METODOLOŠKI OKVIR ZA ŠTUDIJE PRIMEROV NEGATIVNEGA RAZVOJA MEST: SEVEROZAHODNA REGIJA BOSNE IN HERCEGOVINE

METHODOLOGICAL FRAMEWORK FOR SHRINKING CITIES CASE STUDY RESEARCH: NORTHWEST REGION OF BOSNIA AND HERZEGOVINA

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IZVLEČEK

Urbano stagnacijo poznajo po vsem svetu ter je močno prisotna v velikih in majhnih mestih. Pojavi se kot posledica zapletenih družbenih, ekonomskih in prostorskih sprememb ter dolgoročno vodi do negativnega razvoja mest (angl. shrinking cities). V prispevku je predstavljen model analize mest, v katerih poteka proces urbane stagnacije. Posebej je prilagojen potrebam raziskav v pogojih nezadostno razvitih statističnih sistemov za spremljanje zapletenih sprememb in dejavnikov, ki vplivajo nanje. Predlagani model temelji na dosedanjih raziskavah, analizi referenčnega pravnega okvira v Bosni in Hercegovini (BiH) ter analizi dosegljivih podatkov. Preverjen je na območju severozahodne regije BiH (Republike Srbske – RS) ter ima za cilj kartiranje, analizo in tipološko klasifikacijo mest, v katerih se spopadajo s težavami urbane stagnacije. Predpostavljamo, da proces urbane stagnacije prevladuje nad procesom urbane rasti in da je, skupaj s težavami, ki so povezane z njim, prisoten v večini mest severozahodne regije v Republiki Srbski, pri čemer je pojav bolj izrazit v majhnih in srednje velikih mestih.

ABSTRACT

Urban shrinkage is an increasingly global phenomenon that equally affects large cities and small towns, as a result of complex social, economic and spatial changes, thereby causing the emergence of the so-called shrinking cities. This paper presents a model for the analysis of shrinking cities tailored to the needs of research in circumstances of insufficiently developed statistical systems for monitoring the complex structure of changes affecting cities. The model is based on an analysis of international research projects focused on this research problem, analysis of the legislative framework in Bosnia and Herzegovina (B&H) and analysis of available data. The proposed model is tested on the territory of northwest B&H (Republic of Srpska – RS) and aims at mapping, analysis and typological classification of shrinking cities. It is assumed that the process of urban shrinkage is more prevalent than that of urban growth, and that most of the cities and towns in northwest B&H (RS) are faced with this problem, which is considerably more acute when it comes to small and medium-sized towns of this region.

KLJUČNE BESEDE

urbana stagnacija, depopulacija, model za kartiranje, BiH

KEY WORDS

shrinking cities, de-population, mapping model, B&H

1 INTRODUCTION

Studying the phenomenon of shrinking cities, especially in Bosnia and Herzegovina (B&H), entails a complex process of analysis incorporating a multitude of complexities and contradictions. Urban shrinkage is a ubiquitous phenomenon that occurs as a result of negative social, economic and/or political trends, both global and local. It is assumed that in the Republic of Srpska (RS) the process of urban shrinkage is more prevalent than that of urban growth, and that most of the cities and towns, or municipalities, in the northwest region of the Republic of Srpska are experiencing stagnation, with the problem being more acute when it comes to small and medium-size towns. In order to better explain the local circumstances, causes and particularities of the problem of urban shrinkage in the RS, it is necessary to tailor the investigation of this phenomenon to the specific local context. The key issues that make it difficult or impossible to investigate this phenomenon in Bosnia and Herzegovina are the lack of official census records for the period between 1991 and 2013 and an underdeveloped statistical system of monitoring of the required indicators for the lowest level of administrative spatial division, with often incomparable statistical data. Another problem lies in the fact that there are no adequate models which would allow the identification and mapping of shrinking cities in Bosnia and Herzegovina, given such local aggravating conditions. Starting from the problems outlined above, this paper presents a model for the identification and mapping of shrinking cities, specifically tailored to the research and social conditions in Bosnia and Herzegovina, based on an analysis of different related approaches and concepts (Oswalt and Rieniets, 2006; Oswalt, 2005; Wiechmann, 2013; Wiechmann and Wolff, 2013). The proposed model was applied and tested in the area of northwest Bosnia and Herzegovina (Bosanska Krajina), which is territorially and administratively a part of the Republic of Srpska, one of the two independent entities of Bosnia and Herzegovina.

The design of a good conceptual and experimental model of analysis of shrinking cities makes it necessary to examine and define a number of approaches and limitations in dealing with problems. The first series of issues concerns the first phase, which is identifying the shrinking cities, which involves defining specific criteria and thresholds for selecting territorial units for analysis, i.e., defining the concept of the city. The second set of issues pertains to definining a model for evaluating the causes and levels of stagnation or shrinkage, based on the selection of specific indicators and thresholds of stagnation. The third group of problems concerns the selection of the right key criteria for the classification of shrinking cities. Last but not least, there are issues related to the availability of the sets of data selected for certain criteria. In other words, what is a city, what are the causes of urban shrinkage, what are its indicators and thresholds, and based on what criteria and available data can these cities be classified? This study aims to answer these very questions, and by doing so, to create an analytical model for studying shrinking cities, applicable to the phenomenon in the wider Balkan region and in countries with less developed systems for monitoring social and spatial changes in cities.

2 THEORETICAL APPROACH

2.1 Shrinking cities phenomenon

The phenomenon of urban stagnation or shrinkage has been the focus of many studies and research projects (*Shrinking Cities Project*[1], *Cities Regrowing Smaller*[2], *Shrink Smart*[3]), and in recent years also of vigorous theoretical and professional debate. To the international academic and professional community this phenomenon is better known as *shrinking cities*, or cities whose population has grown smaller. Urban shrinkage is a multidimensional process affecting large cities, parts of cities, small towns and metropolitan areas around the world, and it occurs as a result of a slowdown in economic activity and negative social trends in the form of population loss. According to Reiniets (2006), urban shrinkage entails concurrent qualitative and quantitative changes in cities that are not effected according to any homogeneous patterns. Whereas in quantitative terms, urban shrinkage refers to, first and foremost, a significant loss of city population, often compounded by economic decline, in a qualitative sense, this phenomenon concerns changes in social and economic patterns, along with those affecting cultural values and the way of life of citizens (Rieniets, 2006).

At the beginning of the 21st century the phenomenon of shrinking cities has been increasingly present in Europe and the developed countries of Asia, North America and in Australia. According to the Urban Audit of the European Commission published in 2007, one-third of the 258 large and medium-sized European cities covered by the audit experienced population decline in the period 1996-2001 (Urban Audit, 2007). Different research studies show that many European cities entered the process of urban shrinkage in the 1960s, with the phenomenon becoming more prevalent than urban growth in the 1990s (Turok and Mykhnenko, 2007). Deviating from the well-trodden path of observing cities through the positivistic prism of development, Oswalt (2006) argues that shrinking cities are not an exception or deviation, but rather characterises the phenomenon as a global one. The research conducted as part of the CIRES project (*Cities Regrowing Smaller*) indicates the presence of the phenomenon of shrinking cities in almost all European countries (33 of 37), and that more than a half of European cities (3563 of 7035) shrank in the period 1990-2010 (Wiechmann, 2013). There are a number of studies dealing with this problem from different perspectives, such as that of socio-economic changes (Downs, 1997; Beauregard, 2003), the cyclic nature of urban change (Fishman, 1987; Fishman, 2006), the deterioration and regeneration of capital cities (Metzger, 2000), and demographic transition and its repercussions on cities (Van de Kaa, 1987). Also, the related literature now regards urban shrinkage as a spatial manifestation of the globalisation process. While these processes have led to the emergence of "global cities", as hubs of financial and service activities and information and communication networks, they have also contributed to the collapse of many industrial cities, which have proven unable to fight and win a place in the international economic game (Sassen, 2001; Amin and Thrift, 1994; Adelaja, 2011). This has resulted in the polarisation of spatial development and a growing inequality between the cities that managed to integrate into the global network and those that did not (Scott and Storper, 2003).

[1] *For more information see: http://www.shrinkingcities.com/*
[2] *For more information see: http://www.shrinkingcities.eu/*
[3] *For more information see: http://www.shrinksmart.eu/*

The first, major symptom of urban shrinkage is city population decline, which is a consequence of complex social, economic and political changes at the global and local level (Pallagst, et al., 2014; Reckien and Martinez-Fernandez, 2011; Wiechmann, 2013; Stryjakiewicz, et al., 2013). These are the key changes that lead to de-population:

- Demographic change – negative human population growth rates (declining birthrates and increasing mortality rates), ageing of population, negative domestic and international migration, dropping fertility rates, declining numbers of married couples, increasing divorce rates, and a higher median marriage age;
- Economic transformation seen as a decline in economic activity, the closure of manufacturing plants and the loss of competitiveness;
- Structural or systemic changes, such as the collapse of the political system, riots and wars;
- Suburbanisation as an important factor of human outflow and loss of jobs in central city parts to the suburbs, leading to declining living standards in the urban core;
- Changes in the natural environment – natural disasters (floods, fires, volcanic eruptions, etc.) and various forms of environmental pollution.

City de-population and economic decline have a huge impact on the physical environment and society as a whole, as well as on the quality and vitality of the so-called *perforated cities*, which arise as a result of these phenomena (Lütke-Daldrup, 2001). In spatial terms, the phrase *perforated city* is synonymous with that of the shrinking city, and it was coined to describe a new era of cities characterised by simultaneous demographic decline and urban sprawl (Florentin, 2010). The urban tissue of a shrinking city thus becomes "perforated" with physical or spatial gaps and patches of abandoned land. This is an entirely new pattern of distribution of population and the economy, which significantly deviates from the traditional European concept of the compact city (Florentin, 2010).

2.2 European definitions of spatial units for city investigation

Cities are complex systems and they can be analysed using different definitions and clarifications of terms. When the European context is concerned, there are a number of definitions and classifications of the city and urban areas; in that sense, there are some particularly relevant studies, such as SMESTO (Schneidewind, et al., 2006) and TOWN (Servillo, et al., 2014), two projects recently implemented by ESPON, which use three key approaches to defining the city, as specified below:

The **administrative approach** defines urban areas based on the legal or administrative status of municipalities. A city or town is defined as a territorial unit of local governance (municipality) that consists of one or more urban settlements, as an instrument used by the state to organise and control a country, as well as a forum for the interaction of local stakeholders.

The **morphological approach** defines urban areas based on the volume and/or continuity of the built-up area and population. In other words, a city or town is a compact built-up area with a certain minimum concentration of population. According to the morphological approach, the city or town is regarded as a physical or architectural object.

The **functional approach** defines urban areas based on interactions between a core area (which can be defined in accordance with morphological criteria) and the surrounding territories. Daily commuting

flows are the key parameter when defining cities using the functional approach. The city is thus defined as an urban settlement or zone with a high concentration of jobs, services and other functions that serve other settlements in its hinterland. According to the functional approach, the city is regarded as an economic and social entity, i.e. a spatio-social system integrated by functional interrelations.

As a result of the global development trends and the related spatial allocation and distribution of activities, one of the major themes of European research in the late 20th and the early 21st century has been large urban clusters and metropolitan areas; more recently, another discourse has developed in parallel with that already mentioned, which has increasingly placed focus on small and medium-sized cities. The dual quality of these research approaches sprang from the need to deal with the challenges faced not only by the cities representing growth poles, but also by those that have been poles or points of stagnation. There are a number of very important European international research studies and projects with a focus on the city and urban areas. Each of these studies and projects offers its own definition of the city, although some of them focus more closely on defining urban agglomerations, i.e. continuous built-up areas (*Urban Morphological Zones*, European Environment Agency (EEA), and *Morphological Urban Areas*, Institut de Gestion de l'Environnement et d ,Aménagement du Territoire, Unversité Libre de Bruxelles (IGEAT)). Yet, others put a strong emphasis on the definition of functional urban areas, which are the result of migration flows in the immediate surroundings of the urban core (*Functional Urban Areas*, IGEAT, and *Larger Urban Zones*, OECD and European Commission – Eurostat)[4] (ESPON Database 2013, 2014). In addition to the previously listed approaches, which predominantly focus on studying large urban agglomerations, just as important are those projects that put more emphasis on small and medium-sized towns, among which the most prominent and relevant are the ESPON projects SMESTO (Schneidewind, et al., 2006) and TOWN (Servillo et al., 2014).

Viewed in the context of this research, the international CIRES projects (*Cities Regrowing Smaller*) and the *Shrinking Cities Project* are important projects specifically tailored to carry out urban studies into shrinking cities. Their research approach was used as the starting point for conceptualising, reviewing and creating a model to investigate the phenomenon of shrinking cities in Bosnia and Herzegovina.

3 MODEL OF ANALYSIS OF SHRINKING CITIES

The research that preceded the building of a model for mapping shrinking cities included 1) a preliminary analysis of the population migration in 23 municipalities of the northwest region of the RS in the period 1948 to 2013 (SZS-SFRJ[5], 1975; FZS-FBiH[6], 1998; RZS-RS[7], 2013; RZS-RS, 2014), 2) an examination of international research projects aimed at mapping cities at the international level (Wiechmann, 2013; Wiechmann and Wolff, 2013; Oswalt and Rieniets, 2006; Oswalt, 2005), and 3) an analysis of the legislative framework of the Republic of Srpska (ZOTORS, 2009,2012; ZUPIG, 2013).

[4] *The ESPON Database 2013 offers an overview of the main definitions of urban areas developed by each of the projects (ESPON Database 2013, 2014).*
[5] *Savezni zavod za statistiku Socijalističke Federativne Republike Jugoslavije - Federal Institute for Statistics of Socialist Federal Republic of Yugoslavia, abbreviation SZS-SFRJ*
[6] *Federalni zavod za statistiku Federacije Bosne i Hercegovine - Institute for Statistics of Federation of Bosnia and Herzegovina, abbreviation FZS-BiH*
[7] *Republički zavod za statistiku Republike Srpske - Republic of Srpska Institute of Statistics, abbreviation RZS-RS*

Investigating the phenomenon of shrinking cities involves dealing with problems at two key levels, the spatial level, in connection with the concept of the *city/town*,[8] and the analytical level, bound to the concept of *shrinking*. The first concerns the need to define urban areas to be the focus of the analysis, i.e. the need to define the *city*, while the second points to the need to develop indicators to better determine the scope of stagnation of these urban areas. In order to better explain the local circumstances and causes of shrinkage, it is necessary to tailor an investigation of the shrinking cities phenomenon to the specific local context.

Developing a good model for shrinking cities analysis entails, first of all, establishing a connection between and harmonising any respective units of analysis, and second, laying down the right set of criteria for analysing the process of urban shrinkage. Since the study of urban shrinkage is associated with urban analysis, i.e. city-related statistical information in the fields of demography and economy, designing a research model primarily necessitates to establish a connection between the urban or morphological definition of cities and their statistical territorial division. Meeting the basic precondition for the validity and suitability of a model of analysis of shrinking cities means defining a unit of analysis compatible with local statistical (territorial) units of analysis.

Bosnia and Herzegovina has not put in any proposals to establish and adopt territorial units for statistics that would be in harmony with the EU statistics standards (*The Nomenclature of Territorial Units for Statistics* – NUTS), which is expected to happen after the official records of the 2013 Population and Housing Census have been published. There is a legislative framework in the Republic of Srpska regulating the collection and interpreting of statistical data, which is done in line with the current administrative and territorial division of the entity (ZOTORS, 2009,2012; ZUPIG, 2013). Most of the data collected pertains to local administration units (municipalities), which is equivalent to the NUTS LAU 2 level. The key issues that make it difficult and/or impossible to explore this phenomenon are the lack of official census records for the period 1991-2013 and the underdeveloped system of statistical collection and interpreting of data for the level of settlements, as the most basic territorial/ administrative units of division that include urban areas, i.e., shrinking cities. According to data available, the only statistical information collected when it comes to settlements is the population and number of households. Still, there is one advantage, namely, urban settlements or habitations (towns/cities) are unique and comprehensive statistical units of the lowest order.

However, there is also the problem of the mismatch between the definitions of settlements and urban areas. Since the boundaries of urban areas are determined based on decisions made by local authorities, these often do not coincide with settlement boundaries and are subject to periodic alterations. This kind of inconsistency of the approaches used significantly complicates and limits the possibility to explore urban shrinkage.

[8] *Clarification is needed when it comes to using the English terms city and town in the Bosnian-Herzegovinian linguistic and research context. Namely, according to the Territorial Organisation of the Republic of Srpska Act (ZOTORS, 2009,2012), municipalities at higher levels of development have the administrative status of cities, while the rest are municipalities. They are both territorial units which contain both urban and rural settlements. In terms of the definitions of the city found in international research projects, it may be concluded that there are no urban agglomerations in the northwest region of the Republic of Srpska which may be considered as cities, i.e., most of its urban settlements are small and medium-sized towns. However, considering that the phrase shrinking cities is broadly used in literature dealing with the urban shrinkage phenomenon, for practical purposes the English terms town and city are used interchangeably in this paper, meaning urban settlements with populations greater than 5000 inhabitants, without entailing the actual administrative status of these territorial units.*

Based on the previous considerations, it may be concluded that the phenomenon of shrinking cities in the Republic of Srpska can be monitored at the level of settlements, when it comes to the negative population migration indicator, while all the other parameters need to be observed at the level of local administration units (municipalities). Models of analysis of shrinking cities address issues at a number of levels, which can been seen as steps in the process of analysis and which include sampling, laying down classification criteria, and classifying shrinking cities according to type.

3.1 Shrinking cities analysis – sampling

Shrinking cities sampling refers to the selection of regional cities and towns (settlements) which will be the subject of analysis of urban shrinkage. The selection is made in line with a number of minimum requrements and criteria, which a settlement must meet in order to be considered a city. These minimum requirements and thresholds are specified in order to exclude rural settlements from the analysis of shrinking urban habitations. Urban shrinkage analysis may include cities with various demographic, economic and spatial characteristics. Analytical sample specifications (cities that will be the subject of analysis in the study of urban shrinkage) can be more or less detailed and exact. The presented international projects advise two completely different approaches. While the *Shrinking Cities Project* does not set any limits in regard to specifying the reference framework for the study and the selection of cities to be used as the subject of analysis (Oswalt and Rieniets, 2006), CIRES is very precise when it comes to the requirements and criteria that a city has to fulfill in order to be considered for investigation as representative of the phenomenon of shrinking cities: minimum population density (650 inhabitants/km2); minimum number of inhabitants (5000); minimum proportion of the total population in the city's urban areas (50%); and minimum percentage of built-up area (5%) (Wiechmann and Wolff, 2013) .

For the purpose of conducting this research in Bosnia and Herzegovina, cities and urban areas were sampled for analysis from urban settlements with more than 5000 inhabitants at specific time horizons (census years). The time horizons referential for the selection of cities to be analysed were chosen with respect to the preliminary study of demographic trends. It is recommended that a census year to be selected as referential is one in which the population was the largest in most of the cities of the studied region. Criteria such as the share of city population in the total population, the built-up area percentage and the minimum population density, as recommended by CIRES, were unsuitable for the needs of this study, because their introducion would ultimately have led to the exclusion of a large number of settlements from the analysis, thus making it irrelevant. Also, the lack of public mechanisms for selecting and interpreting the above-listed parameters was and is a chief obstacle to evaluating the fulfillment of specific criteria (population density, proportion of built-up area). Therefore, only the following minimum criteria were introduced, namely, that a particular settlement is urban in character and that it had more than 5000 inhabitants over a minimum one time horizon observed.

3.2 Indicators and causes of urban shrinkage

The analytical framework for investigating the phenomenon of shrinking cities is established by selecting the time frame of the analysis, specifying a set of indicators of urban shrinkage and identifying the causes that led to the shrinking of cities. The time frame of the analysis is a variable and it may span

shorter (20 years, CIRES (Wiechmann and Wolff, 2013)) or longer time periods (50 years, *Shrinking Cities Project* (Oswalt and Rieniets, 2006)). Specifying the time period for which to analyse the process of urban shrinkage greatly depends on the availability of data for particular time horizons and it ought to correspond to a particular study. It is recommended to monitor the dynamic processes of urban shrinkage in time series (with the CIRES project, it was four five-year series) of approximately the same length. The length of the time series will depend on data available for a particular time horizon. Deciding on the starting point of the analysis is subject to adjustments to the local context of the problems, and for it to be optimally selected it is necessary to monitor population migration over substantial periods of time. A single starting time should be selected for the needs of comparative research studies, which should indicate the extent and prevalence of shrinkage, and also allow the comparison of different forms of the phenomenon and their spatial distribution. When it comes to Bosnia and Herzegovina, the leading indicator of urban shrinkage is population decline greater than 0.15% per annum in at least one time series, i.e. population decline higher than 3% in at least one time series spanning a period of twenty years (the time between two censuses).[9] Additional criteria may be adopted to make the analyses required for the study of the causes and results of urban shrinkage or dynamic patterns as comprehensive as possible, such as the population growth rate (birthrate, mortality rate), median population age, fertility rate, migration, changes in the population density, (un)employment rate, etc.

3.3 Typology of shrinking cities

One or more criteria can be applied to classify shrinking cities according to type, and this can also be done by observing the general trends or process dynamics. A general classification of shrinking cities is made by specifying thresholds for specific levels of shrinkage (expressed as the population loss percentage) in the time series with the most dramatic population decline. The theoretical model of classification of shrinking cities proposed herein groups the cities as those which, over the time interval of the most dramatic population loss, experienced a decline in the range of 3%-9%, followed by 10-24%, 25%-49%, 50%-74%, and finally those that lost over 75% of their population. The rationale for examining and classifying shrinking cities based on population decline for the entire period that experienced the most dramatic shrinkage lies in the fact that the twenty-year time series proposed for Bosnia and Herzegovina is very long and does not afford a deeper insight into the dynamics of the shrinkage process over shorter time intervals. It is possible to make subclassifications of shrinking cities based on additional criteria serving to further clarify the causes of urban shrinkage. The key criteria for making subclassifications ought to be selected pertaining to local circumstances and the changes that caused the cities to shrink, along with data availability.

4 TESTING THE PROPOSED MODEL: NORTHWEST REGION OF BOSNIA AND HERZEGOVINA

No official definition of the term *shrinking cities* is in use in Bosnia and Herzegovina, and the phenomenon itself is largely perceived as irrelevant. Even if the problem is recognised as such, it is generally associated with the unambiguously understood demographic problem of de-population. Some of the key reasons for this failure to perceive this ever-growing social problem are that there is no extensive research into it

[9] *CIRES distinguishes between three major categories of population, declining populations (< - 0.15 % per annum), stable populations (from -0.15 % to + 0.15 % per annum), and increasing populations (> + 0.15 % per annum) (Wiechmann & Wolff, 2013, p. 7).*

and that a very narrow circle of experts deal with the issue of shrinking cities. Publicly, this topic attracts very little attention, while politicians, who favour the subjects of economic prosperity and growth, prefer to avoid it altogether. The English term is difficult to translate, and as a consequence it has not taken root in the Bosnian public or specialist speaking glossary. Therefore, for the needs of this study the phrase *urbana stagnacija* (urban stagnation) was adopted as the Bosnian-Herzegovinian equivalent of the term *shrinking cities*, which best describes the complexity of this multidimensional problem.

4.1 Sampling of shrinking cities

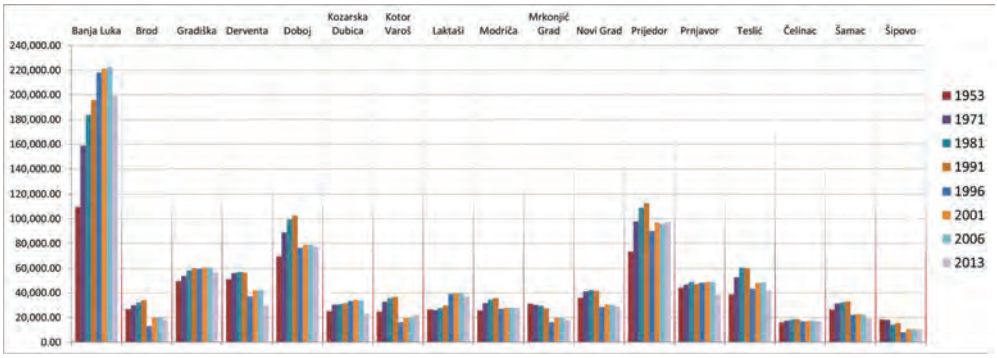
The northwest region of the Republic of Srpska, divided into 31 local administration units (three with the administrative status of cities, and 28 with the municipality status), was selected as the testing ground for the research. In accordance with the proposed model, a sample was selected for the analysis, consisting of 17 local administrative units, each with a settlement on its territory which is urban in character and which had a population greater than 5000 inhabitants in 1991. A time frame of sixty years was selected to analyse the general demographic trends in the region (1953-2013), with four time horizons coinciding with four census years (1953, 1971, 1991 and 2013). Finally, population decline greater than 3% in the period 1991-2013 was chosen as the key indicator of urban shrinkage.

4.2 Causes of urban shrinkage

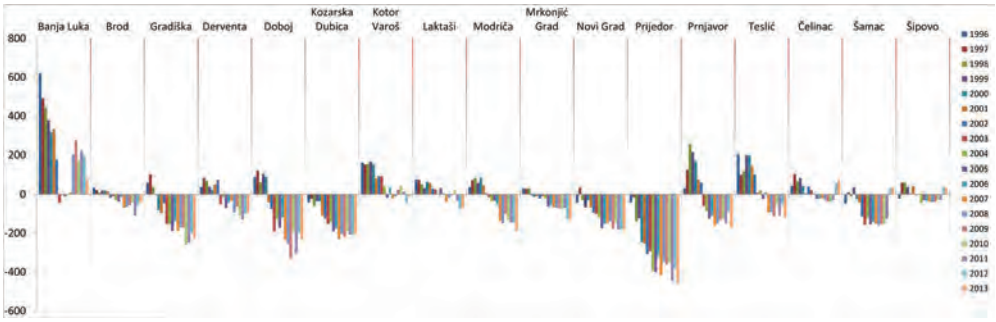
The selected cities and municipalities experienced intensive urbanisation in the aftermath of the Second World War, more specifically, in the 1960's and the 1970's (FZS-FBiH, 1999). In the period 1953-1991, the populations of most of the cities studied increased fourfold. According to the official census records, the populations of the majority of the municipalities and cities in the northwest part of the Republic of Srpska peaked in 1991 (SZS-SFRY, 1975; FZS-FBiH, 1998; RZS-RS, 2014). The population of urban areas experienced a steady growth largely due to people's migrating from villages to cities, and to a lesser extent because of migration between municipalities and cities (FZS-FBiH, 1999).

The last civil war in Bosnia and Herzegovina (1992-1995) had a significant effect on the demographic makeup of the country and its municipalities. A large number of the population was killed, emigrated to other countries or was internally displaced. There are no exact population data from the period immediately after the war, and those published by the Institute of Statistics RS (RZS-RS, 2013) are based on estimates of the Agency for Identification Documents, Registers and Data Exchange of Bosnia and Herzegovina (IDDEEA). It took 18 years after the war to have a census (RZS-RS, 2014), which gave a clear picture of the situation in the post-war B&H.

The twenty-two-year gap between the two censuses in B&H (1991-2013) makes it very dificult to investigate demographic trends and the process of urban shrinkage in the post-war period. Research shows that the key changes that led to city shrinkage in the studied region can be separated into two basic categories. The first category is the sudden structural/political shifts which began in Bosnia and Herzegovina in 1992, which resulted in the civil war. In the three years of the war, a number of municipalities in the northwest part of the RS, especially those in the border zone, were faced with destruction, which led to major population losses (death, internal displacement) (Graph 1), and the ravage and devastation of the built environment.



Graph 1: Northwest part of RS – population growth and decline trends per municipality 1953-2013. (Author; source: SZS-SFRJ, 1975; FZS-FBiH, 1998; RZS-RS, 2013; RZS-RS, 2014) .



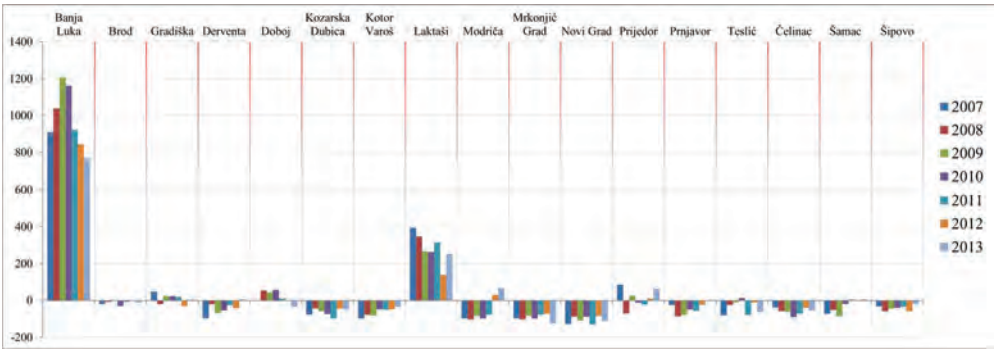
Graph 2: Northwest part of RS – natural population increase and decline trends (difference between number of births and deaths) per municipality, 1996-2013. (Author; source: RZS-RS, 2002-2014).

The second category are the social and economic changes that took place in the post-war period, which resulted in a less dynamic yet steady population decline in most of the cities and municipalities of the studied region. These changes include a negative population growth rate, the second demographic transition, the ageing population, negative domestic and international migration flows and a major economic decline.

Analysis of the demographic data shows that a second wave of social change began in the cities and municipalities of the northwest part of the RS in the post-war period, manifesting itself as a negative marriage rate, an incrased divorce rates, higher median marriage ages for both men and women, a higher average age of first childbirths, and a negative fertility rate (RZS-RS, 2002-2014). Also, year after year, the natural population growth rate has been increasingly lower in almost all municipalities of the studied region (Graph 2).

There are no official data on the age structure of the studied cities and municipalities, but it is assumed that the proportion of the elderly in the total population is constantly rising. On the other hand, the country tried to recover after the war and keep pace with economic developments abroad. As it transitioned from an industrial to a post-industrial economy after the war, Bosnia and Herzegovina restructured its economy in a tangled, lengthy process of privatisation of its state enterprises and by shutting down

a large number of its former economic giants, with the unemployment rate soaring in the process. An analysis of the trend in the volume of employment shows that in the period between 2008 and 2013, the number of employed persons continuously declined in 9 out of the 17 municipalities studied, and the number of job seekers rose slightly but steadily in 13 of these municipalities (RZS-RS, 2008-2014). Research shows that the working-age population (both employed and unemployed) made an average of 25% of the total population in the subject municipalities in 2013. On the other hand, pre-schoolers and school-age children made up 10-15% of the total population of these places (RZS-RS, 2008-2014). Based on these data, it may be concluded that the rest of the population of the investigated municipalities, predominantly comprising adults above the pensionable age of 65, or post-working-age adults, made 60-65% of the total population. Taking into account the fact that not all unemployed persons register as job seekers and that part of the population finds employment in the informal economy, these figures may be somewhat inaccurate, which does not dispute the fact that the number of the elderly is dramatically high and that the population of the country is increasingly ageing.



Graph 3: Domestic migration flows, as net migration measured at the city/municipal level in 2007-2013, as the difference between the arriving and departing/emigrating population (Author; source: RZS-RS, 2014).

Along with these apparently negative demographic and economic trends in the analysed region, great stress is laid on domestic and international migrations as a significant cause of de-population. According to data available, in the period between 2007 and 2013, 11 out of these 17 municipalities experienced negative net migration, for four it was stable, while two of them had positive net migration, which leads to the conclusion that migrants mostly leave the smaller municipalities to move to the region of Banja Luka and Laktaši (Graph 3) (RZS-RS, 2008-2014). In addition to the domestic migration flows, which present the population distribution and migration between municipalities in the RS and B&H, international migrations are an important factor of de-population. The exact number of persons who have emigrated to other countries is unknown, nor is emigration monitored by local administrations; instead, data on the number of people leaving Bosnia and Herzegovina are taken from the immigration statistics of the recipient countries. According to the Ministry of Civil Affairs of Bosnia and Herzegovina, from 1998 to mid-November 2013, 61,752 inhabitants of Bosnia and Herzegovina renounced citizenship in order to become citizens of other countries (MCP-BiH10, 2013; cv: MLjPI-BiH11, 2014). IDDEEA's data (2015) indicate that 10,155 residents from the area of the 17 municipalities in the northwest Republic

[10] *Ministarstvo civilnih poslova BiH, Ministry of Civil Affairs, B&H, abbreviation MCP-BiH*
[11] *Ministarstvo za ljudska prava i izbjeglice BiH. Ministry of Human Rights and Refugees, B&H, abbreviation MLjPI-BiH*

of Srpska studied herein cancelled domicile (permanent residence) in B&H in the period 2003-2014 to take up residence abroad. This number may be concluded to be significantly higher due to the fact that Bosnian-Herzegovinian citizens who stay abroad for more than one year but who do not intend to permanently settle in the particular country they are in and maintain strong links with Bosnia and Herzegovina (e.g., family ties, real estate or business, etc.) are not obliged to cancel domicile in B&H. These people are mostly working-age men, who leave Bosnia and Herzegovina for employment abroad, of whom there are no records whatsoever. If this is taken into account, it may be concluded that a population the size of a small-sized town (like that of Modriča or Novi Grad) emigrated from the northwest part of the Republic of Srpska in the period 2003-2014, which certainly directly contributed to the stagnation of the region.

4.3 Shrinking cities of the northwest region of the Republic of Srpska

The previously listed factors led to changes in the population dynamics and spatial distribution. This study of urban shrinkage in the northwest region of the Republic of Srpska shows that 11 cities experienced population decline in the period 1991-2013, five of them saw their populations grow, and for one it remained stable (Figure 1, left).

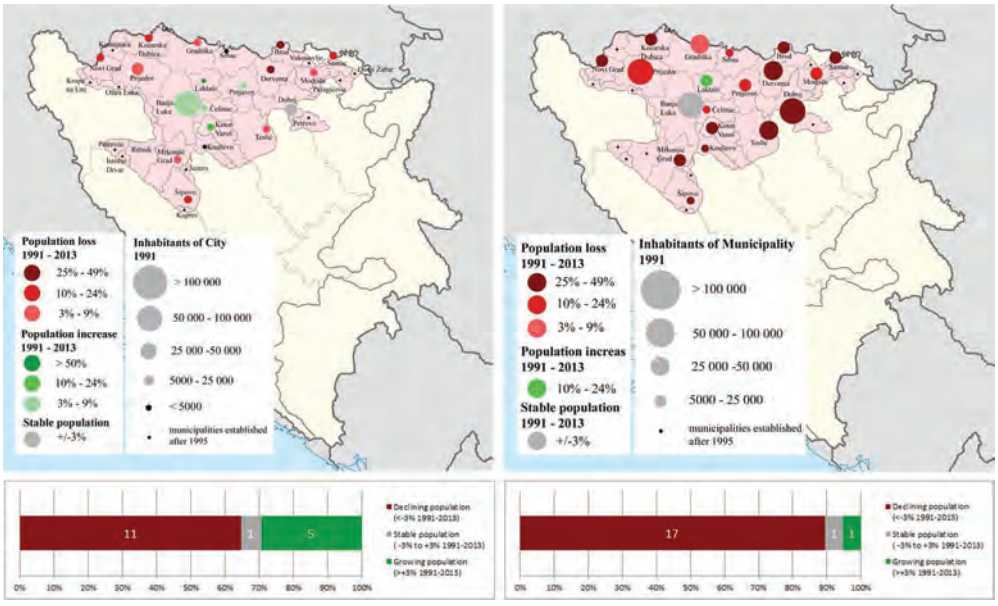
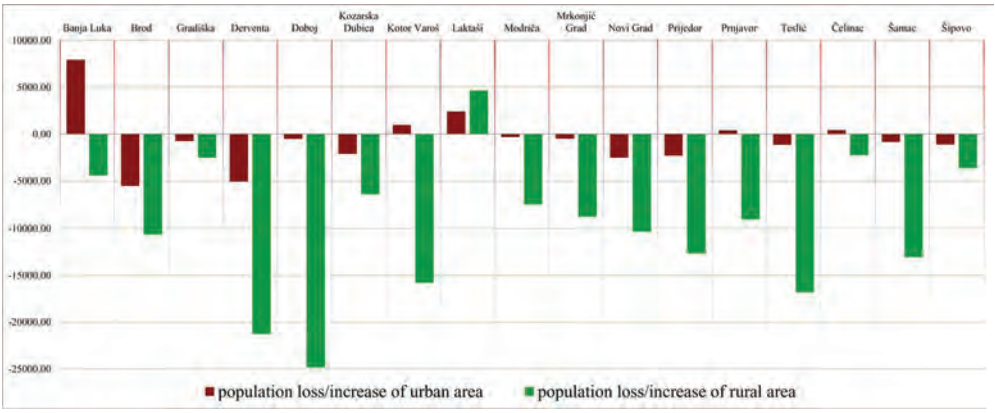


Figure 1: Urban shrinkage per city (left). Urban shrinkage per municipality (right). (Author; source: FZS-FBiH,1998; RZS-RS, 2013; RZS-RS, 2014).

Taking into account the fact that that the region experienced the most dramatic population loss during and after the war, a time frame of 22 years was selected for this study of shrinking cities (1991 to 2013, the period between the last two censuses), during which population decline was analysed. According to the model proposed, the cities faced with the problem of shrinkage were divided into three groups. The first group comprised 5 cities, whose populations declined between 3% to 9%, the second 4 cities, with

population decline between 10% and 24%, and the third 2 towns, which lost between 25% and 50% percent of their populations over the 22-year period observed. The remaining 6 cities experienced positive demographic trends (Banja Luka, Laktaši, Čelinac, Kotor Varoš and Prnjavor) or their population count remained constant (Doboj). These 6 cities are not included in the below research of shrinkage processes or the shrinking cities typology.

In addition to analysing the process of urban shrinkage at the city level, studying municipal population dynamics is just as indicative and significant, because it presents a comprehensive picture of wider demographic trends. According to these findings, ten municipalities in the northwest part of the RS lost between 25% and 49% of their populations in the period 1991-2013, four lost between 10% and 24% of their inhabitants, Gradiška lost 5.4% of its population, in Banja Luka it remained stable, while in Laktaši it rose by 23.5% (Figure 1, right).



Graph 4: Population loss/increase in urban and rural areas in 1991-2013, municipal level comparison. (Author; source: FZS-FBiH,1998; RZS-RS, 2013; RZS-RS, 2014).

The results of the 2013 census show that the majority of the municipalities in this region are at low levels of urbanisation and that on average 60% of their populations live in rural areas (RZS, RS, 2014). Importantly, the process of stagnation caused by de-population affects rural parts of municipalities far more seriously than it does damage to their urban areas (Graph 4). This is especially due to rural populations continuing to migrate from villages to settle down in urban areas, which continue to be urbanized (especially the Banja Luka-Laktaši region, which has experienced a radical population, economic and physical growth and the creation of some kind of functional urban area), additionally aggravated by the overall negative population growth rate across municipalities and the dominant trend of emigration to other countries.

4.4 Shrinking cities typology, northwest region of the Republic of Srpska

A typological classfication of shrinking cities in the studied region was made based on the conducted research and data available. The key classification criteria were population decline in the period 1991-2013, the size of urban population, population growth rates and domestic net migration. Data availability formed the basis for the selection of this set of criteria for the typological classification. Since

population dynamics was the only parameter based on which urban areas (cities) were analysed, their principal typological classification was made based on city population loss, which put them into three basic categories, namely, those experiencing high levels of shrinkage, medium levels of shrinkage, and low levels of shrinkage (Figure 2, Table 1). City population size, population growth rate and net migration were the additional criteria used to describe the three types in greater detail, which also make division into subtypes possible.

Table 1: Shrinking cities typology for the northwest part of the Republic of Srpska.

Type A	Type B	Type C	
High level of srinkage	Medium level of shrinkage	Low level of shrinkage	
population loss 1991-2013	population loss 1991-2013	population loss 1991-2013	
25-49%	10-24%	3-9%	
		subtype C1	subtype C2
small town 5000 -25000 inhabitants	small town 5000 -25000 inhabitants	small town 5000 -25000 inhabitants	medium sized town 25000 -50000 inhabitants
natural population balance with the tendency of transition from positive to negative	natural population balance mainly negative or with the tendency of transition from positive to negative	natural population balance mainly negative or with the tendency of transition from positive to negative	natural population balance mainly negative
migration balance negative	migration balance negative	migration balance negative or nearly balanced	migration balance nearly balanced
Brod Derventa	Kozarska Dubica Novi Grad Teslić Šamac Šipovo	Gradiška Modriča Mrkonjić Grad	Prijedor

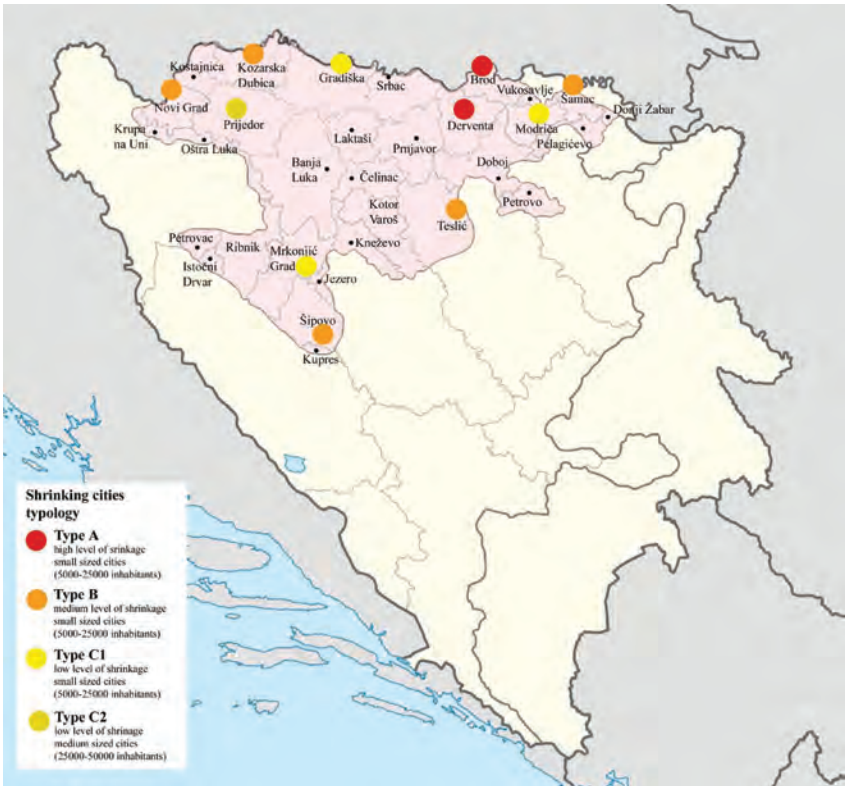


Figure 2: Shrinking cities typology for the northwest part of the Republic of Srpska.

5 DISCUSSION AND CONCLUSION

The presented model for analysing shrinking cities allows an all-round albeit initial mapping of cities confronted with the problem of de-population, economic decline and deurbanisation of urban areas. The model was adapted to conditions which limit the possibility of conducting urban studies, as characterised by the lack, incompleteness or fragmentation of general statistical city-level parameters. Although it was developed in response to the problems encountered in Bosnia and Herzegovina, as a tool it may have application in the wider region, i.e. in countries with less developed systems of monitoring urban change. Based on a comprehensive research study focused on the analysis of data availability relevant for investigating urban phenomena, it is concluded that the phenomenon of shrinking cities cannot be monitored exclusively and solely at the city level. Namely, the research findings show that it is essential to monitor this phenomenon at two major levels, that of the city and that of the municipality. This is the only way to provide valid information, which may then form a basis to analyse complex social, economic and spatial processes that characterise shrinking cities. On the other hand, when conditions are such that they make research difficult, distinguishing between these two key levels of analysis points to the need to review the term and definition of *shrinking cities*, as well as to the necessity to introduce the term of *shrinking municipalities* as referential for the analysis of the studied phenomenon. This emerges not only as a reaction to the conditions that make it difficult to monitor changes at the city level (lack of statistics), but also to the complexity of the interdependent social, economic and spatial processes taking place between the city and outskirts, rural and urban, city and neighbouring cities (regional and administrative centres), which lead to the shrinkage of cities, municipalities, sometimes entire regions. That approach, which introduces the concept of shrinking municipalities to the discursive debate, emphasizes the complex structure of changes which have lead to the spatial allocation of the population and activities in the NW region of RS and B&H and opens up new possibilities and creates more room for related debates in the future.

The research findings pertaining to the northwest part of the RS show that most cities in this region have been affected by the processes of urban shrinkage due to the armed conflict, long-term demographic and economic decline and deurbanisation. Also, research shows that the boundary cities have principally and most seriously been affected by the shrinking process. They are mostly small-sized cities, with 5000-25000 inhabitants, which suffered a dramatic decline in economic activity during and after the war, compounded with a major population loss, devastation and neglect of built-up areas. The central cities of the region have not experienced the shrinkage of their urban areas, unlike the pronounced stagnation of their hinterland - rural and peripheral areas of municipalities. In general, the central part of the Banja Luka region has seen its population grow, along with a rise in economic activity, which has led to the physical growth and urban-morphological development of Banja Luka's urban areas, and the functional development of the Banja Luka-Laktaši region, as the surrounding territory.

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