mild winters with frequent thaws and warm damp summer. The average temperature in January is -5 ° C, and in July is +18° C, the average annual precipitation is 600–650 mm. The positive balance of humidity contributes to the presence of the densely hydrological network with wide waterlogged river valleys and the predominance of turf podzolic and marsh soils. Forest coniferous-broadleaf arrays, meadows, swamps and wetlands occupy vast areas – about 50% [12; 16]. In the 39 rural settlements and two urban-type settlements Rokytne and Tomashgorod live 55 thousand inhabitants. The establishment of the Rokytne district center (7,600 inhabitants) is connected with the building of the glass department on the bank of Buniv River in 1888, which suddenly turned into a glass factory. The settlement began to form around the company, through which in 1902 was laying the railway line Kyiv–Kovel.

The district's area is still insufficiently explored today. Complex natural and geographical conditions significantly complicated the development of the region due to forestedness and bogging, which contributed to the original «conservation» of the ancient traditions of the cultural heritage of the northern Polissya. Even the hypotheses of the origin of the hydronyms of L'va and Stvyga testify about this: in the Baltic-Finnish linguistic group there is the Finnish word «liiva» – «porridge mass», «mud», Karelian «liva» – «repellent», «twan»; there is a guess that Stvyga hides in its name the notion of «flowing river», that is the bog.

We can find mentions about the inter-rivers of L'va and Stvyga in scientific researches of the Polish ethnographer and folklorist Oscar Kolberg; archaeological investigations by Gottfrid Ossowskiy; in «Historical and statistical description of churches and parishes of Volyn Diocese» by public figure, historian-ethnographer Mykola Teodorovych; Ukrainian geologist and geographer Pavlo Tutkovskyi [20]; Polish geographer, ethnographer, ethnologist, popularist of tourism Metchyslav Orlovych; Polish professor, botanist, who developed the classification of peat in Europe, Stanislav Tolpa; famous researcher of Volyn, historian, ethnographer, archaeologist, ethnographer Olexander Zynkalovskyi [23]. Modern regional studies of the spiritual and material culture of the region are included in the series of editions «Ethnocultural heritage of Rivne Polissya» [6].

The attractiveness of the territory for the successful tourism and recreational activities dynamically changes and depends on many factors, first of all, on the availability of resources: natural, historical and cultural, socio-economical, material and technical support, infrastructure, ease of geographical location, transport accessibility, favorable ecological situation, quantitative and high-quality information on its attractiveness. The more territory is saturated with the components of tourist and recreational resources, the more varied is range of organization of different types of tourism and recreation [14].

The natural tourist and recreational resources of Rokytne district include: mild moderately continental climate, dense river network, purity of lakes, phytochemical properties of the territory, colorful landscape diversity, and centers of the best preserved nature. In recreational terms, the most interesting, according to the authors of the map, are landscape tracts: «Kamianyi Brid», «Kyt» on the River L'va, «Kosyh», «Smoliarnia» on Stvyz, slope of the boulder type «Gorby» near the village Staryky; reservoirs with adjoining territories – lakes Bile, Bilske, Tukhove, Chorne; reservoirs – Osnytske and «Kobyla» (fig. 1). The main feature of the tract «Kamianyi Brid» – one of the most picturesque places in the upper reaches of the L'va River is the outcropping on the banks of the river high reddish, medium-grained granite rocks – the ancient foundation of the Ukrainian crystalline shield and the accumulation of boulders – the remains of the glacial era. The attention attracts the color of water in the river which is reddish due to high content of iron from the second half of the XVIII century in the upper reaches of the river were treated deposits of swamp iron ore – brown iron ore [22]. In the tract in the thick hornbeam forest on the shore of the L'va grows *Azalea pontica* – relict rhododendron yellow *Rhododendron luteum* («tree-rose») – a flowering shrub of the family of heather *Ericaceae.* The trunks of trees are braided with vines of *Humulus lupulus*, in the undergrowth grow *Sorbus aucuparia*, *Euonymus verrucosa*, *Sambucus nigra*. On the coast, among the *Phragmites australis* and *Acorus calamus*, *Iris pseudacorus*, *Caltha palustris*, pepper *Persicaria hydropiper*, on the watery plain there are *Nymphaea Alba*, *Nuphar lutea*. There are rare red-book species: *Drosera anglica* and *D. intermedia*.

Typical picture of the tract includes overgrown trees that block the river bed, beaver (*Castor fiber*) houses and dams. Many *Astacus leptodactylus*, *Triturus cristatus* and *T. vulgaris*. In the river waters, the usual species are *Esox lucius*, *Perca fluviatilis*, *Rutilus rutilus*, *Tinca tinca* and others. Interestingly in the recreational sense is the tract «Kut», which lies to the north from village Osnyzk, where the river Buniv falls into L'va. Diverse meadows and oak groves from *Quercus robur* with a plum of *Pinus sylvestris* are rich with berries and mushroom places that are ideal for «quiet hunting».

Near the state border on the half way between the villages of Glyne and Poznan, are located the tracts of «Kosyh» and «Smoliarnia» – areas of untouched nature, where the river Stvyga is divided into numerous sleeves. Here, among the steep shores, sandy hills, lakes, and age-old oaks, you can feel the delimitation of time. In the tract there are trees of *Juniperus sabina* with 4–6-meter height, which naturally grows in the Carpathians and Crimea. An interesting place of Rokytne area for connoisseur of pure nature and ancient history is the place lying north from village Blazhove, where the river Tryzna falls in the Stvyga River (ength 23.0 km) which takes place from the swamp Igorovyi Brid. According to local legends, and toponymic names are relevant, here Prince Igor could been killed and buried. The chronicles testify claimed that

Princess Olga went with the purpose of revenge for her husband with her army against the Drevlians to make mementos on Prince Igor's grave.

Scenic, attractive for tourists and recreation are the shores of lake Tuhove, about the depths of which tell the local legends for over a century. Professor P.A. Tutkovskyi wrote at the beginning of the XX century: «Surrounded by dense thickets of reeds and sedges, rapidly overgrown lake Tuhove has the size of 0.60 to 0.25 miles, and also, according to a local residents, has a very considerable depth – 30 yards or 64 yards ...» [20].

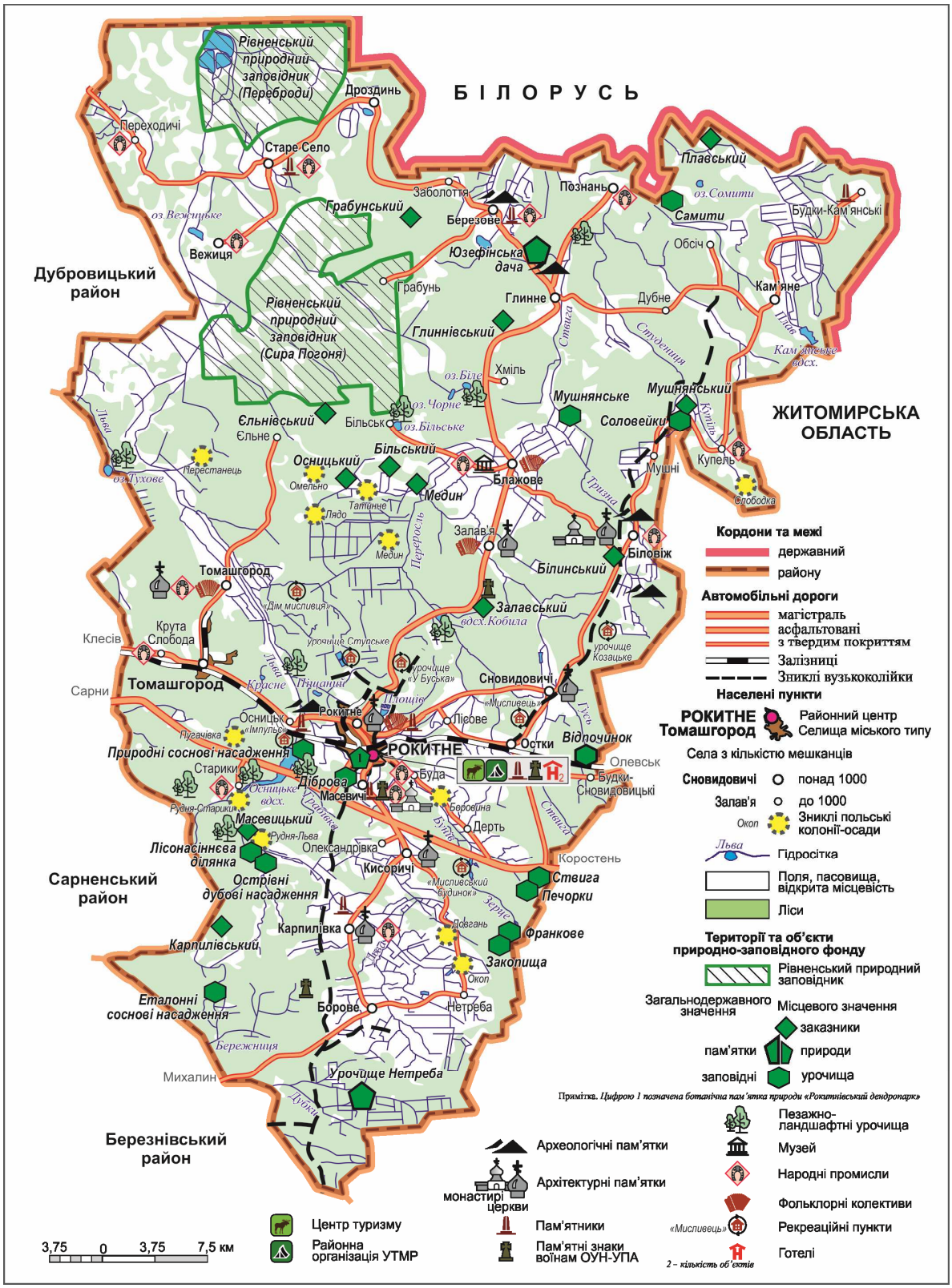


Fig. 1. Tourism and recreation resources of the Rokytne district *(create by Yu. Khmeliovskyi, M. Pavlushenko)* [19]

But the following studies of the bottom of the lake denied these facts, provided data about 25 and 15-meter depth. Due to reclamation, the flow of the lake has declined, Tuhove quickly becomes muddy and loses its depth. On the eastern shore of lake grow old oaks, on the highest sand dunes at the opposite coast grows pine forest where live *Sus scrofa* and *Capreolus capreolus*. In the coastal area there are many wild ducks and geese. Around the lake there are many healing berries of *Vaccinium oxycoccos*. The real miracle of Polissia is lake Bilske, located in the centre of village Bilske, with clean and clear water, surrounded by real quagmire of mud, thick moss plexus cranberry, which grows everywhere at the lake. Its depth is about 15.0 m. The uncommonness of Bilske lake is its stable water level: in the spring, when snow melts, and during the autumn rains, and in the summer, when the water dries up in wells and rivers. Interesting from a recreational point of view are hidden in the forest thicket lakes Bile and Chorne near the village Khmil and deep lake Somyty with reddish tint of water, surrounded by impassable marshy woods in the valley of river Stvygy, which is situated on the border with Belarus six kilometers easter of the village Poznan. Lakes attract fishermen, hunters and lovers of «quiet hunting».

A favorite place of rest of local inhabitants and visitors are sandy beaches, pine forests, a recreation center on the coast of Osnytske reservoir with an area of 166.0 hectares, water volume of 3.5 million m^3, an average depth of 2.5 m (maximum – 6.0 m on the river L'va). It is interconnected with a tiny size (the area of the water mirror is only 1.0 hectares, the depth varies within 1.5–2.0 m) lake Chorne, located on the tributary of L'va – river Grabivka. The water of the lake is cool even in the summer heat. In the environment of the old forests on the tributary of Stvyga – in river Pererosl in the tract «Kobyla» between the villages Snovydovychy and Zalavia, all hydrotechnical works have been completed for the construction of one of the largest reservoirs in the Rivne region, which in the future will occupy a corresponding place in the recreational economy of the district.

Special role in the development of tourism and recreation belongs to protected objects – the centers of the best preserved in the natural state of Polissia landscapes and its inherent biodiversity. In the region as of January 1, 2018 there are 29 nature reserves, the total area of which is 25% of the reserve fund of the region (table 1).

Table 1

List of territories and objects of the nature reserve fund of Rokytne district [5]

№ s/n	**Object name, category**	**Object type**	**Area,** *ha*
Of national importance			
1	Rivne Nature Reserve (arrays of «Syra Pogonia», «Perebrody»)		15 818,0
2	Monument of Nature «Juzefinska dacha»	botanical	100,0
3	Monument of Nature «Urochyshche Netreba»	botanical	52,0
	Total objects of the NRF of national importance – 3		***15 970***
Of local importance			
4	Reserve «Medyn»	woodsy	20,0
5	Reserve «Yelnivskyi»	botanical	3548,0
6	Reserve «Hrabunskyi»	botanical	769,0
7	Reserve «Hlynnivskyi»	botanical	2130,0
8	Reserve «Bilskyi»	botanical	1865,0
9	Reserve «Zalavskyi»	botanical	3062,0
10	Reserve «Mushnyanskyi»	botanical	2018,0
11	Reserve «Karpylivkyi»	botanical	700,0
12	Reserve «Plavskyi»	botanical	600,0
13	Reserve Bilynskyi»	botanical	100,0
14	Reserve «Masevytskyi» ((the tract Staryky)	zoological	1500,0
15	Reserve «Osnytskyi»	zoological	300,0
16	The monument of nature "Rokytnivskyi dendropark"	complex	1,8
17	Protected tract «Pryrodni sosnovi nasadzhenia»		5,0
18	Protected tract «Ostrivni dubovi nasadzhenia»		5,0
19	Protected tract «Dibrova»		16,0
20	Protected tract «Lisonasinieva dilianka»		5,0
21	Protected tract «Samyty»		3,0
22	Protected tract «Frankove»		19,3
23	Protected tract «Zakopyshcha»		16,9
24	Protected tract «Soloveiky»		8,0
25	Protected tract «Vidpochynok»		2,2
26	Protected tract «Pechorky»		7,2
27	Protected tract «Stvyga»		3,1
28	Protected tract «Mushnianske»		19,5
29	Protected tract «Etaloni sosnovi nasadzhenia»		5,0
	Total NRF sites of local importance – 26		***16 729,0***
	Total objects of the NRF – 29		**32 699,0**

Hard-to-reach protected swamps «Syra Pogonia» and «Perebrody» are one of the largest wetland reserves in Ukraine, in which all types of marshes of the Ukrainian Polissia are showed – Rivne Nature Reserve, formed in 1999. Territories of these arrays at the end of the XIX century were not included in the list of lands that were planned to be drained by the Western expedition, the land reclamation changes have passed this territory both during the Polish and Soviet times, therefore the biocenoses of these swamps are preserved and unique. The array «Syra Pogonia», with a total area of 9 926.0 ha, of which forests occupy 51%, swamps – 46.9%, reservoirs – 0.1%, other lands – 2.0%, lies between the villages Grabun and Bilsk and is a separate tract of Kremine, the largest wetland in Ukraine, located in the basin of the interfluve of L'va and Styga in the valley of Styr-Slovechno. On the border of Rokytne district with the Republic of Belarus is another large swamp array «Perebrody» with preserved original vegetation and zoocenoses. In the deaf areas of old forests, rare species of red-book animals are inhabited, including *Ciconia nigra*, *Bubo bubo*, *Circaetus gallicus*, *Circus aeruginosus* and others. Well-known beyond the district and oblast is a botanical nature monument «Juzefinska dacha» located near the village Glynne – the remains of the former castle manor of the princes Radziwil, where many old trees were preserved: *Pinus strobus* – fast-growing, frost-resistant tree with greenish-gray bark, thin, soft needle of silver shade originated from North America, named in honor of Lord Weymouth, who brought seeds from America and began to breed pine trees in England at the beginning of the eighteenth century; *Picea abies*, the age of which exceeds 100 years, 400–500-year-old trees of *Quercus robur*; and the patriarch tree with a high of 20.0 m – the 1355-year-old Juzefinskyi oak. The «Oak of Prince Igor» is also called because of the local legend that it is a witness of campaigns on the Drevliany lands of Igor in 945. In the botanical monument of nature «Urochyshche Netreba» (1975) near the village Borove, under the protection of the state, are rare for Ukrainian Polissyia pure oak plantations, in the undergrowth of which grows *Rhododendron luteum*.

According to the opinion of author of the charts, in the district there are several interesting tourist and recreational routes (table 2, see fig. 1).

Table 2

Tourist routes of Rokytne district

№ s/n	Direction of the route	Length, km
1	**«L'va – the adornment of Polissia»:** Rokytne – Chorne Lake – tract Kamianyi Brid-vilage Staryky – Osnytske reservoir – village Osnytsk	25
2	**«On the banks of the Drevlianka river»:** village Glinne – a botanical monument of nature of national importance **«**Juzefinska dacha**»** – tract Smoliarnia –village Poznan	15
3	**«Winded witnesses of the past times»:** Rokytne – tract Kut – lake Krasne- village Osnytsk – Osnytske reservoir – village Staryky – tract Gorby – tract Kamianyi Brid – Lake Chorne - Rokytne	40
4	**«Tutkovskyi tracks»:** Karpylivka – tract Kamianyi Brid – tract Gorby – village Staryky – village Osnytsk – tract Kut – village Tomashgorod (Sehy) – Lake Tuhove	59

The historical and cultural component of tourist and recreational resources in the region is a collection of monuments of material and spiritual culture that have a cognitive value which can be used independently of the season, in order to meet the needs of tourists, an archaeological heritage, historical and architectural monuments, artistic and ethnographic. The most famous archaeological sites are temples and ancient Slavic burial grounds in the tract «Mlyn», «Kurgany» (village Bilovizh), Juzefinskyi burial which includes 30 burial mounds, ancient Slavic burial ground of XII–XIII centuries (village Glynne), two stone crosses on the ancient Slavic burial ground of the XVI–XVIII centuries (village Rokytne) and 10 stone crosses, sculpted from local sandstones, on Cossack burial grounds in the village Osnytsk. Historical and architectural values have the sacred buildings of the district – the churches: Holy Assumption, 1867 (village Perehodychi), Holy Assumption, 1887 (Rokytne village), Exaltation of the Honest and Reviving Cross, 1898 (Snovydovychi village).), Holy Trinity, 1900 (village Zalavia), Holy Resurrection Church, 1901, in this temple is the Miraculous Chenstohivska Icon of the Mother of God, which is celebrated on March 19 (village Biloviz), St. John the Theologian, 1908 (Tomashgorod), the Protection of the Blessed Virgin Mary, 1912 (village Kysorychi), the Nativity of the Blessed Virgin, 1938 (Karpylivka village), built on the means of Taras Bulba-Borovets, who owned the local granite quarry on the outskirts of the village. Another unique wooden temple is Resurrection church (village Kysorychi), built in 1784, that was dismantled and transported during the Soviet times to the Scansen Museum of Traditional Architecture and Life in Pyrogov near Kiev. Objects for pilgrimage were also the women's monastery of St. Iberian Mother of God, 1997 (village Glyne, the tract «Juzefin»), the monastery of the monks Anthonyi and Feodosyi of Kiev-Pechersk in honor of the icon of the Mother of God «Life-giving spring», 2005 (village Masevychi, tract «Fedoryna»). Monuments of monumental art – memorials to the victims: victims and liberators built in the villages of the district: in the village Berezove in the tract «Rozkopana gora» – a memorable sign on the site of the execution of fascists in 1942 by local jews; village Budky-Kamianski – a monument to the inhabitants, tortured by fascists in 1942, (590 people, mostly Poles);

village Karpylivka – a monument to the conquerors of the Polissia areas(1959-1971), erected by architect N. I. Dovgal in 1971; village Masevychi – a monument to the fellow villagers who died during the Second World War, sculptor I. P. Dovzhenko (1968); village Osnytsk is a monument in honor of respect and gratitude to the fellow countrymen, missing on the fronts of the Second World War in 1941–1945 (the monument was erected on his own expense by a villager, veteran V. S. Volevych in 2005); Rokytne village is a memorial to military glory (opened in 1956, reconstructed in 1969 and 1985, sculptor V. Sapyga), memorial monument to the victims of the Chornobyl tragedy (2003), monument to Afghan soldiers (2016), Polish military cemetery of the victims of the Polish-Bilshovik War (1919–1921; updated in 2014); village Rokytne – a monument to the soldiers-liberators of Rokytne district from the grateful local inhabitats («Pushka» 1974); village Stare Selo is a monument to the victims (667 people) of the old-Soviet tragedy in 1942 (sculptor I. P. Dovzhenko, 1967). Constructed monuments to the fighters for independence, Ukrainian statehood – to the soldiers of the Ukrainian Insurgent Army: in the village Karpylivka – grave to OUN-UPA in Rokytniv district for Kuzma Brichka («Chereshni»), 2001, reconstructed in 2016; in the villages Zalavia, 2007, Masevychi, 2007, village Rokytne, 2007. For the Polish community and tourists from Poland, memorial sites are disappeared during the Second World War and the post-war years of the siege colony: Dovgan, Okop (Budky-Borovski), Rudnia-L'va, Rudnia-Staryki, Pugachivka, Perestanets, Liado, Omelno, Medyn, Tatyne, Borovyna, Slobodka [15; 21].

Some scientific and cognitive value have the remnants of the penetration, embankments, and sleepers of former narrow-gauge railways built during the Polish times to ensure a stable transport connection between the Polish siege at the Soviet border used for military purposes. For the actual off-road and seasonal weather conditions, the railroad played a major role in the transportation of wood, granite raw materials, gabbro to the railway station Rokytne, and from it to Poland. On the map (see fig. 1) the former narrow-gauge railways are marked: Rokytne–Karpylivka–Mochulianka (52 km long, constructed approximately in 1923–1925 under the project of local engineer Petro Shchedrin, disassembled in the early 80's of the XX century); Ostky–Snovydovychi–Bilovizh–Smolin (38 km, built in 1933, disassembled in the early 80's of the XX century); Rokytne – tract Kamin-Grud (25 km) [6].

Popular among tourists products, exposition of folk craftsmen, folk art monuments are the reflection of folk wisdom, its spiritual culture. Among folk crafts in the area are developing: bondage – village Vezhytsia ; beekeeping – village Staryky, Bilovuzh, Tomashgorod, Blazhove, Poznan; artistic blacksmithing – Rokytne village; carving – Masevychi, Blazhove, Stare Selo; weaving – Berezove, Stare Selo, Poznan, Karpylivka, Tomashgorod; icon painting – Masevychi, Kruta Sloboda. Famous folk amateur groups are known outside the district: «Kutochane» Rokytne, «Bereginia» Zalavia, «Blazhivchanka» Blazhove, «Verbichenka» Tomashgorod (Sehy) and exemplary folk groups: «Veseliki» Rokytne, «Polissia» Zalavia, «Prolisok» Blazhove.

The success of the sphere of renewal of vital forces, cognitive activity depends to a large extent on the material and technical base of the territory, its infrastructure, and transport accessibility. A significant segment in the production infrastructure is the transport system. The territory of Rokytniv district crosses the Warsaw–Lublin–Kovel–Sarny–Kyiv railway line, potential tourists are ready to receive stations Rokytne and Tomashgorod; and an international highway with a total length of 321.3 km M-07 (Kyiv–Kovel–Yagodyn). The length of local roads is 109.8 km. The district center has a railway and automobile connection with Kyiv (245 km), a car – with the regional center of the city of Rivne (135 km). All intra-district highways to settlements have a hard covering, not always of high quality, but with regular passenger traffic. In general, the Rokytne town is gasified, with a centralized water supply and drainage system of the district center of the Polissia outskirts with a satisfactory level of development of communication and communication systems, functioning of various services, development of catering and consumer services, organization of cultural and entertainment services. In the area for recreation there are recreation complexes: «Myslyvets» («Ukrainian Forestry Company«) in village Ostky; «Impulse» (tract «Damba») in the village Osnytsk; «Dim myslyvtsia» (tract «Liado»), tract Stupske, tract «U Buska» of Rokytniv forestry in the village Rokytne; «Myslyvskyi budynok» in village Dert';e tract «Kozatske» in the village Bilovizh. There are two hotels in Rokytne village: «Ljubystok», «Zatyshok». For the needs of the population and visitors are working accommodation and catering facilities, consumer services, shopping facilities, bankservices of vehicle maintenance, filling stations, etc.

Conclusions from this study and prospects for further exploration in this direction. The formation of tourist and recreational demand depends on many factors, resource potential, but to a large extent on the socio-economic development of the territory and the diversity of consumer information. Creation of the prerequisites for the active development of the tourist and recreational complex of the district requires significant investments: expansion of the boundaries of recreational territories and recreation areas, provision of their respective infrastructure, substantiation and development of new tourist routes, carrying out a complex of measures for the elimination of the consequences of the illegal mining of amber, etc. An important tool for attracting potential tourists and recreation is the design, publication, and continuous updating of high-quality information and promotional materials that will promote the natural and historical and cultural values of the Rokytne area, expand the tourist possibilities of the region. Corresponding cartographic and other publications promote the objects of tourism, villages, cities, in general, tourist and recreational attractiveness of the district and the region. In addition, they will allow local authorities to develop a strategy for the development of tourism in Rokytniv area, will help in rational, targeted use of budget funds to improve the infrastructure of the territories, accelerate the process of attracting investments, international grants.

References:

1. Kryzhova, N.O., Veklych, L.M. (2009). Atlas «Znayomtes, Ukraina» [Atlas «Meet Ukraine»]. K.: DNVP «Kartografiya», 90-91 [in Ukrainian].
2. Zuzuk, F.V. (2008). Atlas istorii kultury Volynskoi oblasti [Atlas of the history of culture of Volyn region]. Lutsk: Lesia Ukrainka Volyn. nats un-t, 112 [in Ukrainian].
3. Atlas Rovenskoi oblasti [Atlas of the Rivne region] (1985). Moskva: GUGK, 34.
4. Zuzuk, F.V., Karpiuk, Z.K., Antypiuk, O.V., Dymshitz, A.L., Koloshko, L.K., Kacharovskyi, R.E. (2012). Volyn – turystam: [karta do Evro-2012] [Volyn tourists: [map for Euro 2012]]. *Laboratoriya krayeznavchykh atlasiv Volyn. nats. un-tu im. Lesi Ukrainky – Laboratory of Local Linguistic Atlases of Lesia Ukrainka Volyn. nats un-t.* Lutsk: Red.-vyd. vid. Volyn. nats. un-tu im. Lesi Ukrainky, 1 pc. (2 pp.) [in Ukrainian].
5. Departament ekologii ta pryrodnykh resursiv Rivnenskoi oblasnoi derzhavnoi administratsii. Rivnenska oblasna derzhavna administratsiya [Department of Ecology and Natural Resources of Rivne Region State Administration Retrieved from http: // www. roda@rv.gov.ua [in Ukrainian].
6. Kovalchuk, V.P. (2005). Etnokulturna spadshchyna Rivnenskoho Polissya [Ethnocultural heritage of Rivne Polissya]. Rivne: «Perspektyva», VI, 199 [in Ukrainian].
7. Zuzuk, F.V., Karpiuk, Z.K., Antypiuk, A.V. (2011). Osoblyvosti «Turystskoho atlasu Volynskoi oblasti» [Features of «Tourist Atlas of Volyn Region»]. *Pryroda Zakhidnoho Polissya ta prylehlykh terytoriy – Nature of Western Polissya and adjoining territories*. Lutsk: «Vezha», Volyn. nats. un-tu im. Lesi Ukrainky, 8, 68-73 [in Ukrainian].
8. Ivchenko, A.S. (2009). Ukraina. Zakhid: putivnyk [Ukraine. West: a guidebook]. K.: DNVP «Kartografiya», 26-45, 211-212, 218 [in Ukrainian].
9. Ivchenko, A.S., Parkhomenko, O.A. (2010). Ukraina. Fortetsi, zamky, palatsy…: putivnyk [Ukraine. Castles, castles, palaces ...: a guidebook]. K.: DNVP «Kartografiya», 197-210, 464-468 [in Ukrainian].
10. Karpiuk, Z., Kacharovskyi, R., Antypiuk, O., Koloshko, L. (2015). Informatsiynyi potentsial turystskykh kart dlya populyaryzatsii rekreatsiynykh mozhlyvostei regionu (na prykladi karty «Volyn – turystam») [Information potential of tourist maps for popularization of recreational possibilities of the region (for example, a map for Volyn tourists)]. *IX Mizhnar. nauk.-prakt. internet-konf. «Tendentsii ta perspektyvy rozvytku nauky i osvity v umovakh globalizatsii» - IX International. science-practice internet conf. «Trends and Prospects for the Development of Science and Education in the Conditions of Globalization»*. Pereyaslav-Khmelnitskyi, 9, 23-27 [in Ukrainian].
11. Karpiuk, Z., Kacharovskyi, R., Antypiuk, O. (2017). Tourist attractiveness of Lokachinsky district of the Volyn region // Tendentsii rozvytku turystychnoi industrii v umovakh globalizatsii [Trends in the development of the tourism industry in the conditions of globalization]. *I Mizhnarodna naukovo-praktychna konferentsiya, 27–28 kvit. 2017 r. [I International scientific and practical conference, April 27-28. 2017]*. Uzhhorod: PE «Invasor», 29-32 [in Ukrainian].
12. Korotun, I.M., Korotun, L.K. (1996). Geografiya Rivnenskoi oblasti. Pryroda, naselennya, hospodarstvo, ekologiya [Geography of the Rivne region. Nature, population, economy, ecology]. Rivne, 274 [in Ukrainian].
13. Kryzhova, N.O. (2010). Atlas «Turystychne namysto Ukrainy» [Atlas «Travel Necklace of Ukraine»]. K.: DNVP «Kartografiya», 102-103 [in Ukrainian].
14. Kuzyk, S. (2010). Teoretychni problemy turyzmu: suspilno-geografichnyi pidkhid [Theoretical problems of tourism: socio-geographical approach] Lviv: Vyd. tsentr LNU im. Ivana Franka, 254 [in Ukrainian].
15. Kucher, P.V., Voloshyn, I.M. (2016). Istoryko-arkhitekturni pamyatky Rivnenskoi oblasti: geoprostorove poshyrennya, turystychni marshruty ta ikh kharakterystyka [Historical and architectural monuments of Rivne region: geospatial distribution, tourist routes and their characteristics]. *Pryroda Zakhidnogo Polissya ta prylehlykh terytoriy – Nature of Western Polissya and adjoining territories.* Lutsk: PP Ivanyuk V.P., 13, 92-98 [in Ukrainian].
16. Marynych, O.M., Shyshchenko, P.H. (2005). Fizychna geografiya Ukrainy [Physical Geography of Ukraine] K.: Znannya, 511 [in Ukrainian].
17. Karpiuk, Z.K., Kacharovskyi, R.Ye., Antypiuk, O.V., Koloshko, L.K. (2016). Prostorovo-terytorialni osoblyvosti rozmishhennya pryrodnykh ta istoryko-kulturnykh obyektiv vzdovzh osnovnykh elementiv transportnoi infrastruktury Volyni [Spatial-territorial features of the placement of natural and historical-cultural objects along the main elements of the transport infrastructure of Volyn]. *International Scientific and Practical Conference «World Science»*, 1(5), Vol. 5th, January 2016, 80-88. [Proceedings of the IInd International Scientific and Practical Conference «Scientific and Practical Results in 2015. Prospects for Their Development» (December 23–24, 2015, Abu Dhabi, UAE) [in Ukrainian].
18. Sulik, L.V., Krychevska, D.A. (2016). Ekologichni stezhky ta marshruty Volynskoho Polissya yak osnovna forma realizatsii ekoturystychnoi diyalnosti v regioni [Ecological trails and routes of Volyn Polissya as the main form of ecotourism activity in the region]. *Pryroda Zakhidnoho Polissya ta prylehlykh terytoriy – Nature of Western Polissya and adjoining territories.* Lutsk: PP Ivaniuk V.P., 12, 79-85 [in Ukrainian].
19. Khmeliovskyi, Yu.L., Pavlushenko, M.O. (2017). Turystychna kartoskhema Rokytnivskoho rayonu Rivnenskoi oblasti [Tourist map of Rokytne district of Rivne region]. Rivne: «Sprint», 1 pc. (1 pp.) [in Ukrainian].
20. Tutkovskyi, P.A. (1915). Poberezhe reki Lvy. Geograficheskoe i geologicheskoe opisanie [Coast of the Lions River. Geographical and geological description]. *Otdelnyi ottisk iz XIII toma Trudov Obshhestva Issledovateley Volyni – A separate imprint of the XIII volume of the Work of the Society of Volyn Researchers*, 65 [in Russian].

21. Upravlinnya kultury i turyzmu Rivnenskoi oblasnoi derzhavnoi administratsii. Rivnenska oblasna derzhavna administratsiya [Department of Culture and Tourism of Rivne Oblast State Administration. Rivne Regional State Administration]. Retrieved from http://www.tourism.rv.ua [in Ukrainian].
22. Khmeliovskyi, Yu. (2006). Zhuravlynyi kray. Krayeznavchi narysy. Rokytne [Zhuravlynyi kray. Local history essays. Rokytne]. V-vo Natsionalnoho universytetu «Ostrozka akademiya», 88 [in Ukrainian].
23. Zynkalovskyi, O. (1984). Stara Volyn` i Volynske Polissya [Stara Volyn and Volyn Polissya]. Winnipeg, 487 [in Ukrainian].

Надійшла до редколегії 05.03.2018 р.

UDC 911.3:33(477.8)

Maryana Yaroshevych
PhD Student of the Department of Economic and Social Geography
e-mail: maryana-ya@ukr.net, ORCID ID: https://orcid.org/0000-0002-5057-4905
Ivan Franko Lviv National University, P. Doroshenka str., 41, Lviv, 79000, Ukraine

EASTERN EUROPEAN GAS HUB IN EUROPEAN GAS HUBS SYSTEM

There are the questions considered in the article which have prospect of creation on the basis of the Ukrainian underground gas storages of the powerful East European gas regulator (hub) that will be capable to increase the level of energy security of Ukraine, liberalize domestic market of natural gas and to integrate into the European system of gas pipelines and to provide profitability of underground gas storages of the country. The development of the gas sector of Ukraine is a priority in the context of the implementation of Ukraine's European integration plans in the economic sphere and is determined not only by the geographical location but also by the technological integration of the gas transportation infrastructure in the European economic space over the past decades. The entry of the Ukrainian natural gas market into the European gas market system will contribute to: enhancement of Ukraine's energy security; improving the quality and level of relations between Ukraine and the EU countries in cooperation on the gas markets of Central and Eastern Europe; creating a favorable investment climate for the further development of the gas transmission system. Whereas the European experience, it can be argued that underground storages create a powerful base for the formation and further operation of the East European gas hub from a transport and logistics point of view.

Keywords: geographical location, social location, economical location, gas hub, gas storage.

Мар'яна Ярошевич. СХІДНОЄВРОПЕЙСЬКИЙ ГАЗОВИЙ ХАБ У СИСТЕМІ ЄВРОПЕЙСЬКИХ ГАЗОВИХ ХАБІВ

Метою роботи є висвітлення важливих географічних передумов формування проектованого Східноєвропейського газового хабу та його конкурентоспроможності на газовому ринку Європи. У статті розглянено географічне положення як важливу логістичну перевагу при формуванні Східноєвропейського газового хабу. Розглянено одні із основних об'єктів газотранспортної інфраструктури – газові сховища, на базі яких повинен сформуватись майбутній український газовий хаб. Проаналізовано основні параметри функціонування газових сховищ. Вивчено європейський досвід функціонування газових хабів. Проведено аналіз функціонування газових хабів Німеччини та їх зв'язок з газосховищами країни. У найбільшій мірі у даній праці використовуються конкретнонаукові методи, а саме метод аналізу аналогових ареалів, оскільки проводиться дослідження об'єктів – газових хабів шляхом їх співставлення і метод порівняння. Також застосовується картографічний метод для наочного висвітлення досліджуваної проблематики.

Ключові слова: географічне положення, суспільно-географічне положення, економіко-географічне положення, газовий хаб, газове сховище.

Марьяна Ярошевич. ВОСТОЧНОЕВРОПЕЙСКИЙ ГАЗОВЫЙ ХАБ В СИСТЕМЕ ЕВРОПЕЙСКИХ ГАЗОВЫХ ХАБОВ

Целью работы является освещение важных географических аспектов формирования проектируемого Восточноевропейского газового хаба и его конкурентоспособности на газовом рынке Европы. В статье рассмотрено географическое положение как важное логистическое преимущество при формировании Восточноевропейского газового хаба. Рассмотрено одни из основных объектов газотранспортной инфраструктуры – газовые хранилища, на базе которых должен сформироваться будущий украинский газовый хаб. Проанализированы основные параметры функционирования газовых хранилищ. Изучено европейский опыт функционирования газовых хабов. Проведен анализ функционирования газовых хабов Германии и их связь с газохранилищами страны. В наибольшей степени в данной работе используются конкретно научные методы, а именно метод анализа аналоговых ареалов, поскольку проводится исследование объектов - газовых хабов путем их сопоставления и метод сравнения. Также применяется картографический метод, для наглядного освещения исследуемой проблематики.

Ключевые слова: географическое положение, социально-географическое положение, экономико-географическое положение, газовый хаб, газовое хранилище.

Problem statement. The Eastern European gas hub is one of the largest energy projects that can liberalize the natural gas market, integrate the Ukrainian gas transport system into a European gas pipeline system and ensure the profitability of underground gas storage facilities in the country. The relevance of a research subject consists in the need of socio-geographical study of transport and energy problems of our country.

Main part. The concept of geographical location is one of the main categories in geography. Geographical location refers to the location of an object or area of the earth's surface in relation to other objects or territories that are located outside the boundaries of this object or area and have an effect on them. Geographic location is a dynamic description that constantly acquires new features and changes with the varying properties of the geographical object and its interactions with other objects.

Academician S. Rudnytskyi writes in his work "Galicia and United Ukraine": "Geographic location is, perhaps, the most important geographical factor for each land-based unit: the continent or a complex of countries, land or neighbourhoods, even a single locality." [1, p. 379]. By considering this issue it is also worth to pay attention to the transport research of a scientist. Despite the fact that economic, including transport and communications, was not of main focus problem of the

 DOI: 10.26565/2076-1333-2018-24-09

scientific activities, S. Rudnytsky adequately examined it in several of his scientific works. The most complete economic-geographical description of Ukraine is given in the work "Ukraine: Land und Volk" (Ukraine: Country and Nation) (1916). Prior to that, in the work "Short Geography of Ukraine", the scientist gave a description of the paths year of 1914, and in the paper "The Ukrainian case on the state of political geography" (1923), where the one third is "The Ukrainian case on the part of the economic", the economic and geographical issues are reviewed, and also the connection between transport and the political situation is traced. In general, the transport geography S. Rudnytsky enlisted in the economic geography, which, accordingly, is the branch of anthropogeography. Then, when a scientist wrote about Ukraine, her territory was distributed between Russia, Poland and Romania. In particular, S. Rudnytsky often mentioned the territory that passed to Poland: "... Ukraine lost its independence, was annexed to Poland, fell into the position of a large and rich and recklessly used colony ..." [1, p. 188].

Prof. Shabliy O. notes that " the geographical location is the spatial relation of a particular object (country, city, mountain range, etc.) to geographical particularities that lie outside it and have or may have a significant influence on it" [3, p. 93]. The structure of geographical location allocates subsystems - socioeconomic, cultural and ethno cultural location. The scientist refers "geographical location" to difficult category as it always individualizes a geographical object. The geographical location displays such features as positionality and uniqueness. According to the scientist, the geographical position - is the property of the object, but at the same time it reflects its relation to other territorial systems. The approach to the definition of socio-geographical location completely preserves the features of determining the geographical location. Socio-geographical location is interpreted as the position of a certain socio-geographical object in relation to other objects that have economic significance for it (sources of energy, transport routes, etc.). Prof. Topchiyev O. in his work "Fundamentals of human geography" describes the relationship and interaction of geographical object with other objects as an important characteristic that affects its further development. The scientist notes that the spatial relationship of the object to other neighbours is a relative tie, but is used by geographers more often, because it enables to carry out a comprehensive description of the spatial organization: "... the theory and practice of socio-geographical research convincingly testify that it is analysis of relative locations, the study of the neighbourhood allows to give the placement of individual objects a profound and meaningful qualitative characteristic" [2, p. 154-155].

There are few scientific papers which consider the topic of the gas hubs. In year 2010 Patrick Heather published his paper "The Evolution and Functioning of the Traded Gas Market in Britain" which described the genesis and development of Britain's traded gas market for which the political and financial imperatives of the early 1980's, as much as the desire to create a competitive market, were a key factor. The Heather's paper "Continental European Gas Hubs: Are they fit to purpose?" provides a comprehensive and timely review of gas market developments against the backdrop of the ongoing transition from long term oil-indexed contracts to hub based contracts. In anticipation of this transition reaching its logical conclusion, the question in the paper's title i.e. "are the European gas hubs fit for purpose?" relates to the ability of the hubs to provide a reliable basis for hub-based pricing in long term contracts. After studying the development in trading liquidity and the close correlation of prices between the hubs, the answer from this paper is an emphatic 'yes' although the exact roles of the individual hubs will probably continue to differ. Based on extensive research and discussion with the key actors intimately involved, the paper provides deep insights into the characteristics of the individual hubs, the reasons behind their particular evolutionary path and the prospects for their further development [6].

We consider a transport geographical location as a subsystem of an economic geographical location, the study of which draws attention to the infrastructure components of transport systems. Speaking about a specific object - the East European gas hub, firstly, it is necessary to localize separate structural elements - gas storage facilities. There are are 5 underground gas storages facilities in western region of Ukraine - Uherske, Oparske, Bilche-Volitsko-Uherske, Dashavske and Bogorodchanske (Fig. 1). The largest one is Bilche-Volitsko-Uherske with an active capacity of 17050 million cubic meters (Table 1).

Table 1

The main characteristics of underground gas storages in the western region of Ukraine

Gas storage	**Active capacity, *million m³***	**The capacity that is used, *million m³ * 26.09.2017***	**Percentage of use, %**
Bilche-Volitsko-Uherske	17050	8240	48,33
Bogorodchanske	2300	1700	73,91
Dashavske	2150	1753	81,53
Oparske	1920	591	30,78
Uherske	1900	540	28,42

This gas storage should become the core of the future projected hub. The next largest is Bogorodchanske – 2300 million cubic meters, Dashavske – 2150 million cubic meters, Oparske - 1920 million cubic meters, and Uherske – 1900 million cubic meters [5]. All gas storage facilities in the western region have the same genesis: they appeared on the site of exhausted gas / oil fields. It should also be noted that gas storage facilities, especially the first four, are located in short distances from each other. This allows us to talk about them as about one structured geographic object. The five above-mentioned gas storage facilities are almost identical to the location of the Oleska shale gas deposit in the Western region of Ukraine with a total area of 6,324 km². The Oleska shale gas deposit is located on the territory of Lviv area (Busk, Zhidachiv, Zhovkiv, Zolochiv, Kamianka-Buzky, Mykolayiv, Peremyshlyansky, Pustomyty, Sokal districts), Ivano-Frankivsk area (Tlumatsky, Galitsky, Gorodenkivsky, Rogatinsky districts) and the extreme western part of Ternopil area (Fig. 1).

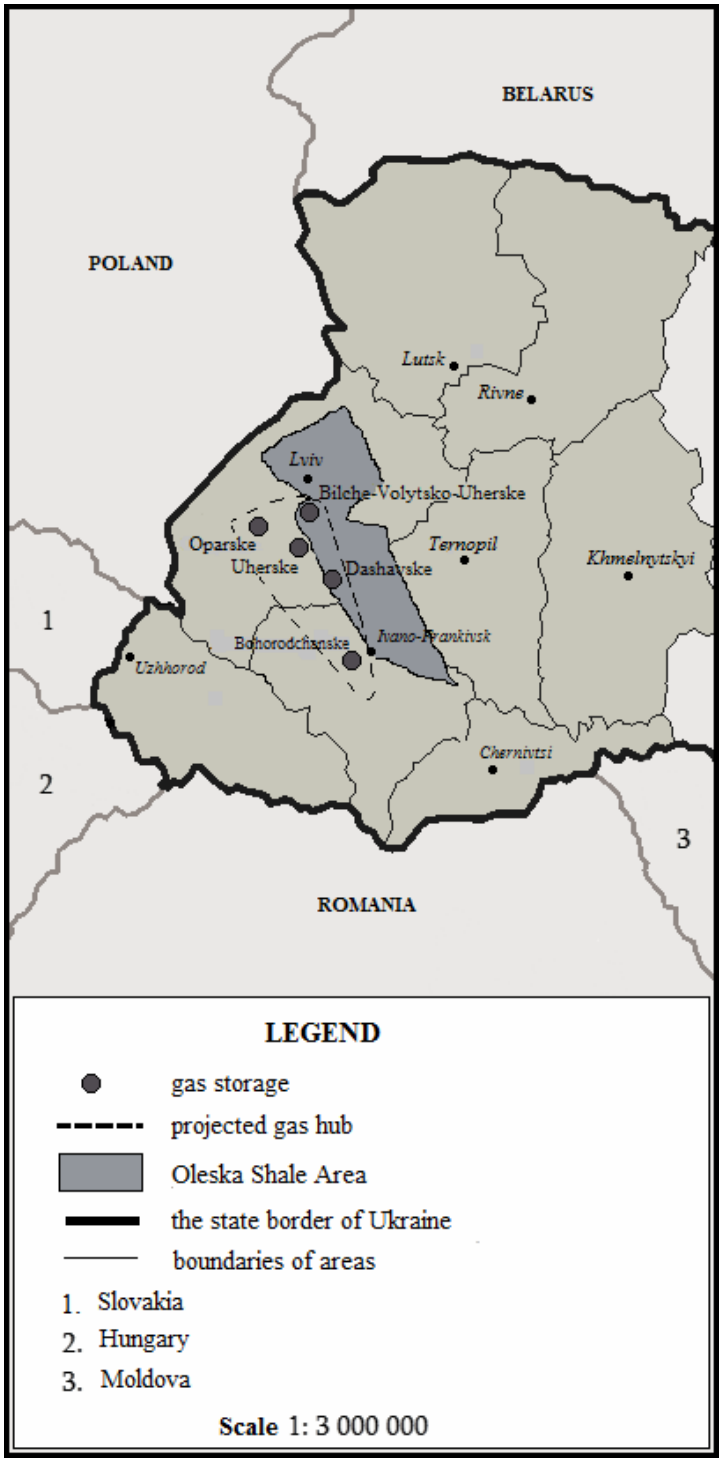


Fig. 1. Underground gas storage in the western region of Ukraine

Except five underground gas storages (UGS) of the western region there are eight more in Ukraine. Seven of them are located on eastern region of the country, along important transport and pipeline points (and also Glebovske in the territory of occupied Crimea). The facilities of Chervonopartizanske gas storage (total capacity is 2700 million cubic meters) and Olischivske gas storage (total capacity is 660 million cubic meters) are natural reservoirs based on the aquifer structure. All other gas storages, like gas storage facilities in the western region, are created on the site of former gas / oil fields. The gas storage facilities have the following capacity: Proletarske – 4800 million cubic meters, Solohivske – 2000 million cubic meters, Kehichevske – 1,315 million cubic meters, Verhunske – 920 million cubic meters, Krasnopolivske – 800 million cubic meters [5]. These gas storage facilities are generally used for internal needs of the country in general and of the region in particular. Generally the Ukrainian gas storage system is one of the worlds largest and the most powerful in Europe (Table 2). In recent years Ukraine uses only up to 50% of capacity of gas storages. According to Naftogaz, the company has started a project to forecast demand for the use of gas storages and to explore the possibility of increasing the active capacity of systems.

Fig. 2. Underground gas storage facilities of Ukraine

Table 2

Indicators of the use of gas storage in Europe

Country	**General capacity, *million m³***	**Reserves of natural gas in storages, *million m³ *10.04.2017***	**Percentage of use, *%***
Ukraine	30950	8304	26,8
Germany	22627	6680	29,5
Italy	18445	7630	41,4
France	12855	2898	22,5
Netherlands	13338	2270	17,0
Austria	1463	8773	16,7

The geographic remoteness of the gas storage facilities of the western region of Ukraine from other gas storages of the country not only strengthens logistic positions, but also makes possible to consider the aggregate of gas systems as a gas hub of the European model. That is why, we can say about the formation of an East European gas hub in the western region of Ukraine.

It should be noted that desire to keep competition through development of standard and legal base in a background of the general economic crisis at the European political level has caused fast development of a number of the European gas hubs which influence pricing of the gas. Classification of the European gas hubs on trading, transit and transition is the most widely used The British hub NBP (National Balancing Point) and the Netherlands TTF (Title Transfer Facility) belong to the main of trading hubs. Whilst NBP is still by far the most active traded hub in Europe, its lead over TTF is slowly diminishing. This is mainly due to increased volumes on the Dutch market whereas the British market has been more modest in its volume development [6]. Generally the trade hubs have the greatest influence on gas pricing. The largest transit hubs in Europe are the Belgian ZEE (Zeebrugge) and the Central European Gas Hub (CEGH).

The main purpose of transit gas hubs is to facilitate the process of transferring large quantities of gas for further distribution among consumers. In fact, transit hubs are physical points where market participants can trade. Indeed, the two transit gas hubs of North West Europe, Zeebrugge in Belgium and Baumgarten in Austria have the capacity between them to handle around 45% of the demand in the downstream countries they provide gas to. This makes these two locations very important in the physical context of gas deliveries to Western Europe. However, the nature of their formation means that trading has not developed as much as in neighbouring hubs [6]. Transition hubs are the German GPL (Gaspool Balancing Services hub) and NCG (NetConnect Germany), the French PEGs (The Points d'Echange de Gaz), and the Italian PSV (The Punto di Scambio Virtuale). In general, this category includes hubs that have already managed to declare their position on the market, liberalize it by trading, but have not yet fully revealed their potential. There is reason to believe that the projected East European gas hub will be the largest competition for the Central European gas hub, since, first of all, the geographically closest to it, and, secondly, has considerably more potential in terms of capacity of gas reservoirs, which will enable to develop in the future a powerful market a gas trading platform. In order to ensure the security of gas supply on a regional basis and avoid the problem of energy dependence, the European Commission proposes to create nine zones of gas supply with the relevant regulations, and thus strengthen ties and cooperation between market participants (Fig. 3).

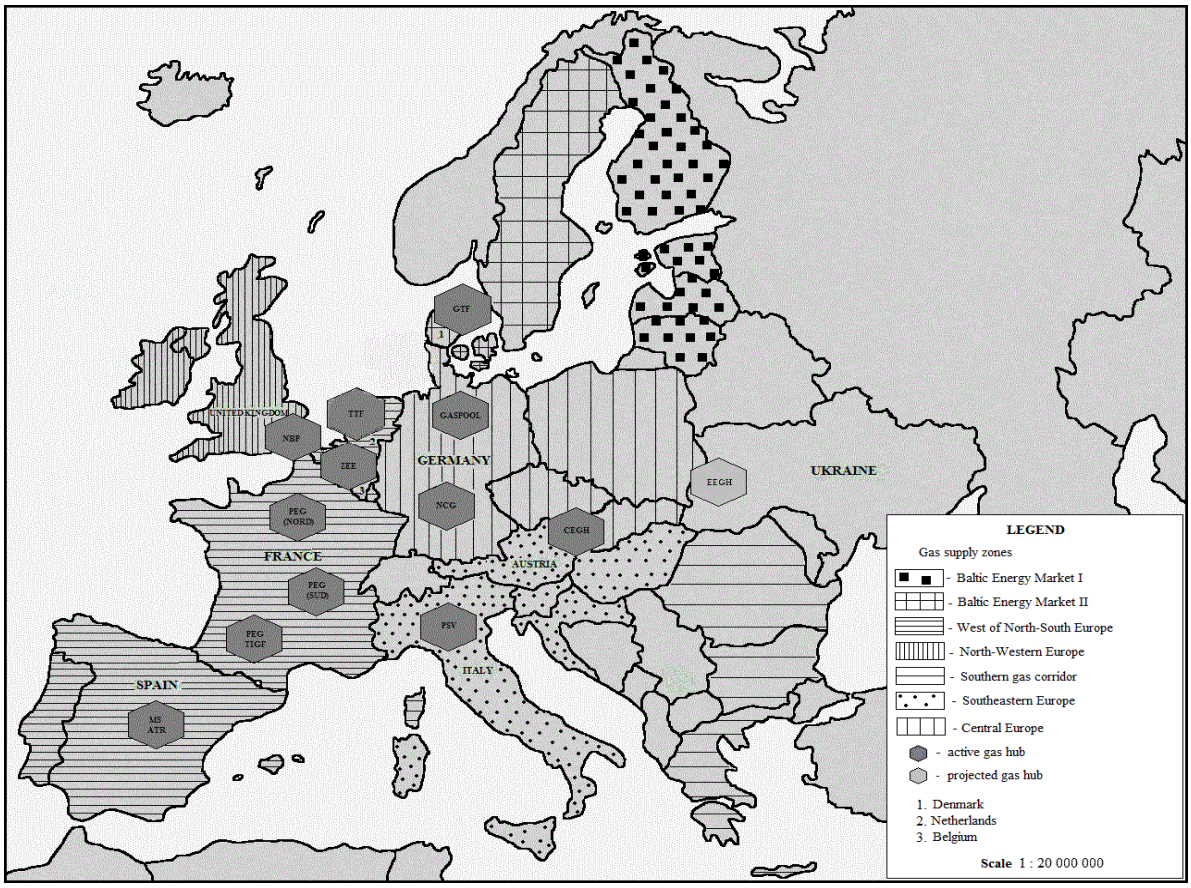


Fig. 3. Gas supply zones and gas hubs in Europe

The countries of each zone will share responsibility for the formation of strategic gas reserves and the development of gas infrastructure. According to this regionalization, the following gas supply areas should be distinguished: North-Western Europe, West of North-South Europe, Central Europe, Baltic Energy Market I, Baltic Energy Market II, Southeastern Europe, Southern gas corridor and separate islands Malta and Cyprus. The principle of solidarity between countries is also regulated, in which neighboring states should assist each other during the crisis with gas supplies and ensure the work continuity of certain sectors of industry and agriculture that are most dependent on gas. In coordination with the European Commission, states should also share responsibility for the development of gas infrastructure and the formation of strategic gas reserves. Particular attention is also paid to the creation of reverse supplies between countries. This should be kept in mind by designing the Eastern European gas hub. Despite Ukraine's direct borderline with the Eastern gas monopoly, from November 25, 2015, Ukraine imports natural gas only from its western neighbors. In 2016, Ukraine received the main resource of imported gas from Slovakia (9 billion cubic meters). Approximately 1 billion cubic meters were also imported from Poland and Hungary. Such change in gas supply policy was caused by several factors, the most important of which is the unresolved issue of the relationship between the companies of «Gazprom» and «Naftogaz» Ukraine [8].

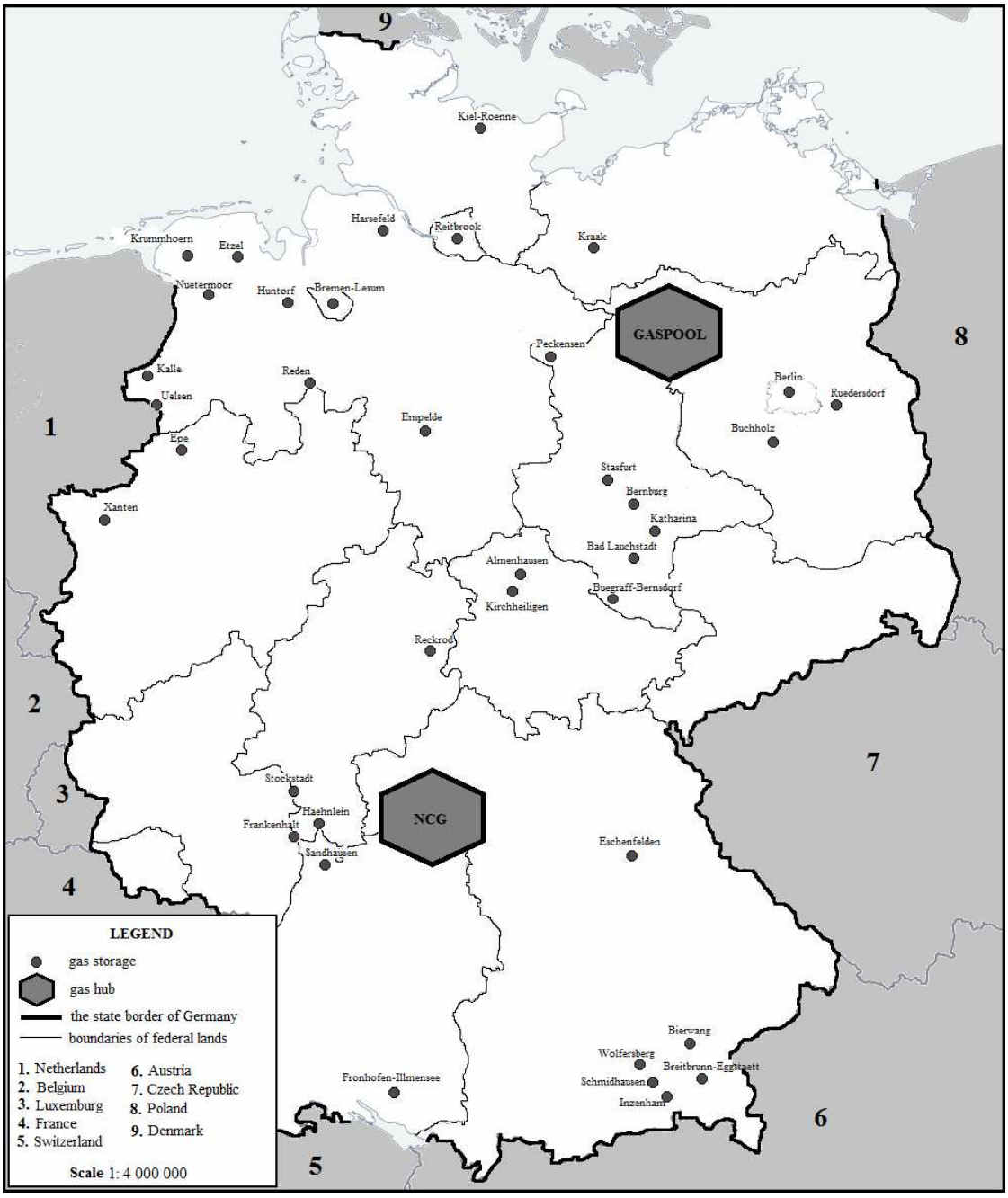


Fig. 4. Gas storage and hubs of Germany

It is also worth noting that the share of the state companies in import of gas has decreased in favor of private importers whom in the market there are more than 20. European companies have wary of the Ukrainian market, but there is a noticeable positive dynamic. For example, «Naftogaz» and Polish «PGNiG» have signed the contract for urgent supply of gas in March 2018 after the Russian monopolist «Gazprom» has refused to deliver gas to Ukraine. The contract is valid until the end of March 2018. The volume of the contract is more than 60 million cubic meters. Deliveries are implemented on the Hermanowice point connects the Polish and Ukrainian gas transportation systems. Despite all the risks that currently exist on the Ukrainian gas market, at the end of 2017 it became known about the start of work of foreign companies directly in Ukraine. Today there are four European traders who supply gas to the domestic market although the volumes are still rather small. But it says about positive dynamics in the process of liberalization of the Ukrainian gas market. To study the aspects of the functioning of the East European gas hub, it is important to discover European experience in this field. One of the greatest gas storage systems is in Germany. There are 51 gas storage facilities in the country with the total capacity of gas reservoirs, as noted earlier, about 22 627 million cubic meters. Two gas hubs were formed on the basis of developed gas infrastructure: Gaspool in the north and NCG in the south of the country (Fig. 4). Both gas hubs are marketplaces and are not geographically tied to gas storages, but are rather a virtual point formed at the intersection of gas transport corridors, where the most active way is the distribution of energy between market participants. In the case of Ukraine, the gas storages of the western region provide extraordinary manoeuvrability of gas flows, optimization of the operating modes of the energy sector, as well as the creation of necessary operational and strategic gas reserves, which is important in the context of market relations. All these preconditions can serve as a powerful base for the creation of a European gas hub in Ukraine

Summary. As an example of the German experience in the field of gas hub formation, one can conclude that powerful gas platforms can be formed regardless of the location of gas storage facilities. But their close location can be a significant advantage and become the basis for the formation and operation of a gas hub. It can be also concluded that on the basis of gas storage facilities in the western region of Ukraine it is possible to form a powerful gas hub of the European model. To develop a model of the Ukrainian hub, the feasibility study needs to be implemented for the creation of a suitable gas field and the development of a related infrastructure, identifying sources of financing for the hub and listing issues that require appropriate changes to the current legislation. The next step should be market research in market sphere to determine the circle of stakeholders on the activities of the gas hub (domestic and foreign), working out the issue of the creation and operation of the working body of the gas hub, etc.

References:

1. Rudnytskyi, S. (1994). Halychyna ta soborna Ukraina [Galicia and united Ukraine]. *Chomu my khochemo samostiinoi Ukrainy? – Why we want independent Ukraine?* Lviv: Svit [in Ukrainian].
2. Topchiev, O.H. (2001). Osnovy suspilnoi geografii [Fundamentals of human geography]. Odesa: Astroprynt, 560 [in Ukrainian].
3. Shabliy, O.I. (2012). Osnovy suspilnoi geografii [Fundamentals of human geography]. Lviv: VTS LNU im. I. Franka, 295 [in Ukrainian].
4. Yaroshevych, M.A. (2015). Suspilno-geografine polozhennya Skhidnoevropeiskoho hazovoho khabu [Social and economical aspects of East European Gas Hub`s location]. *Region–2015: suspilno-geografichni aspekty: Materialy mizhnarodnoi naukovo-praktychnoi konferentsii studentiv, aspirantiv ta molodykh naukovtsiv – Region–2015: socail and economical aspects: Materials of international scientific conference for students, PhD students and young scientists.* Kharkiv: KhNU im. V.N. Karazina, 36-38 [in Ukrainian].
5. Chernova, O.T. (2014). Analiz rozvytku merezhi pidzemnykh skhovyshch hazu Ukrainy [Analysis of the network of underground gas storage facilities Ukraine]. *Rozrobka rodovyshch – Mining*, 8, 261-276. Retrieved from http://mining.in.ua/articles/volume8_3/34.pdf [in Ukrainian].
6. Heather, P. (2012). Continental European Gas Hubs: Are they fit to purpose? *The Oxford Institute for Energy Studies.* June 2012. Retrieved from https://www.oxfordenergy.org/wpcms/wp-content/uploads/2012/06/NG-63.pdf [in English].
7. Karta gazovykh skhovyshch [Storage map] (2015). *Gazova infrastruktura Evropy – Gas infrastructure Europe.* Retrieved from http://www.gie.eu/index.php/maps-data/gse-storage-map [in Ukrainian].
8. Rozyednannia [Unbundling] *Dzerkalo tuzhnya.* Retrieved from http://gazeta.dt.ua/energy_market/unbundling-rozdiliti-nak-naftogaz-ukrayini-mozhna-ale-hto-voloditime-yiyi-chastinami-ta-v-chiyih-interesah-_.html [in Ukrainian].

Надійшла до редколегії 20.03.2018 р.

УДК 528.9+911.3

Ігор Козак
д. біол. н., професор, завідувач кафедри ландшафтної екології
e-mail: modeliho@kul.lublin.pl, ORCID ID: https://orcid.org/0000-0002-4163-5534
Ганна Козак
асистент кафедри охорони навколишнього середовища та ландшафту
e-mail: hannakozak@kul.lublin.pl, ORCID ID: https://orcid.org/0000-0003-4808-1172
Люблінський католицький університет імені Іоана Павла II,
вул. Константинув 1Н, м. Люблін, 20-708, Польща

ЗМІНИ У КУЛЬТУРНОМУ ЛАНДШАФТІ ҐМІНИ СОЛИНА

Дослідження проведено в актуальних межах ґміни Солина (польське Solina), розташованій у Ліському повіті Підкарпатського воєводства (powiat Leski, województwo Podkarpackie) у південно-східній Польщі. Представлено динаміку поселень у ґміні Солина від другої половини XVIII століття до другої половини XX століття із застосуванням GIS, а також втрату традиційних сільських систем, їх інфраструктури та культурних надбань.

Ключові слова: динаміка, поселення, ГІС, культурний ландшафт, ґміна Солина.

Игорь Козак, Ганна Козак. ИЗМЕНЕНИЯ В КУЛЬТУРНОМ ЛАНДШАФТЕ ГМИНЫ СОЛЫНА
Исследование проведено в актуальных пределах ґмины Солына (польское Solina) Леского района в Подкарпатском воеводстве (powiat Leski, województwo Podkarpackie) в юго-восточной Польше. Представлено динамику селений ґмины Солына со второй половины XVIII века до II половины XX века с использованием GIS, а также потерю традиционных сельских систем, их инфраструктуры и культурных ценностей.

Ключевые слова*:* динамика, селения, ГИС, культурный ландшафт, гмина Солына.

Ihor Kozak, Hanna Kozak. CALTURAL LANDSCAP'S CHANGES OF SOLYNA COMMUNE
The main aim of the present work was to analyze the dynamics of settlements from the 2nd half of the 18th century to 2nd half of 20th century in Solyna commune (in polish Solina), in Lesko district, Podkarpackie voivodeship in Eastern Poland. There was analyzed the Solyna commune in terms of the changes of settlements and applied maps together with published historical data for the analysis of changes in its structure. The first was the historical map, in other words the tactical map of «WIG- Military Institute of Geography». Next maps from the «WMS-Web Map Service, Geoportal» were analyzed. Changes in the number of villages and households population dynamics for Greek-catholics, «Latynnykys» and Jews for the year 1785 were evaluated applying ArcGIS 10.3 program. Ukrainian ones were evaluated using ArcGIS program in comparison with the number of Poles and Jews for the year 1939. Ethnic and religious composition from the 2nd half of the 18th century to 2nd half of 20th century and the character of settlements distribution in Solyna commune was evaluated based on the study of spatial distribution of settlements with the use of Spatial Statistics (Spatial Autocorrelation Global Moran's test, Standard Deviational Ellipse and Mean Centre). In 1785 there were 80,55% of Greek-catholics and in 1939 there were 89,82% of Ukrainians in Solyna commune. There was confirmed a similar configuration of Standard Deviation Ellipse and Mean Center for Greek-catholic for the year 1785 and Ukrainians for the year 1939 in Solyna commune. The scale and results of such changes are essential for future research, mainly in terms of the change of traditional village system infrastructure and culture.

Keywords: dynamics, village, GIS, caltural landscape, Solyna commune.

Постановка наукової проблеми. Статистичні дані не завжди об'єктивно показували національний і релігійний склад населення як в усій Галичині [14], так і на досліджуваній території ґміни Солина. Виходячи із такої ситуації, вважаємо, що висвітлення даних щодо національного походження, а також віросповідання у межах ґміни Солина є актуальним. Важливо це також із точки зору сільських культурних ландшафтів. Такі культурні ландшафти, звичайно, пов'язані з традиційною сільською системою (ТСС), яка характеризується специфічним зонуванням від центру (забудова із церквою) через присадибні поля, сінокоси, пасовиша та ліси до периферії [10]. Авторське розуміння дефініції ТСС полягає на тому, що така система об'єднувала місцеві громади, які століттями творили багату українську культурну спадшину (культурно – просвітні товариства – такі як: Рідна школа, Просвіта, Сокіл; церкви; школи; бібліотеки; кооперптиви; ремісничі майстерні і т. д), а також адаптувалися до гірських умов та довкілля. Наслідки втрати такої системи потребують детальнішого дослідження.

Аналіз попередніх досліджень. На даний час відсутні дослідження динаміки сіл ґміни Солина. Показано у загальних рисах специфіку релігійних і національних відносин на польсько-словацько-українському прикордонні [12], зміну ландшафтів у високих Бескидах (польське Bieszczadach) [23], способи тривимірної реконструкції втрачених церков [19]. Представлена також інформація про залишки давніх сіл ґміни [7].

Аналіз літератури щодо ТСС показує, що саме такі системи сприяють формуванню характеру природної і культурної спадщини [4]. Їхня культурна спадщина визнана актуальною і розвивається на глобальному рівні в ряді міжнародних угод і програм [6, 11, 21], але часто є під загрозою [4]. Роль традиційної сільської системи оцінено для Українських Карпат у контексті стабільного

 DOI: 10.26565/2076-1333-2018-24-10

управління лісами [10], а сам аналіз соціальних і культурних аспектів ТСС є на часі і потребує розробки нових підходів.

Формулювання мети статті. Метою праці було глибше дослідження питання розмішення поселень у сучасних межах ґміни Солина (Solina), у тому числі із залученням давніших історичних даних від 1785 р., архівних матеріалів, геостатистичних методів дослідження, наявних у сучасних пакетах ГІС. Завданням статті було нанести у програмі ArcMap поселення у сучасних межах ґміни Солина, провести аналіз їх релігійного і національного складу із застосуванням статистичних інструментів, а також показати втрату ТСС та її культурних елементів.

Матеріали і методика дослідження. Об'єктом дослідження були населені пункти у ландшафті в актуальних межах ґміни Солина Ліського повіту Підкарпатського воєводства (gminy Solina powiatu Leskiego, województwa Podkarpackiego). Площа ґміни сягає 184,2 км^2, а щільність заселення – 28,9 осіб на км^2. За даними [17] станом на 31.12 2011 р. у ґміні проживало 5327 осіб, з яких – 2690 чоловіків і 2637 жінок.

Дослідження динаміки населених пунктів проводилися шляхом нанесення їх розміщення у вигляді пунктів і полігонів на карти станом на 1785 і 1939 рр. у формі відповідних шарів у програмі ArcGIS 10.3. Дані для забудови та кількості господарств на час перед ІІ Світовою війною залучені з акрушів: Лісько (Lesko), Устрики Долішні (Ustrzyki Dolne) Військового Географічного Інституту (WIG) [18]. Для кожного із зазначених населених пунктів ґміни Солина додано інформацію щодо кількості у них господарств від 1939 (WIG) та від 1965 років (WMS-Web Map Service, Geoportal), а також чисельності жителів за релігійним та національним складом, починаючи від другої половини XVIII століття, а конкретно від 1785 [9] та від 1939 рр. [14]. Для часового аналізу розміщення поселень застосовано ArcGIS 10.3 [22].

Аналіз еліпсів стандартних відхилень, середніх географічних центрів, а також тесту просторової автокореляції Морана виконано у програмі ArcMap [22]. Метод еліпсів стандартних відхилень показує напрямок і характеризує поширення поселень на території ґміни. Еліпси (розміщення і стандартних відхилень) за своєю понятійною сутністю одинакові. Метод середніх географічних центрів дозволяє виявляти центри поширення населених пунктів. Тест просторової автокореляції Морана дає змогу виявляти кластери у розміщенні поселень.

Результати дослідження та їх обговорення. Як показують наші розрахунки, які проведені на основі опублікованих даних З. Будзинського [9], у ґміні Солина у 1785 р. греко-католики становили 80,55%, латинники – 15,94%, а особи іудейського віровизнання – 3,51% (табл. 1). Варто також зауважити, що З. Будзинський до латинників, окрім поляків, також зарахував українців, які розмовляли українською мовою, але ходили до костелу, тому термін латинники у нього є не адекватним. Коректніше було б назвати перших римо-католиками, а других – латинниками, що вже було зроблено В. Кубійовичем [14].

Вищесказане добре ілюструється на прикладі таких сіл, як: Рибне, Бережниця Горішня, Воля Горянська, Тискова, Воля Матясова, Бережниця Долішня, Студене, Забріддя.

У с. Рибне у 1785 р. за даними Будзинського [9] зафіксовано 120 греко-католиків і 20 латинників. А вже у 1939 р. за даними Кубійовича [14] проживало 320 українців, 20 євреїв і не відзначено жодного поляка. Відповідно у с. Бережниця Горішня у 1785 р. присутні 220 греко-католиків і 22 латинники. А вже у 1939 р. наявні 625 українців, 5 євреїв і відсутні поляки. У с. Воля Горянська у 1785 р. проживало 118 греко-католиків, 3 латинники і 4 іудеїв. А у 1939 р. було 320 українців, 10 євреїв і не було поляків. У с. Тискова у 1785 р. зафіксовано 90 греко-католиків, 30 латинників і 5 іудеїв. А у 1939 р. проживало 270 українців, 10 євреїв і не відзначено поляків. У с. Воля Матясова у 1785 р. присутні 80 греко-католиків і 16 латинників. А у 1939 р. наявні 415 українців, 15 євреїв і не присутні поляки. У с. Бережниця Долішня у 1785 р. Мешкало 85 греко-католиків і 25 латинників. А у 1939 р. зафіксовано 255 українців, 15 євреїв і не занотовано поляків. У с. Студене у 1785 р. наявні 130 греко-католиків, 6 латинників і 6 іудеїв. А у 1939 р. було 310 українців, 10 євреїв і відсутні поляки. У с. Забріддя у 1785 р. проживало 75 греко-католиків, 4 латинників і 6 іудеїв. А у 1939 р. - 290 українців, 10 євреїв і брак поляків.

Тобто відсутність поляків у цих 8 селах (Рибне, Бережниця Горішня, Воля Горянська, Тискова, Воля Матясова, Бережниця Долішня, Студене, Забріддя) у 1939 р. підтверджує неточність даних Будзинського щодо латинників. Але, навіть, незважаючи на це, переважання українців цілком наочне.

Перевагу українців (див. табл.) на території ґміни Солина підтверджують наступні дані аналізу із 1939 р., коли українці становили 89,82%, поляки 7,09%, а євреї 3,09% (чисельність німців була незначною, менше 0,01% і тому не аналізується у публікації). Бачимо домінування українців перед ІІ Світовою війною на території ґміни Солина.

Аналіз показав що у 1785 р. еліпс стандартних відхилень (рис. 1) для греко-католиків (чорний колір) є ширшим і охоплює більшу площу, ніж для латинників (темно-сірий колір) і є більш просуненим на південь в гори. Це свідчить про натуральне рівномірніше і давніше розташування греко-католиків у межах усієї ґміни Солина. Еліпс стандартних відхилень для латинників показує північніше (передгірське) їх зосередження, порівняно з греко-католиками. Це свідчить про те, що латинники значно пізніше проникли у гірські та передгірські території, які уже давно до них були освоєні греко-католиками.

Середній центр латинників (трикутник) знаходиться на рисунку (рис. 1) майже на 3,2 кілометрів північніше від середнього центру греко-католиків (квадрат). А центр юдеїв (квадрат із крапкою) знайшов своє місце достатньо близько до центру греко-католиків (на 0,6 кілометрів на південний схід від середнього центру греко-католиків). Це свідчить про це, що юдеї тісно співіснували з греко-католиками (переважно продавали вироблену ними продукцію).

Таблиця 1

Релігійний та національний склад поселень ґміни Солина

Nr	Назва поселень українською (польською)		1785			1939	
		Греко-католики	Латинники	Іудеї	Українці	Поляки	Євреї
1	Завіз (Zawóz)	214	20	0	655	5	20
2	Вавковия (Wołkowyja)	282	50	5	565	40	15
3	Рибне (Rybne)	120	20	0	320	0	20
4	Горянка (Górzanka)	195	18	10	460	10	10
5	Бережниця Горішня (Bereźnica Wyżna)	220	22	7	625	0	5
6	Воля Горянська (Wola Górzańska)	118	3	4	320	0	10
7	Радева (Radziejowa)	88	11	0	315	5	10
8	Тискова (Tyskowa)	90	30	5	270	0	10
9	Полянки (Polanki)	166	0	10	435	0	5
10	Терка (Terka)	193	5	20	660	10	10
11	Буковець (Bukowiec)	190	14	14	725	20	35
12	Воля Матяшева (Wola Matiaszowa)	80	16	0	415	0	15
13	Березка (Bereska)	360	90	30	1055	5	20
14	Бережниця Долішня (Bereźnica Niżna)	85	25	0	255	0	15
15	Мичківці (Myczkowce)	250	105	7	450	350	40
16	Солина (Solina)	76	195	7	740	360	50
17	Городок (Horodek)	402	20	13	815	5	40
18	Студене (Studenne)	130	6	6	310	0	10
19	Мичків (Myczków)	102	55	0	560	60	10
20	Полянчик (Polańczyk)	136	14	4	515	5	10
21	Бібрка (Bóbrka)	224	60	10	1000	85	25
22	Ральське (Rajskie)	340	36	22	1170	60	50
23	Забріддя (Zabrodzie)	75	4	6	290	0	10
24	Савковчик (Sawkowczyk)*	-	-	-	-	-	-
	Разом	***4136***	***819***	***180***	***12925***	***1020***	***445***

** Дані відсутні також у таких поселеннях, як: 25. Підліщини (Podleszczyny); 26 Заділ (Żadział); 27. Раписька (Rapiska); 28. Загумінчик (Zachumijczyk); 29. Під Товстою (Pod Tołstą); 30. Лікоть (Łokiec); 31. На Кичері (Na Kiczerze); 32. Ютрина (Jutryna); 33. Ваглиська (Wagliska); 34. Паращаківка (Paraszczakówka); 35. Берці (Berce); 36. На Границі (Na Granicy); 37. Пасіки (Pasieki); 38. Засавин (Zasawin); 39. Поляна (Polana); 40. Луг (Łęg).*

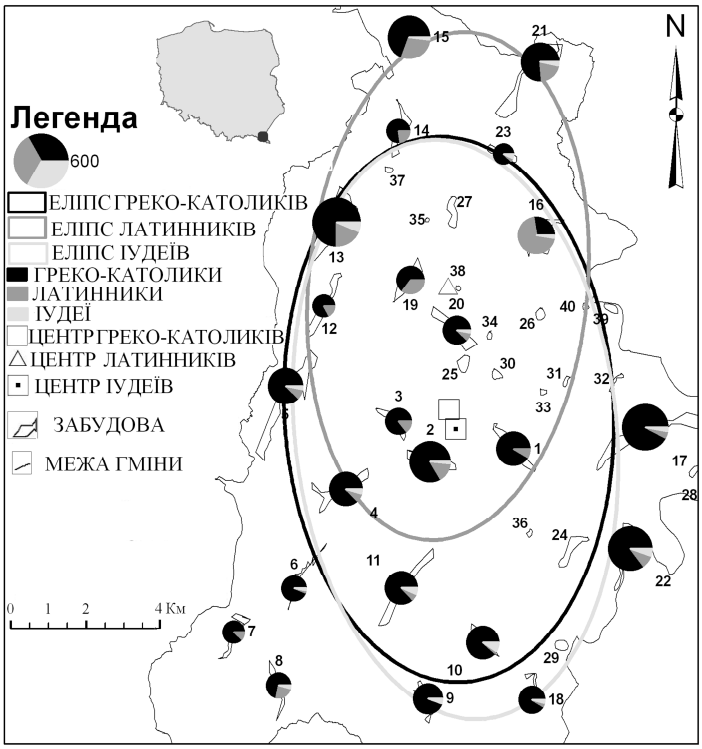


Рис. 1. Аналіз розміщення релігійного складу ґміни у 1785 році
(цифри біля поселень відповідають номерам і назвам поселень, що подані у таблиці)

В усіх поселеннях ґміни (на рисунках цифри біля поселень відповідають їхнім номерам і назвам, що подані у таблиці) греко-католики домінували у 1785 р., а також після 1785 їх чисельність була високою. Можна зауважити на тенденції до її збільшення у 1840, 1859, 1879, 1899, 1926, 1938 рр [8].

У 1939 р. (рис. 2) еліпс розміщення для українців (чорний колір) є доволі широким і охоплює значну площу, що підтверджує стабільність і довготривалість їхнього розселення на території ґміни Солина.

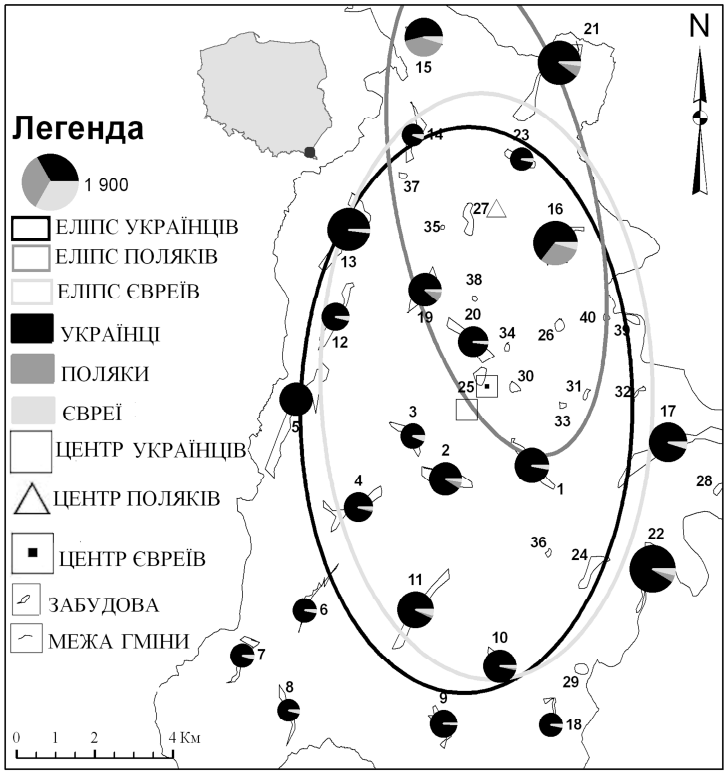


Рис. 2. Аналіз розміщення національного складу ґміни у 1939 році
(цифри біля поселень відповідають номерам і назвам поселень, що подані у таблиці)

Водночас, еліпс розміщення для поляків у 1939 р. (темно-сірий колір) є значно меншим і овально видовженим (рис. 2) і просуненим на північний-захід, у порівнянні до еліпсу українців (чорний колір). Переміщення середнього пункту для поляків (трикутник) більше, ніж на 5,2 кілометри на північ, щодо українців (квадрат), підтверджує північніше розселення поляків. Це свідчить про те, що поляки пізніше заселяли гірські території, які уже давно до них були освоєні українцями. Еліпс для євреїв (ясно-сірий колір) дещо змістився на північний захід, а їхній середній центр (квадрат із крапкою у середині) майже не змістився, щодо українців. Якщо порівняти із попереднім рисунком (1785р.), то бачимо незначні зміни для євреїв (зрушення на 1,2 кілометри на північний схід).

Проведений аналіз результатів, що отримані за тестом Морана, не виявив кластеризації (групування) у розміщенні досліджуваних релігійних громад та національного складу у 1785 та 1939 рр.

Загалом, на території ґміни руйнувань зазнали усі поселення. Варто зауважити, що реальне знищення було сильно відчутне у 1950-і роки. Аналізовані дані за картами 1965 р. дещо нівелюють ці знищення, показуючи також результат доселення у 50-х і 60-х роках. Але навіть доселення не сприяли відновленню функціонування ТСС.

Порівняння даних 1939-1965 рр. показало різке зменшення кількості господарств. Аналіз кількості господарств показав, що у 1939 р. на території ґміни Солина було 1894 господарства. У 1965 р. їхня кількість різко зменшилась до 717 одиниць.

Територія ґміни Солина перед ІІ Світовою війною була густо заселена. У 1785 р. на 1 км^2 припадало 27,8 особи, у 1939 р. – 78,2 особи. А на 2011 р., за даними Головного статистичного управління Польщі [17], було лише 28,9 особи. Тобто густота заселення у 2011 р. не зросла, а навпаки зменшилася у 2,7 рази, порівняно із 1939 р. і залишилася майже на рівні 1785 р. У 1875 р. у ґміні Солина зафіксовано 5135 осіб, серед яких було 4136 греко-католиків. У 1939 р. у ґміні проживало 14390 осіб, серед яких наявні 12925 осіб української національності. На сьогодні на території ґміни Солина втрачено ТСС із багатими культурними та господарсько-економічними традиціями.

Традиційна практика землекористування, що використовувалася перед ІІ Світовою війною (двопільна ротаційна система, поєднання обробітку ґрунту і продукції тваринництва в одному господарстві, застосування сівозмін; застосування механічних пристроїв до обробітку землі і для боротьби з бур'янами,

захист ґрунту від ерозії за допомогою спеціальних методів оранки), залежала повністю від наявності місцевих природних джерел і утримувалась на екологічно збалансованих стосунках із довкіллям та з мінімальним використанням ресурсів і енергії з-за меж регіону [2]. Сільська поселенська життєдіяльність відображала просторово-часову форму організації життя людей. Їй була притаманна традиційність у забудові, особливостях дерев'яної архітектури, розташуванні і структурі угідь. Сільський спосіб життя лежав в основі етнографічної самобутності і маєстатичності [1].

Після ІІ Світової війни територія ґміни обезлюдніла, площі забудови, ріллі, пасовищ і сінокосів зменшились. Структура земельних і лісових угідь різко змінилась. Ліси і приватні земельні ділянки були передані державі. Уже від 1951 р. проводяться спроби заселення цих територій сезонними працівниками, навіть людьми, що мали проблеми із правом [15]. Господарська діяльність, яка почала здійснюватись після 50-х років, не завжди відповідала традиційним системам господарювання. На сезонні роботи до Бескидів (Bieszczad) з'їжджались люди з усієї Польщі, але згодом часто покидали ці території.

На місцях, знищених у 1960 роках сіл, створили Солинське водосховище. При цьому, багато сіл опинилося під водою, зокрема, с. Солина. Село видно (рис. 3а) на карті [16] від 1763 р., а вже на карті [20] 1965 р. воно затоплене (рис. 3б). Багато сіл частково залито водою, як, наприклад, с. Ральське (це первинна українська назва від рало, ралувати) тепер називається Райське (Rajskie) і Городок (Horodek), які присутні у 1763 р. (рис. 4а) і відсутні у 1965 р. (рис. 4б). Залито водою також села сусідні до ґміни Солина у долині р. Сян, які належали до ґміни Устрики Долішні (наприклад, с. Телешниця Сянна).

Створення Солинського водосховища також змінило кліматичні умови регіону, знищило цінні історичні пам'ятки, церкви і цвинтарі, поглинуло поселення, в яких проживало понад 3000 людей.

Утворені на водосховищі дамби (рис. 3б) не допускають цінні види риб до нересту. А шаблонні, не властиві для ландшафту архітектурні комплекси в Полянчику та на горі Явір створюють велику дисгармонію.

Усі ці зміни призвели до зниження різноманітності структурних елементів, таких як живоплоти і сади, окремі дерева у різних зонах ТСС. Завезені сюди із низинних районів переселенці до сьогодні не відчувають духа місця (латинське genius loci) цієї гірської території. Недостатнім є локальне використання природних ресурсів. Відсутнє відчуття традиційних практик землекористування. Як показав проведений нами SWOT-аналіз (сильних і слабких сторін, шансів і загроз) для ґміни на сьогодні несприятливими чинниками для розвитку є незначний доступ до історичних документів, брак традицій і глибокого коріння, прийшле населення, відсутність доступу до релігійних об'єктів інших, ніж римо-католицькі, невідповідність архітектурних форм ландшафтним умовам тощо.

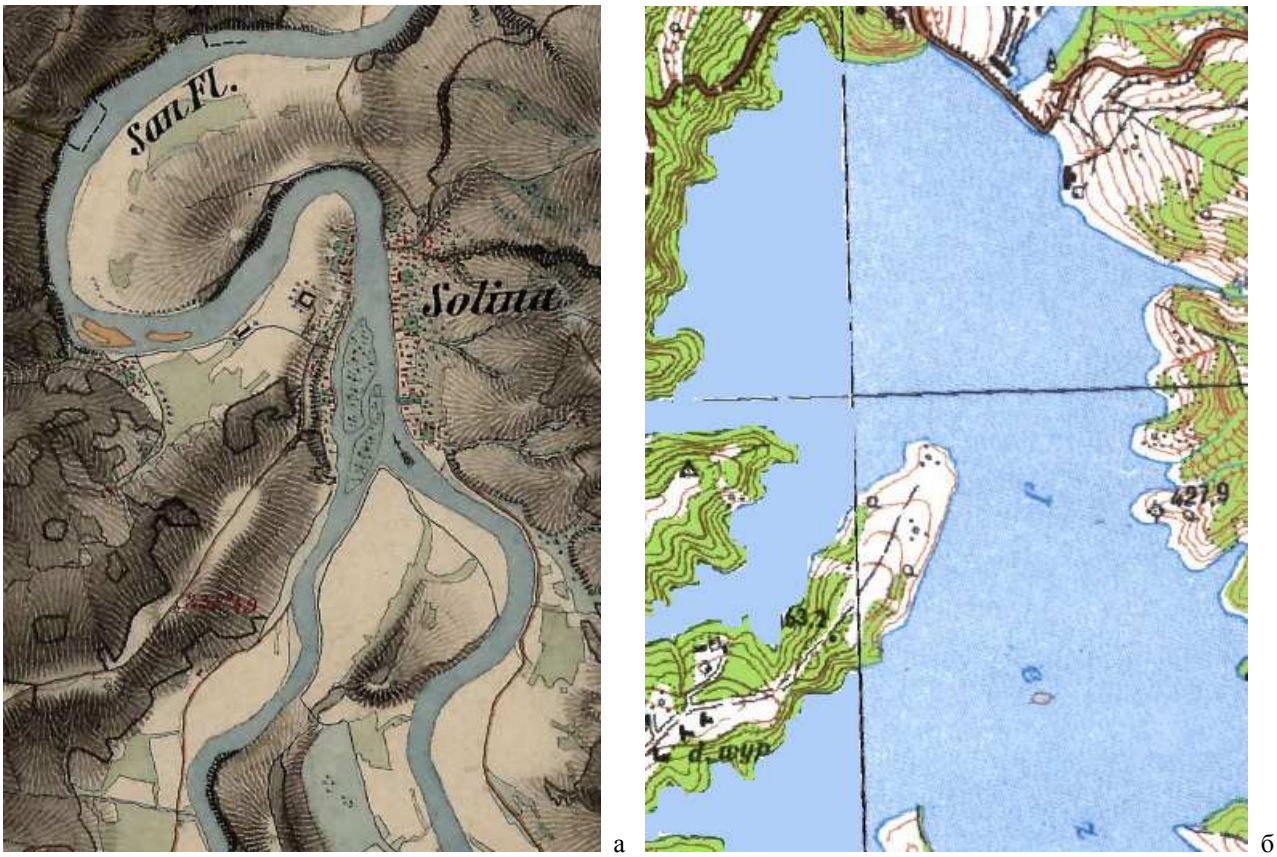
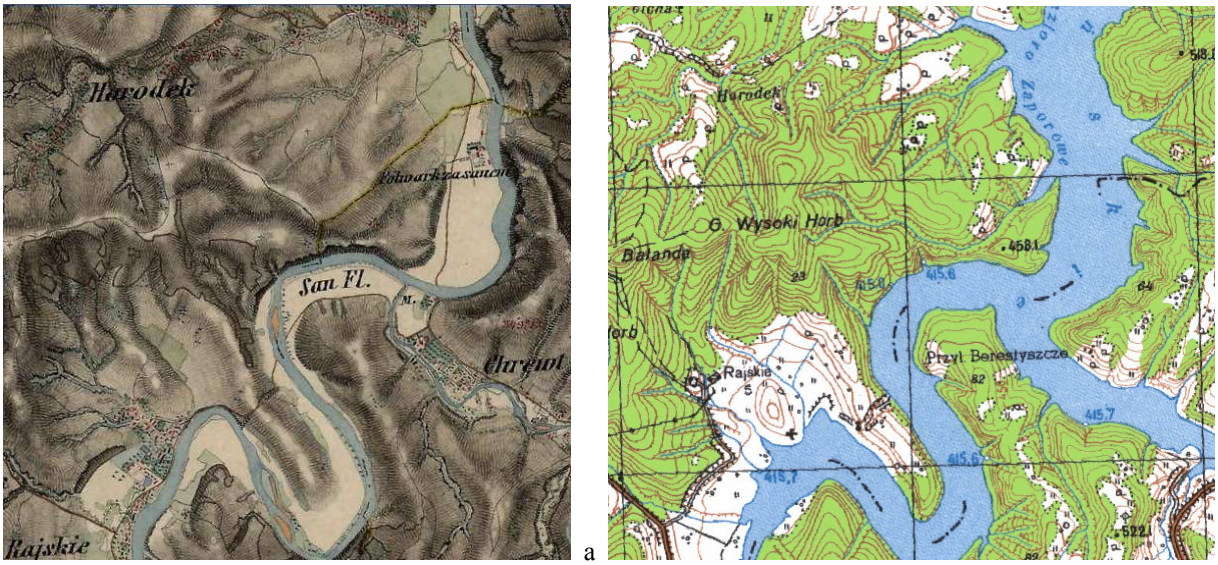


Рис. 3. Село Солина (мірило карт 1:23000):
а – існувало у 1763 р., б – повністю затоплене і вже не існувало у 1965 р.



а б

Рис. 4. Село Ральське (Rajskie) і Городок (Horodek) на картах (мірило 1:23000): а – існували у 1763 р., б – не існують у 1965 р.

Дивним виявилось перекручування назви сіл, в яких етимологія була українською. Наприклад, назву села Завіз змінено на Завуз, Горянка на Гужанка, Радева на Радзєйова, Городок на Городек, Бережниця Горішня на Березьніца Вижна, Бережниця Долішня на Березьніца Ніжна, Ральське (від рало, ралувати) на Райське та інші. Швидкими темпами полонізація українських назв поселень відбувалась після війни. У Бескидах (польське Bieszczadach) змінено понад 60 назв. Навіть був оголошений конкурс на нові назви [15].

На сьогодні на території ґміни розірвано зв'язок між поколіннями. Втрачено цілі села, які разом із церквами та каплицями у центрі, придорожними і міжпольними хрестами, традиційними господарствами, будинками Просвіти тощо, становили ядро українських ТСС. Бойківські українські церкви є сакральними та унікальними пам'ятниками народної дерев'яної архітектури, що зберегли в основі давньоруські традиції та давно увійшли в український та загальноєвропейський культурно-мистецький фонд. А для українців завжди є охоронцями їх культурних цінностей (у кожній церкві крім релігійних ікон існували ікони князя Володимира і княгині Ольги, до яких українці молилися і з якими пов'язували свою віру і сподівання). Церкви просторово вписані у ландшафт та гармонійно доповнюють його.

На території ґміни діяло 17 церков у таких місцевостях: Тискова – церква Архангела Михаїла із 1700 р.; Солина – Преображення Господнього із 1800 р. на місці давнішої; Завіз – Великомучениці Параскеви із 1850 р.; Мичківці – Св. Юрія із 1910 р. на місці давнішої; Буковець – Великомученика Дмитрія із 1865 р.; Полянчик – Великомучениці Параскеви із 1700 р.; Березка – Преображення Господнього із 1444 р.; Бібрка – церква Покладення Ризи Пресв. Діви Марії із 1760 р.; Городок – Страстей Христових із 1848 р.; Терка – Пророка Іллі із 1489 р.; Воля Матяшева – Великомученика Григорія із 1908 року на місці давнішої; Мичків – Успіння Матері Божої із 1890 р.; Бережниця Горішня – Миколая Чудотворця із 1515 р.; Студене – Покладення Ризи Пресв. Діви Марії із 1926 р. на місці давнішої; Вовковия – Св. Апостол. Петра і Павла із 1833 р.; Горянка – Великомучениці Параскеви із 1559; Радева – Миколая Чудотворця із 1900 р. на місці давнішої.

Із сімнадцяти вищезгаданих церков зліквідовано дванадцять. Дві церкви спалені і знищені разом із селами Тискова і Радева у 1947 році [13]. Дві церкви у Буківцю та Студеному (зараз не існує) зруйновані після 1945-1947рр. Розібрані у 50-60 рр. церкви у таких п'яти місцевостях: Солина і Вовковия (будівництво водосховища), Березка (працівниками державних сільськогосподарських підприємств), Терка і Городок (на будівельні матеріали). На місці трьох церков збудовані нові костели у селах Завіз, Бібрка і Воля Матяшева. Існує п'ять церков у таких місцевостях: Мичківці, Полянчик, Мичків, Бережниця Горішня і Горянка. На сьогодні ці п'ять церков перебудовані і функціонують як римо-католицькі костели. Церкви, як духовні осередки, переважно знаходилися на підвищеннях у центральних частинах поселень. Типи поселень – ланцюговий і одновуличний, в яких житлові та господарські приміщення будувались під одним дахом, відображають етнографічні особливості розселення українців та їхній спосіб життя [1, 2].

Після ІІ Світової війни важко говорити про виконання поселеннями традиційної ролі сільських систем. Адже знищені ТСС мали традиційну просторову структуру з відповідними зонами землекористування. Вони задовольняли різні потреби людей. Дослідження показує, що відсутність такої системи негативно впливає на соціально-культурні аспекти сталого господарювання нашого регіону, який після 1945 р. набрав чисто лісового характеру. Земля майже не використовувалась під ріллю чи сінокоси, а поверталась до лісових угідь внаслідок природної сукцесії [5]. Але для повноцінного розвитку туристичної галузі, окрім дидактичних, природничих стежок, велосипедних доріжок, готелів чи паркінгів,

сучасні туристи потребують також об'єктивної історичної інформації про втрачені ТСС. Наприклад, у с. Радева проходить гірський туристичний шлях, але, на жаль, відсутня згадка про село, яке вже не існує.

Аналізуючи значення ландшафту без українців на прикладі колишнього русинського (українського) с. Бориславка (на сьогодні неіснуючого) у Сяноцько-Турчанських горах (Підкарпатське воєводство, Перемиський повіт, гміна Фредрополь), А. Аффек [3] звертає увагу на раптові та радикальні зміни більшості характеристик ландшафту, зокрема: втраті його ідентичності, дусі місця цієї гірської території [3].

Із точки зоку Європейської ландшафтної конвенції [11] така втрата є загубленням соціально-культурних цінностей на місцевому та регіональному рівнях. Адже саме Конвенція визначає ландшафт як зону чи територію сприйняття місцевими жителями або відвідувачами, де візуальні ознаки і символи ландшафту є результатом дії природних, культурних чинників, історичних нашарувань впродовж тривалого часу. Найважливішими у ній є ідентичність, традиція і матеріальна культура людини у ландшафті [11]. Їхня втрата на території ґміни Солина не могли не привести до деградації ландшафту, який, у нашому розумінні, утворює єдине ціле, де природні і культурні компоненти тісно взаємопов'язані.

Висновки. Аналіз змін у характері розселення у ґміні Солина підтверджує домінування греко-католиків (80,55% у 1785 р.) та українців (89,82% у 1939 р.). Аналіз еліпсів розміщень та середніх центрів для греко-католиків-українців у 1785 і для українців у 1939 р. показав стале і рівномірне їх розміщення у межах ґміни Солина.

Після 1947 р. зменшилась кількість господарств, змінилась структура ландшафту, характер традиційного ведення господарства, ТСС, яка формувалась тут століттями. Зникли всі духовні осередки українців – ознаки українськості ґміни Солина – сімнадцять українських церков.

Проаналізовані зміни є типовими для польсько-українського прикордоння. Масштаб та наслідки таких змін потребують подальших досліджень, особливо із точки зору ТСС та її культурних надбань.

Список використаних джерел:

1. Павлюк С.П. Народна агротехніка українців Карпат другої половини XIX – початку XX ст. [Текст] / С. Павлюк. – Київ: Наукова думка, 1986. – 171 с.
2. Утриско М. Етнографічні дослідження Бойківщини між двома війнами [Текст] / Мирон Утриско // ЛБ (Е). – 1984. – Ч. 2/40 (51). – С. 1-15.
3. Affek A. Wartości krajobrazu opuszczonego przez ludność na przykładzie byłej Rusińskiej wsi Borysławka [Текст] / А. Аффек // Prace Komisji Krajobrazu Kulturowego, 2011. – Nr. 15. – С. 148-160.
4. Agnoletti M. The Conservation of Cultural Landscapes [Текст] / M. Agnoletti, CAB International, Wall-ingford and New York, 2006. – 267 с.
5. Ambrozy S. Kierunki sukcesji zbiorowisk roślinnych z olszą szarą Alnus incana (L) Moench na gruntach porolnych w Bieszczadach Zachodnich [Текст] / S. Ambrozy, S. Wika // Prace instytutu badawczego leśnictwa. 1998. Seria A. Nr 855. – С. 104-142.
6. Antrop M. Why landscapes of the past are important for the future [Текст] / M. Antrop // Landscape Urban Plann. – 2005. – № 70. – С. 21-34.
7. Augustyn B. Pozostałości dawnej zabudowy wsi [Текст] / B. Augustyn // Bojkowszczyzna Zachodnia – wczoraj, dziś i jutro / redaktor Jacek Wolski. – Warszawa, T. 2. – 2016. – С. 65-85.
8. Blażejowskyj D. Historical Šematism of the Eparchy of Peremyśl' [Текст] / D. Blażejowskyj. – Lviv: Kameniar, 1995. – 1008 с.
9. Budzyński Z. Ludnośc pogranicza Polsko-Ruskiego w drugiej Polowie 18 wieku [Текст] / Z. Budzyński. – Przemyśl – Rzeszów, 1993. – 489 с.
10. Elbakidze M. Implementing sustainable forest management in Ukraine´s Carpathian mountains: the role of traditional village systems [Текст] / M. Elbakidze, P. Angelstam // Forest Ecology and Management. – 2007. – № 249/1. – С. 28-38.
11. European Landscape Convention // European Treaty, Council of Europe. – 2000. – № 176. – 7 с.
12. Holly G. Stosunki wyznaniowe i narodowościowe na pograniczu polsko-słowacko-ukraińskim [Текст] / G. Holly // Roczniki Bieszczadzkie. – 2014. – № 15. – С. 179-207.
13. Iwanusiw O. Church in Ruins: The demise of Ukrainian churches in the eparchy of Peremyshl [Текст] / O. Iwanusiw. – St. Catharines: St. Sophia, 1987. – 354 с.
14. Kubijovyč V. Ethnic groups of the South-Western Ukraine (Galyčyna-Galicia) 1.1.1939 [Текст] / V. Kubijovyč. – München: Logos, 1983. – 217 с.
15. Luboński P. Przewodnik Bieszczady [Текст] / P. Luboński // Bocz. – 2015. – 268 с.
16. Mapire second, 1763 [Електронний ресурс]. – Режим доступу до ресурсу: http://mapire.eu/en/map/secondsurvey. [Accessed 11.12.2017].
17. Stan i struktura ludności. 2011. Baza Demograficzna [Електронний ресурс]. – Режим доступу до ресурсу: http://demografia.stat.gov.pl/bazademografia/ (Accessed 11.12.2017).
18. Skorowidz Map. 1:100 000. [Електронний ресурс]. – Режим доступу до ресурсу: http://igrek.amzp.pl/mapindex.php?cat=WIG100. (Accessed 11.12.2017).
19. Stępień A. Trójwymiarowa rekonstrukcja obiektu architektoniczno-krajobrazowego na przykładzie nieistniejącej cerkwi w Bieniowej (Bieszczady Zachodnie) [Текст] / A. Stępien, I. Kozak, H. Kozak // Roczniki Bieszczadzkie. – 2011. – №19. – С. 379-387.

20. Rastrowa Mapa Topograficzna Polski, 1965. [Електронний ресурс]. – Режим доступу до ресурсу: http://www.geoportal.gov.pl/uslugi/usluga-przegladania-wms [Accessed 11.12.2017].
21. UNESCO, Evaluations of cultural properties. International Council on Monuments and Sites (ICO-MOS) // UNESCO, WHC-99/CONF.209/INF.7. Marrakesh, Morocco. – 1999. – 188 с.
22. Urbański J. GIS w badaniach przyrodniczych [Текст] / J. Urbański. – Gdańsk: Wydawnictwo Uniwersytetu Gdańskiego, 2010. – 266 с.
23. Wolski J. Transformations of the high Bieszczady Mountains rural landscape during the last 150 years [Текст] / J. Wolski. – Warszawa: IGiPZ PAN im. S. Leszczyckiego, 2007. – 228 с.

References:

1. Pavlyuk, S.P. (1986). Narodna agrotekhnika ukraintsiv Karpat drugoi polovyny XIX – pochatku XX st. [National agrotecnic of Ukrainians in Carpathians from second part XIX to begining of XX century], Kyiv: Naukova dumka, 171 [in Ukrainian].
2. Utrysko, M. (1984). Etnografichni doslidzhennya Boykivshchyny mizh dvoma viynamy [Ethnographic research of Boikivshchyna between the two wars] LB (E), 2/40 (51), 1-15 [in Ukrainian].
3. Affek, A. (2011). Wartości krajobrazu opuszczonego przez ludność na przykładzie byłej Rusińskiej wsi Borysławka. Prace Komisji Krajobrazu Kulturowego, 15, 148-160 [in Polish].
4. Agnoletti, M. (2006). The Conservation of Cultural Landscapes. CAB International, Wall-ingford and New York, 267 [in English].
5. Ambrozy, S., Wika S. (1998). Kierunki sukcesji zbiorowisk roślinnych z olszą szarą Alnus incana (L) Moench na gruntach porolnych w Bieszczadach Zachodnich. Prace instytutu badawczego leśnictwa. Seria A, 855, 104-142 [in Polish].
6. Antrop, M. (2005). Why landscapes of the past are important for the future. Landscape Urban Plann, 70, 21-34 [in English].
7. Augustyn, B. (2016). Pozostałości dawnej zabudowy wsi. Bojkowszczyzna Zachodnia – wczoraj, dziś i jutro. Redaktor Jacek Wolski. Warszawa, 2, 65-85 [in Polish].
8. Blażejowskyj, D. (1995). Historical Šematism of the Eparchy of Peremyśl'. Lviv: Kameniar, 1008 [in Polish].
9. Budzyński, Z. (1993). Ludnośc pogranicza Polsko-Ruskiego w drugiej Polowie 18 wieku. Przemyśl – Rzeszów, 489. [in Polish].
10. Elbakidze, M. Angelstam, P. (2007). Implementing sustainable forest management in Ukraine´s Carpathian mountains: the role of traditional village systems. Forest Ecology and Management, 249/1, 28-38. [in English].
11. European Landscape Convention (2000). European Treaty, Council of Europe, 176, 7 [in English].
12. Holly, G. (2014). Stosunki wyznaniowe i narodowościowe na pograniczu polsko-słowacko-ukraińskim. Roczniki Bieszczadzkie, 15, 179-207 [in Polish].
13. Iwanusiw, O. (1987). Church in Ruins: The demise of Ukrainian churches in the eparchy of Peremyshl. St. Catharines: St. Sophia, 354 [in English].
14. Kubijovyč, V. (1983). Ethnic groups of the South-Western Ukraine (Galyčyna-Galicia) 1.1.1939. München: Logos, 217 [in English].
15. Luboński, P. (2015). Przewodnik Bieszczady. Bocz, 268 [in Polish].
16. Mapire second (1763). Retrieved from http://mapire.eu/en/map/secondsurvey [in English].
17. Stan i struktura ludności (2011). Baza Demograficzna. Retrieved from http://demografia.stat.gov.pl/bazademografia/ [in Polish].
18. Skorowidz Map. 1:100 000. Retrieved from http://igrek.amzp.pl/mapindex.php?cat=WIG100 [in Polish].
19. Stępień, A., Kozak, I., Kozak, H. (2011). Trójwymiarowa rekonstrukcja obiektu architektoniczno-krajobrazowego na przykładzie nieistniejącej cerkwi w Bieniowej (Bieszczady Zachodnie). Roczniki Bieszczadzkie, 19, 379-387 [in Polish].
20. Rastrowa Mapa Topograficzna Polski (1965). Retrieved from http://www.geoportal.gov.pl/uslugi/usluga-przegladania-wms [in Polish].
21. UNESCO (1999). Evaluations of cultural properties. International Council on Monuments and Sites (ICO-MOS). UNESCO, WHC-99/CONF.209/INF.7. Marrakesh, Morocco, 188 [in English].
22. Urbański, J. (2010). GIS w badaniach przyrodniczych. Gdańsk: Wydawnictwo Uniwersytetu Gdańskiego, 266 [in Polish].
23. Wolski, J. (2007). Transformations of the high Bieszczady Mountains rural landscape during the last 150 years. Warszawa: IGiPZ PAN im. S. Leszczyckiego, 228 [in English].

Надійшла до редколегії 19.03.2018 р.

Ювілеї

ЮВІЛЕЙ ПРОФЕСОРА ЛЮДМИЛИ НЄМЕЦЬ

20 травня відзначає свій ювілей завідувач кафедри соціально-економічної географії і регіонознавства, видатний науковець у галузі суспільної географії, кавалер ордена княгині Ольги III ступеня, відмінник освіти України, заслужений професор Харківського національного університету імені В. Н. Каразіна, доктор географічних наук, професор НЄМЕЦЬ Людмила Миколаївна

Понад чверть століття Людмила Миколаївна віддано працює у Харківському національному університеті імені В.Н.Каразіна, віддаючи свій час і зусилля підготовці висококваліфікованих кадрів, розвитку класичної університетської науки, формуванню регіональної суспільно-географічної школи.

Вищу освіту Людмила Миколаївна отримала у Харківському державному університеті імені В.Н. Каразіна (тоді – імені О.М. Горького), який закінчила з відзнакою. Пройшла шлях від учителя географії до завідувача кафедри, лідера Харківської наукової школи суспільної географії. У 1995 р. захистила кандидатську дисертацію з конструктивно-географічних основ безперервної екологічної освіти та виховання особистості, а у 2004 р. – докторську дисертацію, в якій розробила соціально-географічні основи стратегії переходу України на модель стійкого розвитку.

З 2006 р. Людмила Миколаївна очолює кафедру соціально-економічної географії і регіонознавства. Саме завдяки значному науковому потенціалу, ефективному менеджменту та працелюбності Людмили Миколаївни кафедра є лідером як у Каразінському Університеті, так і серед споріднених кафедр України, ефективно здійснює фундаментальні та прикладні наукові дослідження, має тісні міжнародні наукові зв'язки, зокрема з провідними географічними осередками та вченими ряду зарубіжних країн.

Професор Нємець Людмила Миколаївна у повсякденній діяльності керується принципами врахування державних пріоритетів, соціальної відповідальності, академічної доброчесності, користується беззаперечною повагою колег та студентів, є талановитим керівником та відомим в Україні та у міжнародній фаховій спільноті науковцем.

Людмила Миколаївна широко застосовує інноваційні підходи не тільки у науковій роботі, а й у процесі розробки методики викладання та удосконалення педагогічної майстерності, з її ініціативи та під її керівництвом діє методологічний семінар, проводяться щорічні науково-практичні конференції «Регіон: пошук стратегії оптимального розвитку». Значну увагу вона приділяє формуванню молодих фахівців, передає їм свій досвід, ділиться науковими ідеями, власною натхненною працею та креативністю заохочує їх до сміливих наукових пошуків та експериментів.

Результатом самовідданої праці Людмили Миколаївни є заслужені нагороди, зокрема, вона є Відмінником освіти України, Заслуженим професором Харківського національного університету імені В.Н. Каразіна, кавалером ордена княгині Ольги III ступеня, нагороджена медаллю імені В.Н. Каразіна, грамотою Верховної Ради України «За заслуги перед Українським народом».

За роки роботи в Університеті Людмила Миколаївна отримала визнання не лише як провідний фахівець-дослідник, талановитий педагог і менеджер, а й стала одним із фундаторів Харківської школи суспільної географії. Її науковий доробок пов'язаний із розвитком теорії соціальної географії, дослідженням проблем стійкого розвитку, прикладних і теоретико-методологічних питань регіонального розвитку, проблем географічної освіти. Людмила Миколаївна є автором численних монографій та навчальних посібників, фахових наукових статей у провідних українських та міжнародних виданнях, у тому числі ряду публікацій у журналах, що входять до наукометричної бази Scopus. Наукові публікації Людмили Мико-

лаївни є високоцитованими, користуються визнанням вчених України та зарубіжжя.

Людмила Миколаївна проводить значну роботу із підготовки та атестації кадрів в Україні. Вона є Головою спеціалізованої вченої ради із захисту дисертаційних робіт за спеціальністю 11.00.02 – економічна та соціальна географія (К 64.051.23), неодноразово виступала офіційним опонентом дисертацій на інших радах, тривалий час працювала у спеціалізованій вченій раді Київського національного університету імені Тараса Шевченка. Під науковим керівництвом Л.М. Нємець захищено тринадцять кандидатських та одну докторську дисертації. Лише за останні роки Людмила Миколаївна керувала п'ятьма держбюджетними та двома господоговірними науково-дослідними роботами.

Професор Л.М. Нємець є членом редакційних колегій ряду фахових видань України, головним редактором спеціалізованого наукового видання «Часопис соціально-економічної географії», який входить до одинадцяти наукометричних баз.

Редакційна колегія «Часопису соціально-економічної географії» та вся суспільно-географічна спільнота України сердечно вітає Людмилу Миколаївну з Ювілеєм та зичить їй міцного здоров'я, творчих звершень, нових наукових досягнень, реалізації задумів та процвітання кафедри під її мудрим керівництвом!

Шеф-редактор
доктор економічних наук, професор,
академік Національної Академії педагогічних наук України,
академік Академії наук вищої освіти України,
декан географічного факультету
Київського національного університету імені Тараса Шевченка
Ярослав Олійник

доктор географічних наук, професор,
завідувач кафедри економічної та соціальної географії
Київського національного університету імені Тараса Шевченка
Костянтин Мезенцев

Правила оформлення та подання статей

«Часопис соціально-економічної географії» приймає до друку матеріали обсягом понад 20 друкованих сторінок до рубрики «Горизонти науки», понад 15 сторінок до рубрики «Наукові повідомлення», до 5 сторінок до рубрики «Рецензії», до 3 сторінок до рубрики «Постаті», до 1 сторінки до рубрик «Хроніка» та «Ювілеї».

Згідно ***Постанови ВАК України «Про підвищення вимог до фахових видань, внесених до переліків ВАК України»*** за № 7-05/1 від 15 січня 2003 р. стаття повинна мати такі необхідні ***елементи***: 1) постановка проблеми у загальному вигляді та її зв'язок із важливими науковими чи практичними завданнями; 2) аналіз останніх досліджень і публікацій, в яких започатковано розв'язання даної проблеми і на які спирається автор. Згідно з вимогами, що висуваються до наукових видань міжнародного рівня, статті мають містити глибокий аналіз попередніх досліджень; 3) виділення невирішених раніше частин загальної проблеми, котрим присвячується означена стаття; 4) формулювання цілей статті (постановка завдання); 5) виклад основного матеріалу дослідження з повним обґрунтуванням отриманих наукових результатів; 6) висновки з даного дослідження і перспективи подальших розвідок у даному напрямку.

Вимоги до оформлення статті: Текстовий редактор Microsoft Word. Всі поля по 20 мм, формат 210х297 мм, шрифт Times New Roman 14 пт, інтервал 1,5. Для статті необхідно вказати УДК (у лівому верхньому куті), нижче посередині рядка ім'я та прізвище автора, під ними – його науковий ступінь, вчене звання та посада. Нижче наводяться e-mail та ORCID ID автора, відомості про установу, її поштова адреса з індексом. Після цього з нового рядка посередині великими буквами наводиться заголовок статті.

Під заголовком з абзацу наводиться ***анотація статті*** (не менш як 1800 знаків) та ***ключові слова*** (5 – 8 слів чи словосполучень) українською мовою (шрифт 10 пт). Нижче наводиться ім`я та прізвище автора, назва статті, анотація та ключові слова російською мовою (шрифт 10 пт, курсив).

Після анотацій подається ім`я та прізвище автора, назва статті, реферат та ключові слова англійською мовою (шрифт 10 пт).

Вимоги до реферату: обсяг не менше 1800 знаків; інформативність (не містити загальних речень); оригінальність (не бути калькою анотації українською чи російською мовами); змістовність (відображати головний зміст статті та результати досліджень); структурованість (відповідати логіці опису результатів у статті).

Нижче наводиться ***текст статті.*** Таблиці та рисунки мають бути розміщені у тексті статті. Рисунки мають бути виконані у чорно-білому форматі.

Список використаних джерел подається в кінці статті в алфавітному порядку і оформляється згідно з *ДСТУ 8302:2015.* До списку обов'язково повинна бути включена література за останні п'ять років.

Нижче подається ***перелік посилань*** (***References***) (кирилиця транслітерується в латиницю) та його переклад англійською мовою, який необхідно оформляти згідно міжнародного бібліографічного стандарту *APA (American Psychological Association).*

Посилання на джерела слід давати у прямокутних дужках [ ] із зазначенням порядкового номера, а в окремих випадках і сторінок.

Автори подають окремим файлом ***особисті дані*** українською, російською та англійською мовами: прізвище, ім'я, по батькові, науковий ступінь, вчене звання, місце роботи, посада, поштова адреса установи з індексом, контактний телефон, e-mail, ORCID ID.

Рукописи, що не оформлені належним чином, не приймаються до публікації.

Редакція залишає за собою право проводити редакційну правку рукопису.

Статті перевіряються на наявність плагіату та проходять внутрішнє і зовнішнє рецензування.

Автори опублікованих матеріалів несуть повну відповідальність за підбір, точність наведених фактів, власних імен тощо.

Submission Requirements and Conditions of Paper Acceptance

«Human Geography Journal» seeks to publish those papers that are most influential in the fields or across the fields of Social and Economic Geography and that will significantly contribute to the advances of scientific understanding. We also welcome all other relevant subject areas. Selected papers should present novel and broadly important data, syntheses, concepts as well as some narrower research in the subject area. We welcome submissions from all fields of Geography and from any source. We are committed to the prompt evaluation and publication of submitted papers. «Human Geography Journal» is published in print twice per year.

«Human Geography Journal» accepts papers to the following sections: «Science Skylines» (more than 20 pages); «Research reports» (more than15 pages); «Reviews» (up to 5 pages); «Personalities» (up to 3 pages); «Chronicle» (up to 1 page); «Jubilees» (up to 1 page).

All authors must agree to be so listed and must have seen and approved the manuscript, its content, and its submission to the Journal. The Journal will send an email to all authors to confirm receipt of each paper. Submission of a paper that has not been approved by all authors may result in immediate rejection without further appeal.

The article should contain all necessary information in compliance with the require-ments and official decisions of the Higher Certification Commission of Ukraine (The Resolution № 7-05/1 of January 15, 2003 Increase of requirements for research periodicals included in the List of the Higher Certification Commission): 1) General research problem and relevant issues overview; 2) Introduction to the subject field with the latest advances analysis; 3) Emphasis of the problem components still required to be solved; 4) Paper goals outlining; 5) Presentation of the paper basics; 6) Research conclusions with research result validation and further research perspectives.

Requirements to the Manuscript: Every page field is 20 mm; 210x297 mm page format; Times New Roman 14; spacing 1.5. For his/her paper the author must specify universal decimal classification number (on the left) and the author's name is printed on the right (in the same line). The paper title is printed in the following line in capitals.

An abstract (up to 1800 characters) and ***key words*** (5 – 8) in Ukrainian and Russian (font 10, Italic) should be placed just below the paper title. It is followed by the author, a paper title, ***summary*** (200 – 250 words) and ***keywords*** in both English.

The summary must be: up to 1800 characters; informative (not include general sentences); original (not a copy of Russian or Ukrainian annotations); profound (show the main content of articles and research results); structuring (meet the description logic results in the article).

The paper text is placed just below this summary. All illustrations and figures should be embedded in the paper text. All visuals must be in black and white.

The list of references is placed in the end of the paper in alphabetical order. References should be given in the square brackets [ ] indicating the number of source in the list. In some cases the reference source pages should be indicated too. The list of references is given transferred to Latin (transliterated and translated into English if there is English version of the source) and links placed in accordance with international standards *APA (American Psychological Association)*.

Authors should submit the following ***personal information:*** full name, academic degree and academic status, place of employment, position, address of the organization, contact phone number, e-mail, ORCID ID.

Manuscripts that are not designed properly, will not be accepted for publication.

Editors reserve the right to make editorial revision of the manuscript.

Наукове видання

ЧАСОПИС
соціально-економічної географії

Збірник наукових праць

Випуск 24

Українською, англійською та російською мовами

Комп'ютерне верстання – *Юрій Кандиба*

Підписано до друку 07.06.2018 р. Формат 60х84/8. Папір офсетний.
Друк ризографічний. Ум. друк. арк. 9,3. Обл.-вид. арк. 10,8.
Наклад 50 пр.

61022, Харків, майдан Свободи, 4
Харківський національний університет імені В.Н. Каразіна