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**“DESIGNED” SHRINKAGE?
MANAGING DEMOGRAPHIC CHALLENGES/DECLINE
IN URBAN PLANNING.**

The case of small and medium-sized cities of Southern Russia.

by

ELENA BATUNOVA

Tutor: **Prof. Giuseppe Bertrando Bonfantini**,
Politecnico di Milano, Italy

Supervisor: **Dr. Annegret Haase**,
Helmholtz Centre for Environmental Research, Leipzig, Germany

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Abstract.

Urban shrinkage, provoked by the combination of long-term depopulation and economic decline, is an emerging challenge now facing most Russian cities, which appears to be the largest shrinking urban system in the world. Shrinking cities have attracted the attention of scientists, policymakers, and planners throughout the world due to the inadequacy of the available planning and policy approaches and tools that have been developed for growth scenarios. However, in Russia, the long-term population decline is still viewed by most as a temporary phenomenon provoked by the dramatic socioeconomic transition and, accordingly, spatial planning remains growth-oriented. The PhD thesis is motivated by the contradiction between the current demographic development in Russian cities and the obsolete planning approaches and methods being used. The study aims at discovering evidence of population decline as an important trend in the development of Russian cities and to then identify which opportunities exist for the transformation of municipal and regional spatial development policies in order to appropriately address this urgent challenge.

The research pursues two main lines of investigation: the urban shrinkage phenomenon itself (its definitions, causes, consequences, threats and opportunities) and the spatial planning of cities experiencing shrinkage conditions. Within this logic, several levels of research have been developed: 1) analysis of the global discussion of the topic through the literature review; 2) confirmation or applicability of the aspects discussed in the literature to the Russian context (at the national and regional levels) as a verification for the necessity of a deeper analysis; 3) testing the developed hypothesis at the city level through multiple case studies; 4) integration of the results obtained through the case studies into the general view; 5) evaluation of the findings.

The thesis provides empirical evidence drawn from cities located in southern Russia, which statistically represents the most favourable part of the country in terms of its demographic development. The intention was to show that even in an area where depopulation is not considered an issue; many cities are shrinking and experience a lack of demographic resources that could compensate for their depopulation. The research focuses on both shrinking and growing small to medium-sized cities in southern Russia, investigating through the comparative analysis the drivers and consequences of population change, but also how existing policies reflect upon demographic issues.

Based on a mix of quantitative and qualitative data, I have found that population decline is a new reality for most Russian cities, where the current and future depopulation trends are an unavoidable process. The consequences are especially notable in small and medium-sized cities, which are more vulnerable and often lack development resources. However, the current negative transformations in both shrinking and growing cities result from a combination of complex factors, the influence of which should be deeper analysed through further research. Due to such discreet effects of depopulation, planners and policy-makers are largely ignorant of these processes, not only because of a lack of “awareness”, but also due to institutional, managerial, professional, and educational issues, which must yet be solved in order to provide a professional approach to spatial planning. Another discovery of the research is of a specific pattern of urban shrinkage in the cities of southern Russia where depopulation happens over the background of a growing need for housing

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and infrastructure construction and an extensive ongoing urban development. Moreover, growth-oriented urban planning itself, which ignores demographic factors, creates conditions for the appearance of negative consequences of shrinkage in the future, such as abandonment, vacancy or infrastructure surplus, instead of using planning as an opportunity to prevent these effects.

This thesis therefore contributes to the general discussion on urban shrinkage. While the existing literature on the topic is mainly dedicated to various contexts that differ significantly from the Russian situation, this research helps to fill in the important missing element of the Russian experience in the global puzzle of urban shrinkage.

Key words: *shrinking cities, urban shrinkage, depopulation, planning, Russia, southern Russia.*

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Chapter 1.

Introduction.

Chapter 1. Introduction.

1.1. Setting the scene: population decline and spatial planning.

The dramatic demographic crisis in Russia started with the fall of the USSR and led to a steady population decline in the country as a whole and the majority of its cities during the 25-year period since its collapse. The population loss and the rapid socioeconomic changes have become the symptoms associated with the country's transition from the socialist system with its totalitarian regime and centrally planned economy to the capitalist one, oriented towards democracy and the market. About 70% of Russian cities have lost some of their population since 1989, and they continue to depopulate. Demographic issues, such as depopulation and ageing, has a significant impact on the existing urban space, transforming the whole resettlement framework as well as any particular settlement and creating new, unfamiliar conditions for planning and policy-making. Various experts predict a continuing decline of the Russian population. According to the most probable variant from the most recent UN outlook on continuing depopulation, Russia's population may reduce from 146.5 million people in 2016 to 128.6 million by the middle of the twenty-first century, or by nearly 17.9 million people (United Nations, 2015). This fact means a continuation of the depopulation trends for the majority of Russian cities. However, such a situation is almost entirely missing in the state planning system and professional education, which, due to their inertia, do not provide the necessary flexibility and adaptation of the existing tools to these new conditions.

The PhD thesis is motivated by the contradiction between the current demographic development in Russian cities and the old growth-oriented planning approaches and methods used in education and practice. In 12 years of professional practice as an urban and regional planner in Russia, I faced the challenge of working with regional governments and local authorities that misunderstood depopulation processes. Even in the cases with clear evidence of irreversible depopulation, decision makers demonstrate an unwillingness to recognize this new reality, but also the limits of professional knowledge that are useful for planning in such unusual conditions. Moreover, I discovered that planning solutions themselves might provoke negative physical effects of depopulation in a city.

Currently, the demographic issue in Russia is discussed mainly in regard to its social and economic aspects, but it is in most cases excluded from planning concerns (in both socio-economic and territorial planning). The national and regional policies consider depopulation a common national problem and do not specify it though for particular areas and settlements through regulations and appropriate developmental planning tools. In the Russian scientific environment, the major part of investigations into the issue is conducted from the perspective of human geography, which does not intersect with the field of urban and regional spatial planning and does not offer any strategies to face the influence of depopulation on physical urban transformations.

Therefore, the evidence of the need for such strategies comes from the international experience and growing volume of literature on urban shrinkage and planning for it, which has become an important field of urban studies (Haase et al., 2014). Urban planning worldwide has become more and more challenging: dealing from the moment of its appearance with the problems provoked by fast urban growth and now must cope with an opposite (or parallel) challenge of urban shrinkage. Many scholars tend to consider urban growth and urban shrinkage parallel processes related to globalisation (Pallagst, Wiechmann and Martinez-Fernandez, 2010;

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Martinez-Fernandez et al., 2012a; Piro, 2016). Such approach seems to be relevant as the number of shrinking cities has grown worldwide since the second half of the 20th century. Yet, urban shrinkage has been on the agenda of planners for a relatively long time through different manifestations and under different labels: ‘decline’, ‘decay’, ‘blight’, ‘abandonment’, ‘disurbanization’, ‘urban crisis’ and ‘demographic depression’ etc. (Rink et al., 2012). However, the level of its understanding and, especially, of its approaching is not comparable with the knowledge on urban growth.

The difficulties first appear from attempts to define urban shrinkage. The concepts of urban shrinkage and the shrinking city, for now, have turned to be widely used, yet remain ambiguous at the same time (Olsen, 2013). The term “urban shrinkage” itself appears at the beginning of the 21st century and was introduced at the international level through the research “Shrinking city”, which was directly translated into English from the German term “schrumpfenden städte” (Oswalt, 2006). Since that period, it was used in a vast amount of research, sometimes with attempts to create a particular definition, with varying degrees of success, or adopting an existing term from the literature, or even without providing any definition. Depending on which aspects are being investigated and from which perspective, the term “shrinking city” may refer to very different problems: from the cities’ economic competitiveness at the global scale to social problems, such as crime or poverty. According to Wiechmann and Bontje, today “shrinking cities” have become an interdisciplinary field of research, which considers the complex issues of urban regeneration systems, experiencing demographic changes and structural crisis (Wiechmann and Bontje, 2015). In the end, it labels a trajectory of urban development, which is opposite to the “normal” urban growth and usually is indicated by depopulation (Bernt, 2016). However, urban shrinkage and urban population decline are not equal terms and will be discussed further in Chapter 2. Depopulation is the primary indicator that allows for a diagnosis of urban shrinkage where a declining population, being the main consumer and user of urban space, significantly transforms a city's organisation and spaces' functions.

A new reality of urban shrinkage invites more participants to the discussion and research in the field of planning under conditions of shrinkage. On the one hand, it helps contribute to the common knowledge on urban shrinkage. Yet on the contrary, it also reduces hope to developing a universal solution. The primary challenge is that while generalisation is needed to create theories and approaches, it does not mean that seeing similar situations due to some external features processes are in reality equal and should be treated in the same way. As it has been investigated deeper, the phenomenon of urban shrinkage demonstrates its complexity and limits for the development of a universal concept applicable in different contexts, which might vary even in closely located cities within the same region. It also signifies limited opportunities in applying successfully worked models (“best practices”) to other circumstances. However, common principles that will differ planning for growth from planning for shrinkage should be developed (Hollander et al., 2009).

The thesis provides empirical evidence drawn from cities located in Southern Russia, which represents the most favourable part of the country regarding demographic development. The intention was to show that even in an area where depopulation is no longer considered an issue, many cities are continuing to shrink despite the relatively stable network of rural settlements (compared to the rest of the country) and are experiencing a lack of demographic resources that could compensate for the depopulation. The research focuses on several small and

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medium-sized cities in southern Russia for several reasons. First, small and medium-sized cities have been much less frequently the focus of urban studies in general and in particular the study of urban shrinkage, not only in Russia, but also within the international debate. At the same time, they are more affected by shrinkage and the consequences for such cities are more dramatic (Martinez-Fernandez et al., 2012b). Such cities are usually not important economic nodes and thus lack resources for implementing any solutions to respond to the issue of depopulation. Still, they have many obligations according to the law, such as provision of housing, social, transport and engineering infrastructure as well as the maintenance of public spaces. Due to an insufficient budget, these cities can only cautiously spend available resources for development. Moreover, urban planning decisions will likely not enhance the situation in the future. On the other hand, small and medium-sized cities have some advantages for the possible development of adequate policies. First, citizens tend not to leave their home cities unless absolutely necessary; they have strong roots and connection to their home towns. This tendency creates opportunities for self-governance, which was historically interrupted for an extended period in Russia. These small and medium-sized cities play a vital role in southern Russia. They provide administrative, educational, cultural, health care services and other functions. Also, crucial for the Russian context specificity, small and medium-sized cities serve as the support nodes of the national resettlement framework.

I intend for this thesis to contribute to the general discussion on urban shrinkage. The existing international literature on shrinking cities is mainly dedicated to the contexts, which differ significantly from the Russian situation and Russia might be one of the missing elements in the puzzle of urban shrinkage. First, Russia moved from a strongly organized centralized planning system through a period of “no planning” to the current situation, in which the planning system is still in transformation and does not provide clear rules and ready solutions. However, this setting might become an important illustration in the dispute about the need for planning in the conditions of population decline. Second, there is the difference between urban shrinkage in developed countries and countries in transition regarding the physical transformation of the urban environment. While many Russian cities suffer from significant depopulation, there is also a qualitative and often quantitative lack of housing, amenities, transport and engineering infrastructure. Therefore, the negative physical effects of shrinkage are still not as noticeable as they could have been given the pace of depopulation, while meeting infrastructural needs is considered the basis for planning decisions. In this case, planning might and should play a preventive role for the appearance of those negative effects of impending urban shrinkage.

1.2. Research questions, aims and objectives.

The research question derives from the following objectives: to contribute to the integration of the Russian case into the international debate on urban shrinkage; to discover evidence of the manifestation of urban shrinkage in Russia and its differences and similarities with processes in other countries; to understand how the current planning system in Russia responds to the population decline challenge and how it might use the accumulated international experience on planning for the conditions of shrinkage.

The central research question and several related sub-questions are thus:

Research question: **Is there evidence of population decline as an important trend in the recent development of Russian cities and to what extent should municipal and regional spatial development policy be transformed to accordingly address the challenge of demographic decline in small and medium-sized cities in southern Russia?**

Sub-questions: Which are the main drivers causing population change in small and medium-sized cities of Southern Russia?

Which negative effects of shrinkage already affect Southern Russian cities and which negative effects are expected in the future?

How do existing policies at different levels of governance respond to the emerging challenges caused by shrinkage?

Which improvements should be implemented or adapted to more appropriately respond to the challenge of shrinkage?

The answer to the research question does not imply concrete, practical recommendations, which however cannot be universal even within the same national or regional context. It rather aims to identify the existing gaps and contradictions in the current policies to specify the possible trajectories for the future improvements.

The working hypothesis underlying this thesis assumes that **despite the long-term population decline in most Russian regions and cities, it is still viewed by policy-makers and planners as a temporary phenomenon provoked by the dramatic socioeconomic transition and, accordingly, spatial planning remains growth-oriented, itself causing future negative effects of urban shrinkage.**

1.3. Thesis structure.

The thesis is structured according to the investigative logic of two main issues: urban shrinkage and urban planning and is divided into five chapters.

Chapter 1 introduces the topic; describes the goals, scope and structure of the thesis along with the chosen research strategy, materials, methods and information sources used.

Three central sections represent the investigation of the phenomenon of shrinkage and planning within the context of urban shrinkage at three levels: in the world, in Russian context and in the cities of Southern Russia. **Chapter 2** analyses urban shrinkage literature, the representation of the spread of the phenomenon, its perception, definitions and conceptualization in different contexts. This step allows for placing the case of Russia into the global context and understanding its specificity regarding the probable application of the developed policies in this particular context. More precisely, the situation in southern Russia is studied with an assumption about a necessity of paying special attention to the shrinkage issue even in that prosperous area in terms of demographic development. The next issue was to investigate the accumulated experience in planning for the cities under the conditions of shrinkage. Starting from the world experience, **Chapter 3** details the Russian planning practices, applied in the past and currently. Then, in details, it represents a specificity of the policies in southern Russian area. The last **Chapter 4** in this section is dedicated to the investigation of the case studies, which includes the current conditions of the cities' development and their strategies and plans.

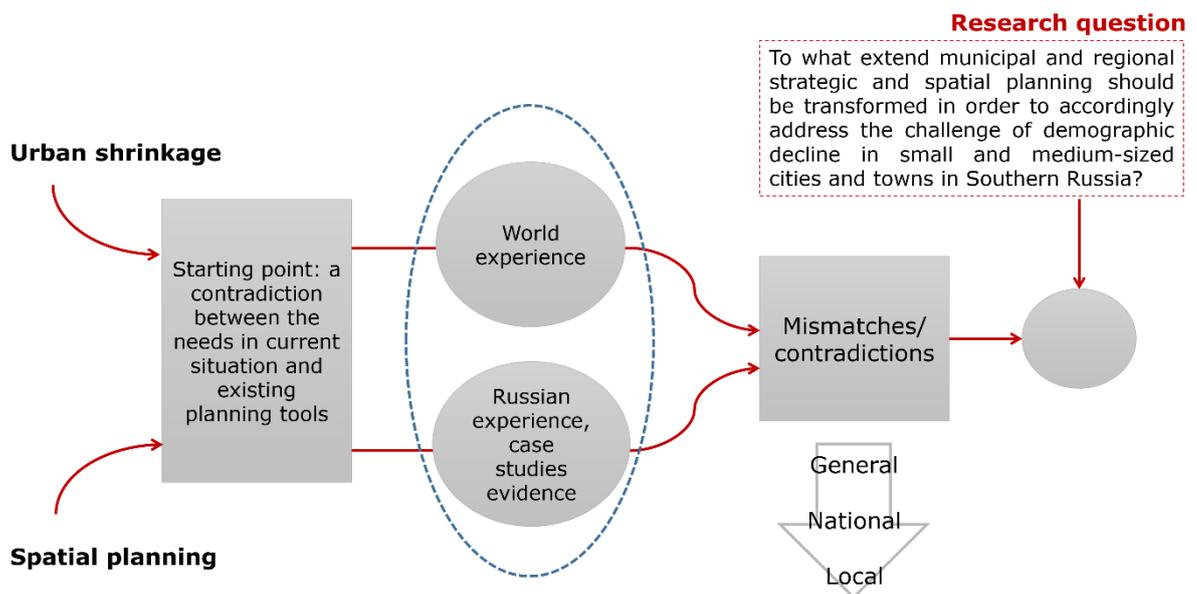
Chapter 5 discusses gaps, mismatches and contradictions in existing approaches, methods and planning tools used in the conditions of urban shrinkage in the world, in Russia and, specifically, in the cities of southern Russia. It also includes conclusions, summaries and findings and evaluates critically the possibility of adapting existing international practices' in the context of Southern Russia, Russian Federation or, widely, in post-socialist countries in transition. It also discusses possible contribution of the current thesis to the international debates and gives recommendations for the future research.

1.4. Research strategy and methodology.

The design of the current research is based on the research questions and hypothesis as well as on the availability of data to conduct it (sources, quality of data or comparability).

The strategy of the research is constructed on the following logic: two main directions for investigation are used, the urban shrinkage phenomenon itself (with its definitions, causes, consequences, threats and opportunities), and the spatial planning for the cities under shrinking conditions.

Figure 1.4.1.
The research strategy.



Within this logic the several levels of the research have been developed: 1) analysis of the worldwide discussion of the topic through the literature review; 2) confirmation or applicability of the aspects discussed in the literature in the Russian context (national and regional level) as a verification of a deeper analysis necessity; 3) testing the developed hypothesis at the city level through case studies; 4) integration of the results obtained through the case studies into the general picture; 5) evaluation of the findings.

The research starts with the literature review according to the main defined research directions: urban shrinkage and urban planning. The first target of the investigation helps to discover which factors contribute to defining and understanding the urban shrinkage phenomenon; how much the existing definitions and findings correlate with the current situation in Russia and might be applied under the current conditions of the demographic, economic and the public administration system. The second target of investigation aims to evaluate existing global approaches, strategies, plans and tools coping with urban shrinkage and their appropriateness in the Russian context. The literature review provides a basis for the following empirical research.

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*Table 1.4.1.
The research strategy.*

	Literature review	Development in Russian context	Evidence from the cases	Back to the general discussion
Urban Shrinkage	The nature of the phenomenon Concepts Definitions Causes/consequences Limits and opportunities	Demographic situation in national and regional context Relationship between demographic and economic development Classification of cities and regions	Drivers of urban population change Population projections Shrinkage's effects and limits for future growth	Evaluation of the contribution of the Russian cases to the international debate
Planning	Existing offered and implemented approaches, strategies, plans and programs coping with urban shrinkage	Planning system and planning culture. Approaches, strategies, programs and plans oriented to the managing of demographic issues and spatial implementation	Developed and approved urban strategies, programs and plans of socioeconomic and territorial development, their correspondence to each other and to the documents of upper level, demographic issues considered and special measures coping with shrinkage	Testing the possibility of using the approved global practices in Russia and suggestions based on the Russian experience and specificity

The second step was to observe the current demographic situation in Russia at the national level and in the regional context. Starting from the assumption that Southern Russia performs better than all other areas in the country (with the exception of Moscow and Saint Petersburg) the study intended to demonstrate how many cities there are experiencing a population decline that in the future is inevitable and even the currently growing cities risk shifting to this depopulation trend. Accordingly, for the rest of the country, being in the worse demographic situation, those processes of the current and future population decline will be defining. The analysis at the national and regional level allows to evaluate the dynamic of population changes, the directions of international and internal migrations, the territories' demographic potential and the fairness of the intentions to solve a problem of the cities' population decline through the construction or increase of the internal migration flows. This first part of the empirical research became a basis for the choice of case studies and the framework for their investigation. The policy analysis at the regional and national level shows the Russian planning system and role of local planning in this scheme, but also an awareness of the upper level of governance as it pertains to the urban shrinkage issue and their influence on municipal planning.

The contrasting case studies chosen for the second part of the empirical research aim to demonstrate more clearly the contribution of the local and global factors to the urban population change and, consequently, the real opportunities to respond to this increasingly appearing challenge through the local strategies and plans. Comparing the growing and shrinking cities helps to understand the importance of the local authorities' efforts in planning for the current economic and demographic situation in the cities. The following content analysis of the approved municipal planning documents illustrates the quality of those efforts, the awareness of the local governments of the demographic issue and their ability to cope with depopulation trends.

The final discussion part of the thesis comes back to the wider picture and aims to emphasize the existing opportunities and limits in the application of the concepts, approaches and "best practices" in different contexts, as well as possible contributions of these Russian case studies to the general discussion on planning for shrinkage and possible directions for future research.

1.5. Information sources and information quality.

Data quality in Russia is another major problem that does not provide a real picture of what is happening. During the last decade of the twentieth century, many state organisations were privatised. In that process, most of the accumulated data were irretrievably lost or assigned to the individuals. Subsequently, there was no state financing and request for the specific research or data collection for nearly twenty years, except the statistics, the quality of which is often not appropriate. The period under review is characterised by the country's transition and significant political and economic changes. Accordingly, there is a lack of data for the particular historical periods (mainly, the first years after the dissolution of the USSR), data falsification and incomparability of the data due to the periodical transformation of its structure or the manner of its representation. The quantitative analysis in such conditions might be misleading without the parallel use of qualitative methods, which could help understanding if quantitative data is adequate.

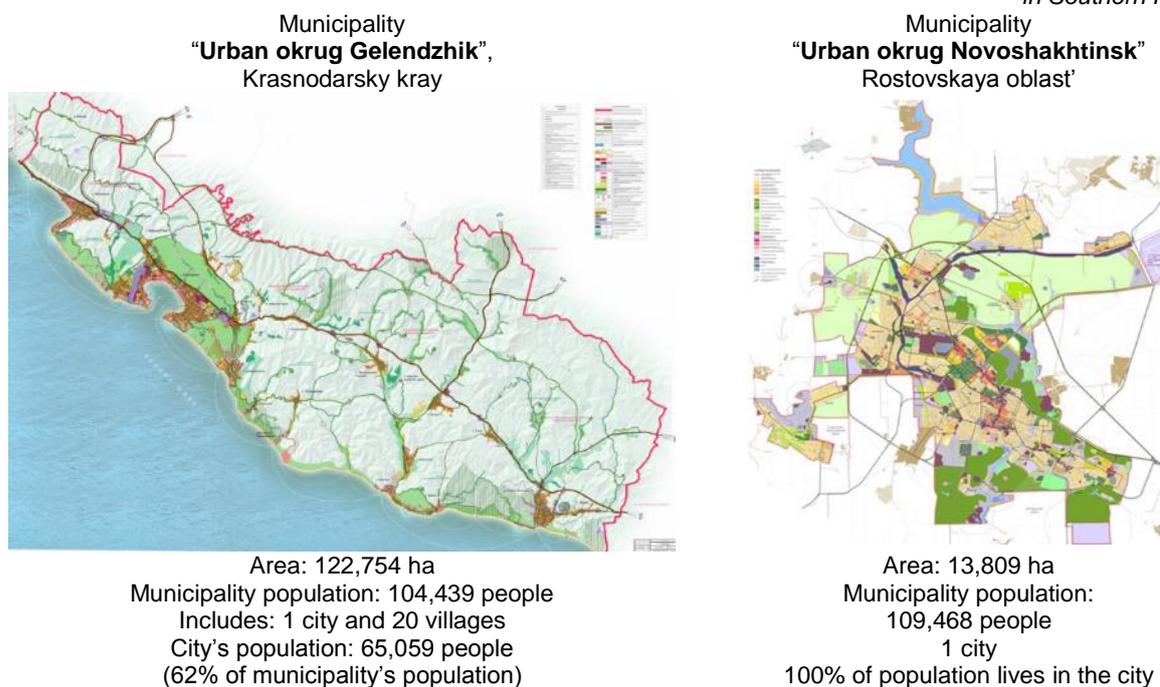
The statistical data characterising the situation in the municipalities is formed by initial information about the life and work of citizens and businesses, which is collected from different sources by statistical services and the various departments. The Russian Federal State Statistic Service (Rosstat), which represents a network of regional and municipal agencies, plays the central role in this process. Also, some other organisations collect information about socioeconomic conditions of the municipalities. However, the statistical data about municipalities is quite far from being representative, full or reliable. In practice, forming an array of local statistical data is complicated and its provision to users is not satisfactory.

Difficulties in data use at the municipal level are compounded by the municipal reform, conducted by the Russian government from 2003-2009 when a new administrative-territorial division was implemented with the municipality as the lowest basic unit in the hierarchy of public administration. The municipalities have been formed using different principles depending on the local context. The qualities of municipalities vary greatly one from another. In one case, a municipality may include one settlement only, whose borders may coincide with another municipality's border. However, another may cover a vast territory and several settlements with roads, agricultural land and natural landscapes. These specifics of Russian administrative division makes it almost impossible to compare different cities' development, considering statistic data collection is done according to the municipal level and not the level of the settlements.

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Figure 1.5.1.
Comparison of two municipalities having the same status of “urban okrug”
in Southern Russia.



For the collection of the statistical data, the following services were used:

1. Federal State Statistics Service (Rosstat) (<http://www.gks.ru/>). The service provides the relatively complete statistic data of the national and regional levels since 1991-1992 until now. At the municipal level, the data has been collected since 2006 (the moment of the municipal reform), and therefore is fragmented and not comparable.
2. Multifunctional statistical portal (Multistat) (<http://www.multistat.ru/>). The service provides the database “Economy of Russian cities”, which includes many indicators characterising the development of most Russian cities. However, there are some problems with the data presented. First, the main database represents the period from 1998-2011. Second, the data collected before 2006 represents the characteristics of a particular city, while since 2006 it represents the characteristics of a municipality, in which a city has been included. However, this information is not articulated, and the administrative changes are not considered in data representation. In complicates the correct understanding of the dynamic of the processes (for example, after the inclusion into the municipal borders of an additional 10-20 rural settlements, the indicators characterizing housing floor area or provision of engineering and social infrastructure change significantly, which make it impossible to come to any correct conclusions on the basis of the statistical data).

The described limitations of the statistics used were considered in the research on the case studies and influenced the selection of the case studies. For the verification of the adequacy of the statistics, numerous different sources of information were used including the official planning and programming municipal, regional and national documents, reports of governmental and

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non-governmental organisations, scientific publications, media publications and media interviews, official websites of regional and municipal authorities and economic entities.

For the analysis of the local and regional planning and policy, the officially approved documents were used and made available through the state information systems or official municipal websites. The state information systems used for the research:

- State Automatic Information System “Governance” (Государственная автоматизированная информационная система «Управление», <http://gasu.gov.ru/>). The information system provides access to the approved strategic documents for all levels of governance: national, regional and municipal.
- Federal Governmental Information System of Territorial Planning FGIS TP (Федеральная государственная информационная система территориального планирования ФГИС ТП <http://fgistp-dev.ursgis.ru/>). The information system provides access to the text and graphic materials of the projects or approved documents of territorial planning for all levels of governance: national, regional and municipal.
- Computer Reference Legal Systems “Consultant Plus” («Консультант-Плюс» <http://www.consultant.ru/>) and Garant («Гарант» <http://www.garant.ru/>). These information systems provide officially approved national, regional and municipal law and regulations.

In the instance where some information was absent from the official data sources or the quality was too poor, the information was requested directly from the municipal administrations.

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Chapter 2.

Urban shrinkage: international perspectives and the Russian experience.

Chapter 2. Urban shrinkage: international framework and Russian experience.

2.1. A worldwide phenomenon and its investigation.

The phenomenon of urban shrinkage is far from being a new issue for the scientific world to investigate. In fact it is not a new phenomenon in and of itself: cities have always been born, grown and died. These stages are parts of the natural process, but urban decline now is seen as a component of uneven development characterising capitalism (Bernt, 2009). The globalisation process accelerated the influence of external factors on urban development. It has caused the movement of capital around the planet, a global division of labour and the subsequent international migration flows forming poles of very fast urbanization on one side and areas of shrinkage on the other. Fast population and economic changes inherent in the globalization process provoked unexpected transformation of urban structures in many cities, attracting the attention of scholars, planners and policy makers. Urban shrinkage has gone from being a local problem for some cities and a rather exceptional way of urban development caused by very specific reasons to recently becoming a global phenomenon spreading almost everywhere (Sousa and Pinho, 2015). Moreover, since the second half of the twentieth century, cities in many parts of the world have been facing the challenge of population loss due to the demographic transition based on society and the changing family model (Haase et al., 2014; Hollander et al., 2009).

Population decline in urban areas has been investigated and discussed for decades (Grossman et al., 2013). Its causes and effects attracted the attention of scholars in Europe, the American continent, Japan and Australia, but, at the same time, the amount of literature on urban decline is still not comparable to the amount of literature on urban growth. If urban growth attracts strong attention by scholars since the beginning of industrialization, a significant increase in interest on the topic of urban decline is noticeable only since the last decade of the twentieth century. The same period is characterized by an increase of literature on the issue of globalization. The reason is due to the strong influence of global processes on the spreading of shrinkage and the exacerbation of its negative effects. Thus, globalization is surely one of the most important components among the many causes of shrinkage, such as in the economic decline in the American Rust belt or German Ruhr area, or post-socialist transition in Eastern Europe and Russia: ‘...globalization is a trigger for urban shrinkage’ (Pallagst, 2010).

Some scholars emphasize a noticeable proliferation of interest in the topic in recent years, noting at the same time that ‘this literature has been global in reach but has covered Europe, North America, and Japan in particular’ (Hackworth, 2014). Following the development of the phenomenon, the focus of debates and investigations has shifted over time. Thus, starting from the investigation of causes and effects of population and economic decline in particular cities in the 1980s-90s, discussions turned to attempts to develop new principles, approaches and tools for planning in shrinking cities.

A huge part of the discussion focused on the effects of shrinkage, which were perceived differently depending on the interests and perspectives of the commentators. (Grossmann et al., 2008).

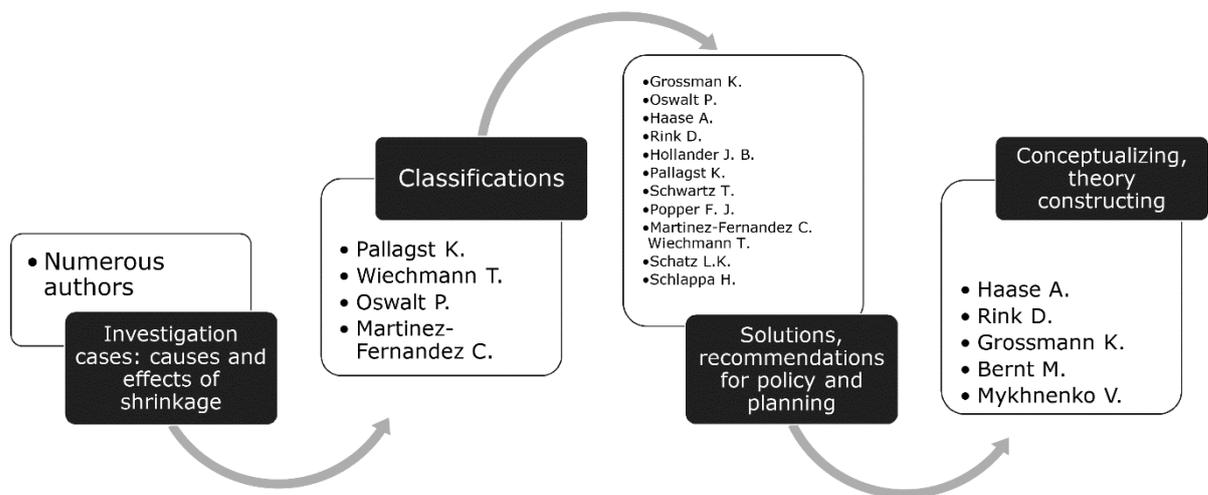
There is still no theory on shrinking cities (Olsen, 2013). The direction of scientific research in the field of cities experiencing population decline has changed over time in accordance with the level of understanding of the problem. The main cause for the increasing interest in shrinking cities in Western countries was the emergence of depopulation’s negative consequences at the physical level, degrading the urban environment. Empty buildings and vacant land, transport

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and engineering infrastructure surplus have all created an additional burden on city budgets by reducing the capitalization of real estate and the attractiveness of cities. Cities such as Detroit, which became the textbook example, provoked the emergence of a large number of empirical studies (Weichmann and Bontie, 2015), including several international projects (Haase et al., 2012; Martinez-Fernandez et al., 2012; Rink, 2012). Such projects aimed at comparing the manifestation of the phenomenon and policies dealing with it in different contexts, which resulted in attempts to create different classifications that categorize shrinking cities according to causes, observed effects, etc.

Figure 2.1.1.
Phases of the urban shrinkage investigation (the end of XX-beginning of XXI centuries).



New directions of investigations and discussions appeared in the 21st century. First of all, many studies were oriented to the development of principles and recommendations for planners and policy-makers, based on causes and negative effects of shrinkage investigated and classified earlier (Hackworth, 2014; Hollander and Nemeth, 2011; Hollander et al., 2009; Martinez-Fernandez et al., 2012; Rink, 2012 and others). Besides talking about problems and difficulties, another path of the debate discussed the positive effects and opportunities for cities. (Oswalt, 2006; Grossmann et al., 2008; Novak and Nowosielsky, 2008; Popper and Popper, 2002; Schilling and Logan., 2008). Only relatively recently, a range of works has appeared that tries to conceptualize and theorize this accumulated knowledge (Rink, 2012; Grossmann, 2013; Haase et al., 2014).

2.1.1. Investigations of causes and effects of shrinkage.

This chapter does not aim to describe the numerous varieties of causes of shrinkage and their negative effects and combinations. However, the main goal of the research is in investigating existing approaches, methods and tools for planning and policy in shrinking cities that are strongly connected with causes and negative effects of the phenomenon. However, the exploration of approaches without considering causes and effects does not make sense if we wish to adapt tested practices under specific conditions.

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There are different causes of shrinkage, each producing a different type of shrinking city. (Haase et al., 2012).

Therefore, which causes of shrinkage are usually described in the existing literature? Are there any classifications? It is clear that the complexity of the phenomenon of shrinkage does not allow to easily identify cause-and-effect relationships. However, there are some attempts in constructing a classification of causes.

Thus, Oswalt (2006) in his research “Shrinking cities” identifies suburbanization (regional shifting of activities and people into the surroundings of the cities), metropolitanization (countrywide shifting of activities and people to the great urban agglomerations), and deindustrialization (the crisis of mono-industrially oriented sites) as the main causes of shrinkage in developed countries. Haase A., Hospers G., Pekelsma S. and Rink D. describe four macro-economic processes causing shrinkage: economic transformation, shifts in urban structure, the ageing of society and political transformation (Haase et al., D., 2012).

In the same paper, the authors name drivers of population decline, which are:

- *economic decline, generally leading to net out-migration from the city region in search of work;*
- *suburbanization or urban sprawl, where the population disperses from the core city towards more peripheral locations within the city region;*
- *natural demographic change, whereby, usually through an ageing population, death rates exceed birth rates and the population naturally declines;*
- *ecological processes or shock-like events such as natural hazards. (Haase et al., 2012).*

As the authors claim, “some scholars see economic transformation as the main cause of urban shrinkage”. Oswalt, for example, defines shrinking areas loosely as “places where the losers of the so-called globalized economy live”. For sure, it is not necessary that the main cause in many cases fall under the conditions of global demographic transitions. Some authors put demographic shift at the top of the list of causes, due to which “population decline seems unavoidable” (Grossmann et al., 2012).

Every city usually demonstrates its own combination of causes for shrinkage. Almost always, it is a set of overlapping processes influencing each other. At the same time, in different countries there is a predominance of several factors that contribute a greater share. Accordingly, scholars pay more attention to investigating these causes. Thus, in the US, attention was especially paid to population loss caused by suburbanization (Grossmann et al., 2008), while in the European context demographic transition plays a more important role. This proves once again the impossibility of maintaining any universal description and approach to urban shrinkage.

Noting the astonishing variety of different trajectories and fortunes of shrinking cities, Annegret Haase and Katrin Großmann (Leipzig) used a comparative European perspective to suggest that a pluralist world of urban shrinkage exists. They made it clear that no ‘one-size-fits-all’ explanation exists – local specifics and context matter. (Grossmann et al., 2012).

In discussing negative effects, we face similar problems. “The effects of population decline vary case by case according to the circumstances surrounding it” (Schatz, 2010). Moreover, these effects include visible and non-visible consequences of shrinkage. First, it is clear that the most visible physical negative effects attract the greatest attention. Thus, there is a scope of literature dedicated to such issues as abandoned buildings, vacant land and infrastructure surplus.

However, such problems are inherent mainly in cities experiencing a dramatic population loss, like Detroit or Youngstown, for example. Moreover, such effects are seen in developed countries characterized by the high level of housing and infrastructure provision. Thus, Hackword (2014) claims that land abandonment is one of the most challenging planning problems that are facing shrinking cities in the United States. In post-socialist countries even in the cases of a sharp population loss, these effects might not be present due to unsatisfied citizens' needs. Consequently, at the beginning, citizens may even benefit from population decline (Grossmann et al., 2012).

At the same time, other challenges may be evident, but still create many problems for cities at the current moment or in the future. Haase A., Hospers G., Pekelsma S. and Rink D. (2012) group the consequences of shrinkage for a city into three categories: “hardware” (visible, tangible and countable (hence “hard”) aspects of a city, “software” (norms and values of local actors and the ways in which they act and interact) and the “mindware” (the image of a city) of an area. The authors also list typical consequences of urban shrinkage that, in their opinion, includes declining population densities; a growing imbalance between housing demand and supply; a growing imbalance between the supply of and demand for social infrastructure (e.g. schools), transport and utility infrastructures; declining demand for local commercial services; the emergence of vacant and derelict land and buildings (brownfields); changing demographic characteristics (particularly a rise in the proportion of elderly people) and greater pressures on local municipal budgets.

A significant challenge for any classification of the causes and effects of shrinkage is that they influence each other and can therefore be quite difficult to separate (Bontje and Musterd, 2012). Thus, population loss provoking economic decline is exacerbated by economic decline and vice-versa. As Grossmann K., Haase A., Rink D. and Steinführer A. (2008) claim, “a first systematization of urban shrinkage would therefore involve distinguishing between causes, process, and consequences”.

2.1.2. Shrinkage in post-socialist countries.

This section has been highlighted separately due to the recent emergence of literature on post-socialist countries and the focus of this particular research.

As mentioned above, shrinkage in post-socialist countries is characterized by different patterns. Some scholars have emphasized this and assigned shrinkage in post-socialist countries to the “special case” category, giving it a status of a new “pole of shrinkage” with three out of four cities showing population losses (Haase, Grossman and Rink, 2013; Novak and Nowosielsky, 2008; Rink, 2012), but there are still very few studies on the phenomena in ex-socialist countries. Some serious surveys have been made as part of international projects, such as “Shrinking cities” (Oswalt, 2006), “Shrink Smart – The Governance of Shrinkage within a European Context” (Rink, 2012) or “Demographic Change and Local Development: Shrinkage, Regeneration and Social Dynamics” (Martinez-Fernandez et al., 2012). However, in such international research projects, shrinking cities from Eastern European countries are put in a row of other European cities without categorizing them specifically.

Urban shrinkage, as it has evolved from the eastern German context, is introduced and discussed in light of the British and North American debates. (Grossmann et al., 2008).

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For example, the Russian city of Ivanovo was included in the framework of an international research sponsored by the German Federal Cultural Foundation, which finished in 2006. However, there are no studies of the problem as a whole in terms of urban planning in Russia today. Importantly to note, some scholars doubt the possibility of using the same scientific and planning approaches in post-socialist cities that are appropriate in Western cities. They pose questions about the applicability of urban theories developed in the western European and US context to post-socialist countries (Haase, Grossman and Rink, 2013).

Shrinking post-socialist cities represent a challenge not only for those who live in them and those who steer and govern their development. They also need to be analyzed and understood by urban research. Up to present, however, shrinking cities are not in the focus of most urban discourses in the post-socialist countries. (Haase, Grossman and Rink, 2013).

On one hand, post-socialist countries have demographic problems similar to those of Western countries, particularly those related to the demographic transition characterizing all industrialized countries in the second half of the twentieth century. Population decline started in many socialist countries decades before the end of the socialist system (Novak and Nowosielsky, 2008). On the other hand, that decline steadily continued in a natural way and developed into a heavy demographic crisis due to the system's collapse.

Eastern German and East Central European cities share a socialist past and the experience of post-socialist transition with its far-reaching economic restructuring. Just as in eastern Germany, the revolution in the political and economic systems resulted in a massive and sudden decline in birth rates. At the same time, the mortality rate stagnated and even increased. After the fall of state socialism, fertility rates dropped dramatically, due to rises in childlessness and postponements of marriage and childbearing (Novak and Nowosielsky, 2008).

In addition to demographic problems, the process of shrinkage in these countries was compounded by post-socialist transition of economy. The fast shift from planned economy to a free market led to a total collapse (Bernt, 2009).

In a very short period of time, mainly between summer and fall 1990, industrial production went down to a third of its original level and the economic base literally disintegrated. As deindustrialization was accompanied by 'de-collectivization' (abandonment of farming cooperatives), 'de-administration' (liquidation of administrative structures) and 'demilitarization' ..., the result of these simultaneous developments was an immense loss of jobs which could not be absorbed by new developments up to today. (Bernt, 2009).

Another difference is that most of the ex-socialist countries are very far from the saturation of the housing market and surplus of infrastructure. While Western countries are facing problems of abandoned property, vacant land and unused infrastructure both in Western Europe and the American continent (Allan, 2012; Bern, 2009; Bukholder, 2012; Grossmann et al., 2013; Haase, Grossman and Rink, 2013; Hollander, 2009; Pallagst et al., 2009 and others), post-socialist countries are experiencing the positive effects of development of the construction market. As noted in a conference report in 2012 by Grossmann, "the growth paradigm is much more present in these countries because of a commitment to a catch-up modernization guided by Western standards. Strategic planning for a reduced-size city is not evident here".

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...housing vacancies are not yet an issue, nor is infrastructure oversupplied. The housing markets are still rather tight, and so the real estate markets and new construction projects in the bigger cities are booming (Novak and Nowosielsky, 2008).

Moreover, such positive effects of market development create strong beliefs in the market's self-regulatory ability. In this case, it is very difficult to discuss the concept of shrinkage as in many countries this topic is still a taboo or else shrinkage is just ignored as an actual problem. In some cases, population decline helps to satisfy "housing hunger" (Novak and Nowosielsky, 2008), giving a possibility for families to gain more living space.

A recent study at the University of Glasgow concluded that three out of four cities with more than 200,000 inhabitants in the post-socialist countries are shrinking... Since housing prices are skyrocketing in Poland and the Czech Republic at the moment, and the construction of new housing estates is booming, the common perception of city development is far away from the idea of shrinking development (Novak and Nowosielsky, 2008).

Haase, Grossman and Rink in their article (2013) note that post-socialist countries are characterized by a deep mistrust in state regulations as a legacy of the socialist past; lower importance of planning than in many western European countries, urban development driven by developers' investment decisions, a missing public and rental housing sector. They analyze specific aspects of shrinkage in post-socialist countries and make some very important conclusions. They show that the post-socialist transformation in some cases caused shrinkage, while in some others it worked as a catalyst of an existing process. Another important conclusion is made about the different trajectories of shrinkage in post-socialist cities despite the apparent similarity in their past development and causes of shrinkage. Therefore, that means one unique approach cannot be implemented for one class of "post-socialist city". Scholars also discovered that post-socialist cities, which used neoliberal responses to shrinkage, demonstrate increasing social problems. They also emphasized that decision-makers ignored or even made a taboo of the problem because of their orientation towards the creation of new growth.

...we conclude that there is no "one model" of a post-socialist shrinking city but there is a number of patterns and mechanisms that can be compared and that report on the relation between fundamental socio-economic transformation and urban change as well as their interplay.

The simultaneousness of post-socialist transition and shrinkage thus set a "double" challenge for the affected cities. (Haase, Grossman and Rink, 2013).

Based on the previously mentioned aspects, it is possible to conclude that post-socialist cities should be investigated as a specific case of urban shrinkage. They require the development of a specific direction of urban theory concerning shrinkage.

2.1.3. *The shift of focus to searching for solutions.*

A new step in the development of theory and practice was made in the first decade of the 21st century. The Youngstown Citywide Plan 2010 (2005) became a significant event, one which provoked a change in the line of research due to the public reception it received.

The core of the city's plan is that it accepts Youngstown's decline and tries to use it as a way to improve remaining buildings, infrastructure and services. The plan aims to depopulate, de-

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urbanize—and it does so deliberately. The media and public reaction has been extraordinary. (Hollander et al., 2009).

That and following attempts to accept shrinkage made by different cities clearly showed a lack of knowledge and experience of planners and policy-makers, used to operating within a growth-oriented paradigm. That understanding provoked an increase of literature and planning strategies investigating new principles of development for shrinking cities with a general agreement among scholars that planning should play an important role under conditions of shrinkage. Having such an agreement it became possible to change the direction of studies from descriptive “passive” investigations of causes and effects to explorative “active” findings of solutions, tools and methods. However, this shift still meets public resistance due to the negative perception of the concept of shrinkage.

Strong forces interfere with the acceptance of population and employment loss and oppose efforts to plan for a smaller city. At the level of the civic narrative, public acceptance of sustained population decline contradicts the widely-held American belief that population growth equates with “success” and population decline equates with “failure.” (Morrison and Dewar, 2012).

Therefore, the acceptance of shrinkage now seems to be something innovative, resulting in waves of investigations and publications with the topic of shrinking cities has become a kind of fashion. However, some scholars emphasize the need “to be sober” and understand that in time this issue could become more generally accepted and may be the rule instead of an exception (Haase et al., 2012).

Chapter 3 will explore the existing approaches and principles for planning developed in shrinking cities with a more detailed investigation of approaches that have accepted shrinkage as part of a long-term unavoidable trend.

2.2. Issues of definition.

The problem of conceptualizing urban shrinkage result from the systematic problems expressed in the attempts to define shrinking cities. Despite the increasing amount of literature on shrinking cities, few authors try to provide clear definitions, while some prefer to use the existing definitions, offered by others (even if sometimes they do not match the research being conducted), or simply avoid providing any definitions. Yet, the term “**shrinking city**” remains ambiguous and doubtful. Why?

There are several reasons for it. The first obvious problem appears with the definition of “city” itself, the meaning of urban, which depends very much on context and history of development. Hence the terms such as “urban/city core”, “suburbs”, “urban area” etc. are understood in different way in contrasting contexts, as well as urban transformations will take different directions. It becomes almost impossible to create a universal term that considers common aspects, which could be slightly specified to the local conditions. The second reason is due to a difficulty in distinguishing causes and consequences related to the phenomenon of urban shrinkage. It results from the construction of definitions as well where both causes and consequences might be included. Moreover, those aspects depend a lot on the discipline, in the framework of which the phenomenon of urban shrinkage is examined: e.g. geography, demography, economy or sociology focus on particular features of urban decline. At the end, a term “shrinking city” seems to be used in order to express a way of urban development opposite to the “normal” mode of urban growth. It is used for placing a city in a particular point of a development line (or circle) in order to diagnose and mark its specific position. A “shrinking city” is not a “growing city”.

An examination of the existing definitions allows to understand not just their weaknesses or limits, but to comprehend the complexity of work within a framework of the “shrinking city” concept and difficulty in developing it.

The table below represents the three most cited definitions of a **shrinking city**, created at different periods for international studies and events: the International research “Shrinking cities”, conducted in Germany in 2005-2006; Shrinking Cities International Research Network in 2009 and the project Cities Regrowing Smaller in 2011.

Table 2.2.1
The most cited definitions of shrinking city.

Source	Shrinking cities definitions
International research “Shrinking cities” (Oswalt, 2006)	<i>Shrinking cities...are cities that have temporarily or permanently lost a significant number of their inhabitants. Population losses are considered to be significant if they amount to a total of at least 10% or more than 1% annually.</i>
Shrinking Cities International Research Network (SCIRN) <i>(Hollander, 2009)</i>	<i>a densely populated urban area with a minimum population of 10,000 residents that has faced population losses in large parts for more than two years and is undergoing economic transformations with some symptoms of a structural crisis</i>
Cities Regrowing Smaller (CIRES)	<i>A functional urban area with a minimum population of 5,000 residents in its core city (or a certain district in it) that has faced a remarkable</i>

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Source	Shrinking cities definitions
<i>(CIRES, 2011 cited in Bontje and Musterd, 2012)</i>	population loss at least for 5 years (in recent years or in a former period) and/or is undergoing a long-term or episodic economic, social or cultural transformation that cause symptoms of a structural crisis

An important observation is that all of these definitions do not include territorial or physical aspects of urban decline, which at the beginning was the main driver for urban shrinkage studies. The definitions are developed from the positions of human geography, but have no references to spatial transformations and spatial planning. The definitions include some common elements, but their comparison shows clearly how the difference make the definitions confusing.

*Table 2.2.2.
Shrinking city definitions comparison.*

	Oswalt	SCIRN	CIRES
What	city	densely populated urban area	functional urban area
Population	-	10,000 residents	5,000 residents in its core city (or a certain district in it)
Character of population loss	Significant, at least 10% or more than 1% annually	In large parts	Remarkable
Period	-	more than two years	at least for 5 years
Other transformations	-	undergoing economic transformations with some symptoms of a structural crisis	and/or is undergoing a long-term or episodic economic, social or cultural transformation that cause symptoms of a structural crisis

In the presented definitions there is no agreement about urban or city: it is not clear if city should be explained somehow, which population number makes a “city” and which other features of a city should be taken into consideration. In the examples, the first definition does not explain the city at all, while the second uses density to define “urban” and the third utilizes function as an attribute of the city. The population number is also not clearly defined. While the second definition simply decides the minimum number of residents, the third one takes into consideration possible local conditions: a city may be organized as a separate settlement or part of a vast urban area, where, for example, population decline appears in the city core or in one of its parts due to suburbanization. Accordingly, we may conclude here that it is difficult to label a city as shrinking without placing it into context. The following position about character of population loss is described in a very different way. While the first definition uses the description “significant” with the very concrete criteria (at least 10% or 1% annually), the second definition operates through the expression “in large parts” and refers to the spatial expression of depopulation¹ and the third definition uses the specification “remarkable”, likely referring again to the dynamic of population change, but without specifying a criteria. The period of population

¹ Here we may assume that authors mean negative effects of urban shrinkage in city’s physical structure.

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loss, which could be significant for a city's development is determined by the last two definitions at two and five years, but no single definition explains this duration. In fact, the significance of the period duration depends mainly on local conditions. We can imagine that for one city a continuing five year population decline may be inappreciable or even positive (for example, a large city with accumulated problems relating to transport, engineering and housing provision), while for another city it might result in significant physical transformations. Attempts to define other aspects accompanying urban transformations in the second and third definitions are not convincing in either case. The attribute “undergoing economic transformations with some symptoms of a structural crisis” is very uncertain as no indicators are presented that could help us to identify the process as appropriate while the second definition increases uncertainty in the description. Words such as “and” and “or” written with a slash show us that economic, social or cultural transformations might accompany population decline in shrinking cities. Consequently, the population decline remains in this case the only one clear indicator for defining urban shrinkage, which corresponds to the general agreement among scholars that the dynamic of population decline is the only one indisputable aspect in all cases of urban shrinkage.

A more complex definition, considering different aspects of urban shrinkage, appears in attempts to conceptualize the phenomenon as a process. The following was developed by the German scholars A. Haase, D. Rink, K. Grossman, M. Bernt and V. Mykhnenko and, working on the empirical materials from European cities:

We conceptualize urban shrinkage as an empirical phenomenon resulting from the interplay of changing drivers of shrinkage at different spatial levels (from regional to global) that produces a decline in population at the local scale. These drivers of shrinkage may be related to economic decline, demographic change, and settlement system changes in the form of suburbanization and urban sprawl. They may also include environmental disasters and radical changes in the political and administrative systems (e.g. through border changes due to warfare or the peaceful in-/exclusion of territories) (Haase et al., 2014).

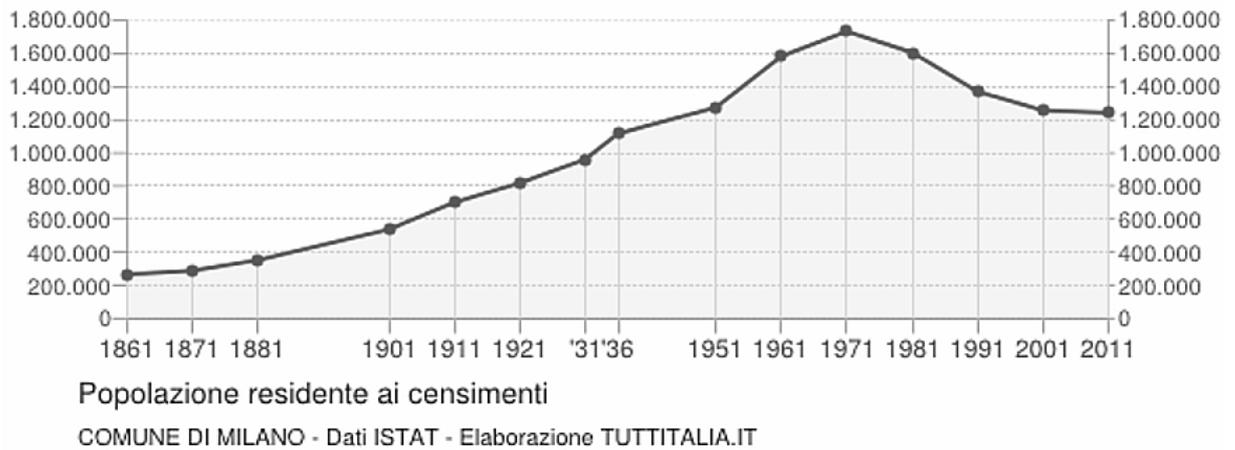
The presented definition does not indicate any quantitative characteristics of urban shrinkage symptoms as done in previous ones. Rather, it provides an explanation of casual relationship between shrinkage drivers and the results. The crucial aspect of the definition indicates an interplay of drivers at different spatial levels that can produce decline. Understanding this point is important in determining the level of problems being addressing.

However, after all, it is obvious that only population decline itself does not signify the phenomenon. Milan may serve as a perfect example of this phenomenon. The city has been characterized by a significant long-term population loss. The city fell from 1.73 million people in 1970 to 1.34 million in 2015, representing a 24% population loss. However, again, without taking into consideration the local context, we are not able to understand those processes lying behind the population loss. A closer examination can explain that Milan is located in the most urbanized area in Europe, its economic development is positive, and while the city itself has been losing its population, its surroundings have been growing.

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Figure 2.2.1.
Population change of the city of Milan in 1861-2011, Census data.



As previously mentioned, within the reviewed definitions, a crucial aspect is missing, which has actually become the main reason for the starting the investigation into the phenomenon and searching for suitable policies. This aspect is the city's physical degradation due to becoming too large for the declining population. The definitions that include the physical urban transformation are usually developed within special state programs or plans oriented to the liquidation of negative consequences of shrinkage and do not attempt to be universal and, consequently, specify specific problems. Such a definition appeared, for example, in the report "Right-sizing America's shrinking cities" (2007) by the Cleveland Urban Design Collaborative (CUDC). Obviously it was developed for a particular context with a specific purpose, but it refers to the most important issue not mentioned in other definitions:

*A shrinking city is one where substantial and sustained **population loss (20 percent or greater)** has occurred over a period of at least **forty years**, while the **physical footprint** of the city has **remained the same**.*

The last sentence emphasizes the contradiction between a shrinking population while retaining the city's most inertial components: its physical fabric and structure. This contradiction generates the most complicated issues in spatial planning.

Obviously, the current research must define what is intended with the term "shrinking city" and will be later discussed within section 2.5.

2.3. Drivers of shrinkage in the Russian context: A country of shrinking cities.

2.3.1. Russian geography, administrative structure and distribution of population.

Russia (officially Russian Federation) is the largest country in the world, spreading over 11 time-zones and covering the surface of 17.1 million square kilometers (one-eighth of the Earth's inhabited land area). Yet the largest country in the world is only the world's ninth most populous country. Russia's population of 146.5 million² people is only 2% of the world's population. Accordingly, the population density is very low with an average of just eight people per square kilometer (map 2.3.1). In 24 of 85 regions, the population density is lower than average and in some regions is less than one person per square kilometer: in Chukotsky, Nenetsky and Yamalo-Nenetsky autonomous okrugs, Republic of Yakutia, Kamchatsky krai and Magadanskaya oblast in the far east of Russia. However, not only are the far Eastern or Siberian regions characterized by low population density as many regions in the European part of Russia have a population density two or three times below average, such as Archangel'skaya oblast', Republic of Karelia and Republic of Kalmykia. This fact is very important in understanding the settlement system's structure, the relationship between cities, the importance of transportation and difficulties in cities' cooperation.

Map 2.3.1.
Population density by regions in Russia.



Russian administrative-territorial division includes several levels (figure 2.3.1). The first level is presented by nine³ federal districts that group regions (subjects of federation) by geographical principles. These administrative units do not exist in the Russian Constitution and

² Including the population of the Republic of Crimea.

³ Including Crimean Federal District.

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were created for the purposes of improving governing. Seven federal districts were established in May of 2000, the new North Caucasian Federal District was split from the Southern Federal District in January 2010 and the Crimean Federal District was established in March 2014.

The administrative units at the top-level are subjects of the federation (the regions). The country is divided into 85 federal subjects⁴ of six different types. A majority of residents of non-Russian ethnicity characterize 22 regions, which have the status of Republic, with a higher autonomy than the other regions, such as having their own constitution and parliament with legislative authority, or the right to establish the state language. Half of the regions, or 46 federal subjects are defined as Oblast, while another nine are included in the category of Krai. Four regions in the northern part of the country, marked by ethnic minorities are classified as autonomous Okrug. The latter, jointly with the Jewish autonomous Oblast signed a separate Federation Treaty in March 1992 to that of the republics.⁵ Nenetsky, Yamalo-Nenetsky and Khanty-Mansyisky autonomous Okrugs being independent subjects of federation at the same time are included in other administrative-territorial units. Thus, Nenetsky autonomous okrug is included in Astrakhan oblast, Yamalo-Nenetsky and Khanty-Mansyisky autonomous Okrugs are included in Tumenskaya oblast. The relationship between the autonomous okrugs and oblasts are regulated by agreement and includes issues authority, obligations and budget redistribution.

The second level of Russia's subdivision is the municipal level that includes municipalities in direct subordination to the region: urban okrugs and municipal districts. Municipal districts are parts of regions. Normally they include several urban and rural settlements, often along with the inter-settlement territories. Urban okrug is usually an urban settlement that is not included in the municipal district and is in direct subordination to the region. In practice, urban okrugs are usually formed within the boundaries of existing cities of regional significance. On 1 January 2015, there were 537 urban okrugs in Russia in 82 regions.

The third level of sub-division is the level of urban and rural settlements (municipal level). According to the federal law №131 “On general principles of organization of local government in the Russian Federation” (Federal Law № 131-FZ from 06/10/2003), the territory of every subject of federation should be divided among municipalities (urban and rural settlements). This means an inclusion into municipal territories of vast areas between settlements and, accordingly, also economic activities within these territories are considered as belonging to the municipality. Thereafter, many municipalities are considered “urban” and demonstrate a high percentage of agricultural activities in their economic portrait. To avoid a misrepresentation of the cities' characteristics, the current research deals with cities, not municipalities. Yet, at the same time, this introduces limitations in using the statistical data for comparison. The differences in population density are considered also in the administrative-territorial division of the country. Thus, for the territories characterized by very low density⁶ there is an exception made in law: the administrative division in such regions may include inter-settlement territories. The territories of entirely urban and rural settlements and inter-settlements territories are included into municipal districts.

⁴ Considering the Republic of Crimea and the federal city of Sevastopol, which were annexed to the Russian territory in March 2014 and are still internationally considered part of Ukraine.

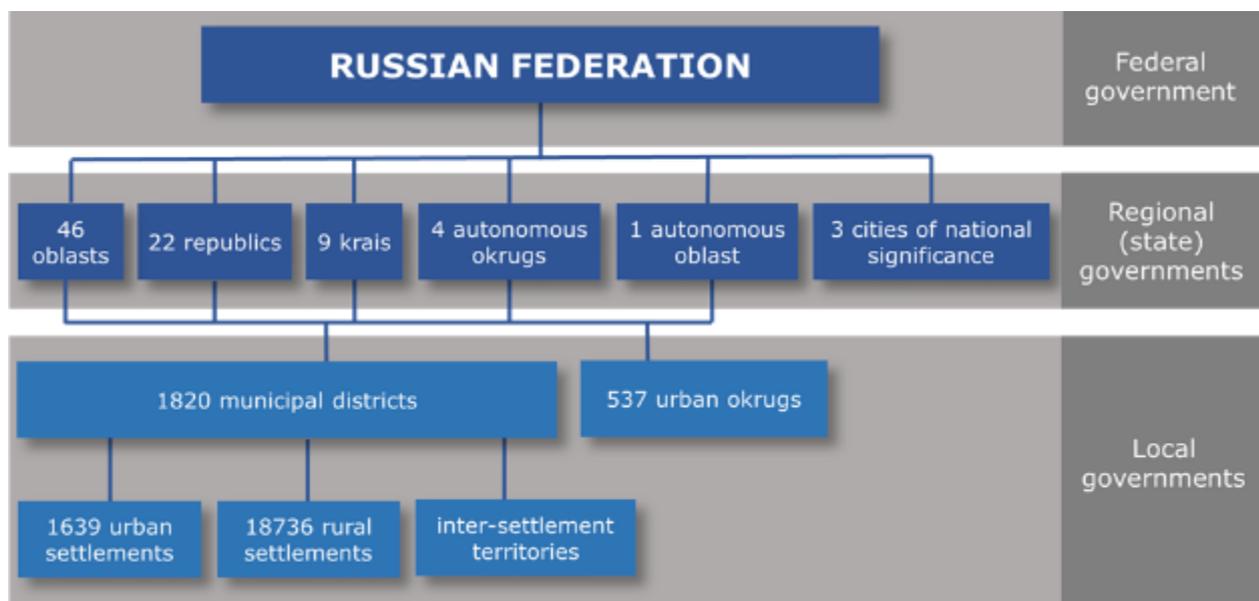
⁵ In 1992, ten regions obtained the status of autonomous *Okrug*. Between 2005 and 2008, the number reduced to four based on the number of local population still living in these areas.

⁶ Such territories are defined by special federal law.

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Figure 2.3.1.
Administrative division of Russian Federation.



Municipalities such as urban okrugs, urban or rural settlements present the first level of governance. Urban okrugs differs from settlements by their direct subordination to a regional government and wider list of powers and obligations, including the powers and obligations of municipal district.

A separate settlement does not have authority. The universal term “settlement” used in Russian legislative system eliminates the legal distinction of “city” and “village” at the level of settlements. However, one particular city, town or village is usually not an independent subject of political and economic systems in Russia. The basic unit is the municipality. Most of the cities in Russia are not only administrative centers of municipalities of the first level, but also administrative centers of municipal districts. This means they play important role in governing and serving large rural areas. Usually, the center of municipal district must have a certain list of necessary facilities, such as the main hospital of municipal district, the main cultural and sport facilities, municipal district’s libraries, emergency services, cadastral centers, courts etc. Accordingly, planning in such cities often considers the needs of the nearest rural areas, which will be described more specifically in chapter 4.

2.3.2. *Cities in Russia: geography, character, specificity.*

A discussion about cities in Russia should begin with an explanation of how “city” and “urban” is defined in the Russian Federation, the differences between “urban” from “rural”, as well as which specific qualities urban settlements have and the key elements that make a city.

Actually, the term “city” or “town” disappeared from the legal framework in Russia following the municipal reform of 2003-2009. There are no criteria fixed in the national law that allow classifying a settlement as a city or a settlement of a rural type. During the Soviet period, the main two criteria for “being a city” were population number (12,000 residents) and percent of population employed in non-agricultural activities (not less than 85%). Nowadays, the

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definition of such criteria is the right of every region according to their specifications. Some regions have fixed such criteria in regional law on administrative-territorial division, others do not describe any characteristics or features of “urban” at all. Most existing definitions are based on the Soviet one and use the same parameters. In some definitions the legacy of the Soviet law are seen very clearly as they include such criteria as “percent of workers”, for example. In many cases, the regional definition of city is fuzzy and includes many subjective factors, such as “economic and cultural center” (of what?), “important significance” or “prospects for further economic development”, as shown in the example below.

In the example of Southern Russia, we may observe that among thirteen regions, seven do not set any definitions of “city”, one refers to the legal status of a city in the administrative division and only five regions attempt to describe a city’s characteristics. All the definitions include a minimum population number, a city’s economic and cultural significance, with some of them specifying a percentage of people employed in non-agricultural sector while others refer to “further economic development and population growth” as necessary attributes to be declared a city. This observation is very important, especially for small towns, for which urban status may be set only in a case of possible future growth (in economy and population number).

Table 2.3.1.

Definitions of a “city” in regional law on administrative-territorial division in the regions of Southern Russia.

Region	Definition	Law
Astrakhanskaya oblast'	The definition of “city of the regional subordination”, which, in reality describes a municipality (urban okrug) and of “city of municipal district subordination”, which also describes a municipality (urban settlement)	The Law of the Astrakhanskaya oblast' "On administrative-territorial structure of the Astrakhanskaya oblast" (Act № 67/2006-O3 of October 4, 2006)
Volgogradskaya oblast'	City of regional significance is an administrative-territorial unit, which is an economic and cultural center of the region, having developed industry, with a population of not less than 25,000 people. City of district significance is an urban locality, industrial and cultural center, with a population of not less than 10,000 people, of which workers, employees and their family members are not less than 85 percent.	The Law of the Volgogradskaya oblast' "On administrative-territorial structure of the Volgogradskaya oblast" (Act of September 11, 1997)
Krasnodarsky krai	No city definition The definition of urban locality (no difference between city, town or urban-type settlement) and of city of regional subordination	The Law of the Krasnodarsky krai "On the administrative-territorial structure of the Krasnodarsky krai and on the procedure for its changes" (Act №780-K3 of October 6, 2004)
Republic of Adygea	No city definition The definition of urban locality (no difference between city, town or urban-type settlement)	The Law of the Republic of Adygea "On administrative-territorial structure of the Republic of Adygea" (Act № 171 of May 5, 2000)
Republic of Dagestan	City is an administrative-territorial unit, referred to by this Law to the category of cities, having its territory bounded by the city limits, within which shall exercise the powers of public authorities and local governments	The Law of the Republic of Dagestan "On administrative-territorial structure of the Republic of Dagestan" (Act № 16 of April 10, 2002)
Republic of Ingushetia	No city definition	The Law of the Republic of Ingushetia "On Establishing the Borders of Municipalities of the Republic of Ingushetia and their endowment with the status of rural or urban settlements, municipal districts and urban districts" (Act N 5-P3 of February 23, 2009)
Republic of Kalmykia	City is a locality, with a population of not less than 10,000 people, which is an economic and cultural center.	The Law of the Republic of Kalmykia "On administrative-

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Region	Definition	Law
		territorial structure of the Republic of Kalmykia" (Act № 138-II-3 of November 6, 2001)
Republic of Kabardino-Balkaria	No city definition	The Law of the Republic of Kabardino-Balkaria "On administrative-territorial structure of the Republic of Kabardino-Balkaria" (Act of July 6, 1997)
Karachay-Cherkess Republic	A city of republican significance is a locality, which is an economic and cultural center, characterized by the developed industry, with a population of over 30 thousand people. In some cases, into this category a locality with a population less than 30 thousand people can be included, if the city has great industrial, socio-cultural and historical significance, the prospect of further economic development and population number growth. A city of regional significance is a locality, which is an industrial and cultural center, with a population of not less than 10,000 people, of which workers, employees and their family members are not less than 85 per cent.	The Law of the Karachay-Cherkess Republic "On administrative-territorial structure of the Karachay-Cherkess Republic" (Act of February 6, 2004)
Republic of Northern Ossetia-Alania	No city definition	The Law of the Republic of Northern Ossetia-Alania "On administrative-territorial structure of the Republic of Northern Ossetia-Alania" (Act № 34-P3 of July 9, 2007)
Stavropol'sky kray	City is a locality, which has industrial and cultural importance, with a population of not less than 20,000 people, of which the scope of workers in industry and services and their family members are not less than 85 per cent. In some cases, city may be a town having an industrial and cultural importance, with a population of not less than 15,000 people, of which professionals in the field of industrial production and the service sector, and their family members are not less than 75 percent, and which has a perspective of economic development and population growth.	The Law of Stavropol'sky krai "On administrative-territorial structure of the Stavropol'sky krai" (Act N 9-кз of March 1, 2005)
Rostovskaya oblast'	City is a location with a population of not less than 12,000 people, which is the economic and cultural center, has an important industrial, socio-economic, historical significance and the prospects for further economic development and population growth.	The Law of Rostovskaya oblast' "On administrative-territorial structure of the Rostovskaya oblast" (Act № 340-3C of July 25, 2005)
Chechen Republic	No city definition The definition of urban locality (no difference between city, town or urban-type settlement)	The Law of the Chechen Republic "On administrative-territorial structure of the Chechen Republic" (Act № 30-P3 of September 14, 2006)

At the same time, in practice, a compliance with the set criteria is not strictly required for obtaining the status of a city. As of 01.01.2015, there were 243 cities in Russia with a population less than 12,000 people. A settlement's status often depends on the historical aspects, the role of a settlement in the regional or the national network and preferences that the settlement receives with its status. Vice versa, there are many settlements, which have received the status of "rural" in order to use privileges given by laws to rural areas. For example, in southern Russia, such "villages" may have a population of 50,000 people or even more.

The level of urbanization in Russia, according to the Federal Statistic Service, as of 01.01.2015, was 74%, which was almost the same as in 1989. The fast growth of the country's urban population during the Soviet period stopped with the collapse of the USSR. It is important to note that in Russian statistics, residents of the urban-type settlements are included in the total number of the urban population. These settlements are in-between cities and villages and the term "urban-type settlement" (посёлок городского типа/posyolok gorodskogo tipa) may correspond to the term "town" in English. This type of settlement was created during the Soviet

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period. Usually, such settlements are too small to become cities, but have an urban infrastructure and economy of an urban type. Meanwhile, such settlements are not considered in the current research. The percent of the Russian population, living in the settlements that have a “city” status was about 69% in 2015, lower than the level of urbanization. We may also observe the slight growth of this indicator: in 1989, the percent of cities’ population was 65.5%. However, it is not clear yet if the process of urbanization in Russia stopped due to demographic change or if it has reached its peak, but surely, the natural population decline plays the most important role as in-migrations from rural areas have not been able to compensate for it. Some experts came to the conclusion that Russia is close to exhausting its resources for an extensive expansion of the urban system (Kolomak, 2015).

As of 01.01.2015, there were 1,114 cities in the Russian Federation⁷. The cities in Russia are located unevenly with most of them situated in the European part of Russia (766 of 1,114 or 69%). Russian regions are very different in many aspects of their socio-economic development and in terms of the level of urbanization with the lowest percent of urban population in Republic of Altay (29%) and the highest level in Magadanskaya oblast’ (95.8%). The number of cities in regions is also very different. Thus, the region with the highest number of cities is Moscovskaya oblast’ with 76 cities. In other regions, the number of cities has changed from one to forty seven.

How can the average city of Russia be described? The largest city of the country is the capital Moscow with a population of 12.2 million people. The smallest city is Chekalin in Tulsckaya oblast’ with a population of 964 people⁸. The majority of Russian cities are small and medium-sized (71% of cities), but most of the population are living in large cities of 1,000,000 people or more.

*Table 2.3.2.
Cities’ typology according to the population number.*

	less than 50,000	50,000 – 99,999	100,000 – 249,999	250,000 – 499,999	500,000 – 999,999	1,000,000 and more
Number of cities	790	155	91	42	21	15
% cities of this type of total number	70,9	13,9	8,2	3,8	1,9	1,3
Number of people living in the cities of this size, thousand people	16210.9	10861.1	13987.0	14543.3	12853.0	32387.0
% of Russian urban population living in the cities of this size	16,1	10,8	13,9	14,4	12,7	32,1

Yet, while the most common city’s type is a small city, the biggest part of population lives in the largest cities: 12% of the Russian urban population live in Moscow and another 20% live in 14 cities with a population of more than one million people. 27% of Russia’s urban population, or 27.1 million people, live in 945 cities with a population of 100,000 or less.

⁷ Including the cities of the Republic of Crimea.

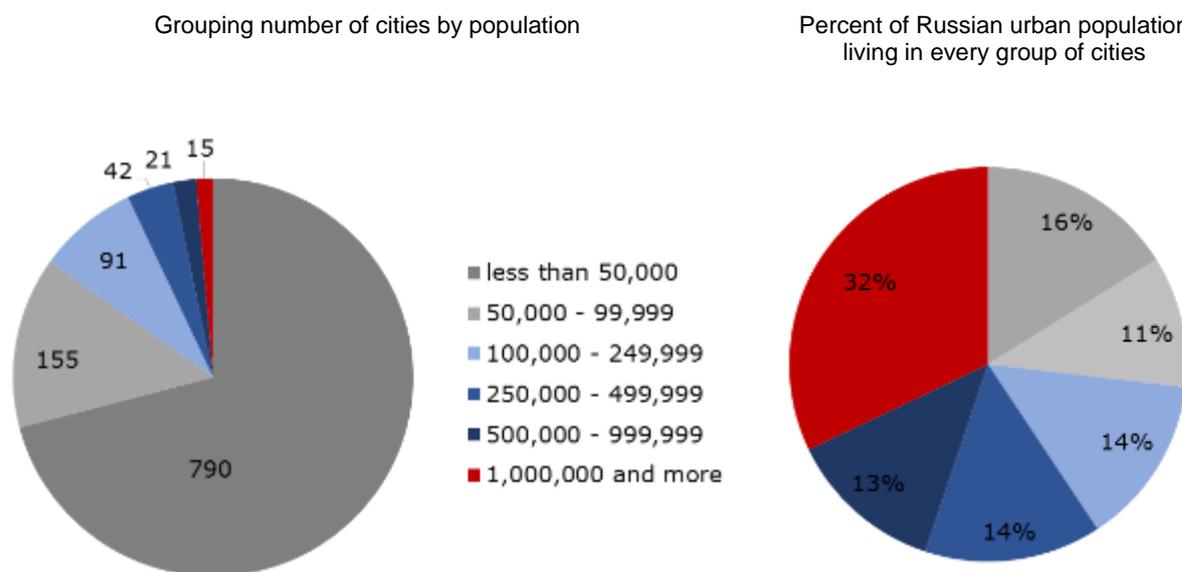
⁸ Without consideration of the new town of Innopolis, which official population at 01.01.2015 was 10 people.

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Figure 2.3.2.

Cities' classification by population and the population share living in every group of cities.



The artificial character of Russian urbanization can be seen in the history of new cities. The 20th century was the period of the most intensive urbanization and the founding of new cities. 687 cities of 1097⁹ (62%) were founded or became cities during that period with another 47 appearing after the USSR's collapse. During the Soviet period, the government artificially stimulated urbanization in order to address economic and political issues. However, some experts call the result "semi-urbanization", because such cities retain many features of rural life such as one-family houses with gardens, a low level of engineering and transport infrastructure development, the quality of urban environment and presence of social facilities. Increasing distances between rural territories and a regional capital create a more significant role of the city-center of municipal district becomes. The low density of settlements in Russia creates difficulties for transport connections and mobility and in many regions there is no access from remote settlements to the regional capitals by land transport. The high cost of air and water transport is also a serious limitation for areas not receiving necessary services.

Many cities/towns in Russia were founded for certain purposes and have specialized single-sector oriented economies. This aspect is especially true for the small and medium-sized cities, among which there is the largest number of one-company cities. Such companies work in industrial sectors or exploiting natural resources, but there are also cities/towns-transport nodes, scientific centers, resorts, administrative centers or military cities (44 cities in Russia have a status of closed cities ZATO (3ATO): closed administrative-territorial formations).

2.3.3. Russian demography. Regional diversity. Projections.

National level.

Since the end of WWII, Russia's population, which was significantly reduced during the war, constantly increased until 1993. During these 45 years, the Russian population grew from 98 million to 148.6 million people. After the fall of the Soviet Union, the demographic situation was

⁹ Without cities of Republic of Crimea.

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changed dramatically. Since the early 1990's, Russia experienced population decline due mostly to a higher death rate than birth rate. This phenomenon that appeared in the 1990's was termed by many experts as a “demographic shock”: a sharp drop in natality with simultaneous increase of mortality. This phenomenon was described by the widely used term “Russian cross”, which was created by a Russian scientist Yury Lisitsyn and derives from the graphic representation of the difference between the number of births and number of deaths. The Russian population reached its peak in 1993 (148.6 million people) and over the next 16 years decreased constantly, reaching a minimum of 142.7 million in 2009, representing a total loss of 4%. Since 2010, the population number started to demonstrate a slight increase and reached 146.5 million people at the beginning of 2016 (99% of the 1993 level). This fact caused a wave of optimism amongst politicians as it was misunderstood as overcoming the demographic crisis (Vishnevsky, 2006). However, the situation is not as simple and positive, as it seems at first glance. The experts in demography predict further population decline after this short period of growth.

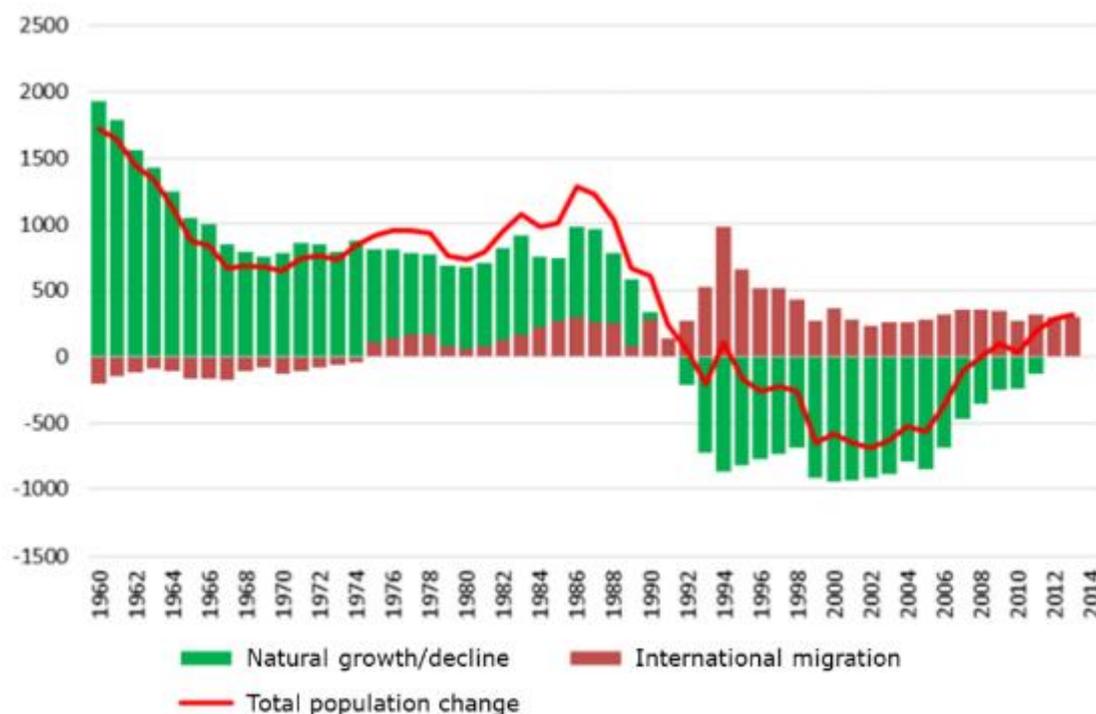
The current situation is largely determined by the demographic past of the country where the demographic crisis in Russia has a long history. The 20th century was a period of great turbulence with many tragic events for the country. The last “baby-boom” happened during the NEP (new economic policy) period in 1930's, when the fertility rate was still very high, but the mortality rate was reduced significantly. Yet, that demographic explosion ceased not long after with the following collectivization and the Second World War. Huge losses during WWII were a reason why Russia did not experience a “baby boom” after the war, as usually happened in history. The birth rate in Russia was much lower after than during the prewar period and the country reached prewar the population only in 1955. However, the generation of the 1950's became relatively numerous due to the reduction in the mortality rate (especially child mortality). In the 1960's, the birth rate in Russia was again reduced significantly due to, first, the generation born during the war reaching childbearing age (“echo of war”), but mainly by the transition to the “few-children” family model. This transition was a result of the governmental programs for involving women in industrial production. The country's reduced rate of reproduction continued until the 1980's, when the Soviet government introduced a program for the improvement of the demographic situation that included longer parental leave, an anti-alcohol company and other supporting initiatives. It helped to increase the number of births, but for a short period only. The next increase in the birth rate happened during the perestroika. For several years, Russia had a level of birth enough for the full replacement of the population. Nevertheless, that positive trend was changed by sharp drop in fertility soon after (Perevedentsev, 2007).

Despite the common view that Russia has been experiencing population loss since the USSR collapse due to emigration provoked by the tragic economic situation, the real situation has in fact been the opposite. During the last 25 years, the balance of emigration and immigration was always positive; Russia is the second country in the world following the USA in absolute number of immigrants. Natural and migration growth factors both contribute to the population change, but if at the regional level migration might be a crucial factor for shrinkage; at the national level it plays a rather positive role. At the same moment, the qualitative characteristic of emigrants and immigrants are extremely different. Those leaving Russia are highly educated and professional while immigrants usually represent excess labor potential from their countries, not required professionals.

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Figure 2.3.3.
Components of population change in Russia 1960-2014.



Source: Institute of Demography.

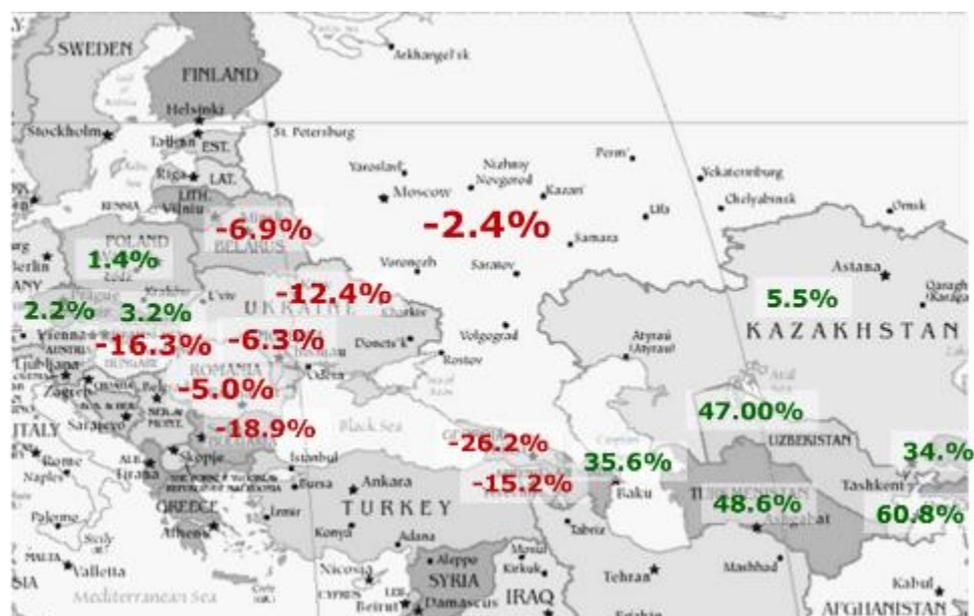
The end of the Soviet Union's radically changed the pattern of migration processes in Russia. First, it caused huge flows of international migration. Negative migration was caused by opening the state's borders and positive in-migration from ethnic Russians living in the ex-Soviet republics. Large-scale immigration has significantly slowed, but not prevented the depopulation of Russia. The migration growth in 1991-2008 made up for half of the country's demographic losses due to natural waste. In the late 2000's, immigration managed to offset the negative balance of births and deaths almost completely and to eliminate it in 2009 with a population growth of 10,500 registered for the first time in the Russian Federation's history. In recent population growth, the natural population growth has contributed as well. In this process, the governmental programs supporting families also became positive drivers. Some experts claim that the increasing birth rate results from the numerous generation of the 1980's that came to childbearing age. This perception is only partly true: the analysis of the number of children born per woman (total fertility rate) demonstrates an increase of this indicator as well. This indicator started to decline during the Soviet period from its high point of 2.23 children/per woman in 1987. During the first decade after the USSR collapse, this indicator dropped to one of the world's lowest at 1.17 in 1999. Together with the highest rate of abortion, these trends provoked a dramatic situation in natural growth. After 1999, the fertility rate began to increase and in 2014 it reached 1.75, higher than in 1990 (Rosstat). Compared to Europe, Russian fertility rate is higher than in most European countries. Only seven European countries demonstrated a higher fertility rate in 2014: Ireland, France, Sweden, United Kingdom, Iceland, Albania and Turkey. Norway and Montenegro showed the same level of fertility in 2014 (Eurostat). The abortion level in Russia is still very high, but decreased from 206 abortions per 100 births in 1990 to 48.1 abortions per 100 births in 2014.

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Thus, the causes for the crisis of the demographic situation in Russia include a variety of factors; a radical change of socio-economic system is not a fundamental one. An apparent dramatic situation in Russian demography is not that different from the current demographic trends in European countries: many of them are experiencing decreasing fertility rate and, accordingly, natural population decline. The total population of the EU is increasing, but the biggest part of the population growth is based on immigration flows. Some countries in Europe would be experiencing a population decline without these compensating arrivals. Moreover, several countries (mainly in Eastern Europe) are experiencing negative population change due to natural decline and emigration and are characterized by a pattern of demographic trends similar to Russia. Such countries in Eastern Europe include Bulgaria, Estonia, Croatia, Latvia, Lithuania, Hungary, Romania, Serbia, Albania, Bosnia and Herzegovina, Kosovo, Belarus, Moldova, Ukraine, Armenia e Georgia lost more than 5% of their population since 1989. The analysis of population change in countries neighboring Russia demonstrates a significant population growth mainly in Central Asian countries and Azerbaijan.

Figure 2.3.4.
Population change in the region between 1989 and 2014, percent.



Data:
United Nations, Department of Economic and Social Affairs, Population Division (2015). <http://esa.un.org/unpd/wpp/>

Several of Russia's neighbors became the main sources of immigration flows, such as Ukraine, Armenia, Belarus, Moldova, Azerbaijan, Kazakhstan, Uzbekistan and Tajikistan (according to data about presence of immigrants by countries, Federal Migration Service of Russia). Therefore, Russia still has more advantages in attracting immigrants than its neighbors. Until now, this has helped to prevent a dramatic population decline and in the future should be used in national demographic and economic strategies.

Regional diversity.

The demographic situation in the county as a whole may not seem very negative, while at the regional level the patterns of population change differs so much that talking about common trends or comparing regions with kind of “average” indicators is useless. At the same time,

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understanding the demographic trends at the national level helps assuming prospective of future demographic changes at the regional level. There are several factors making diversity in demographic change at the regional level: ethnic structure (in some regions, republics, where population is presented mainly by minorities, the birth rate is much higher than in traditionally “Russian regions”); characteristics of geographical position (closeness or remoteness from important economic centers and transport communications, climate conditions etc.); level of economic development and regional migration policy.

Analysis of the pattern of internal migration is very important due to its significant influence on the demographic situation at the regional level. If natural population decline is the main trend for the whole of Russia, as well as for the majority of its regions (with few exceptions), migration forms very different patterns at regional and even municipal level. The economic factors always play a dominant role in internal migration. Uneven levels of socio-economic development of the regions leads to a significant differentiation of all territories of the country in the level and quality of life, and, therefore, attractiveness for migrants. The direction of internal migration has changed significantly in comparison with the Soviet period when state migration policy aimed at redistribution of population towards the northern and eastern regions. In fact, the Russian population has sought to move to the west since the end of the 1980's due to a weakening of that migration policy. Population movement towards the north and east during the Soviet period was supported by a set of measures, combining state regulated distribution of population with the creation of attractive perspectives for people exploring regions with a severe climate (such as housing, higher salary, earlier retirement etc.). After the collapse of the Soviet Union, such economic tools of support could not be used anymore. Many enterprises stopped functioning, causing a sharp economic decline and an increased unemployment rate. Movement to the other regions for many people became a question of survival. At the beginning of the 1990's in Russia, the survival strategy used by families was self-sufficiency based agricultural activities. This explains why even such cities as Moscow in the 1990's lost their population which moved towards rural territories. The most attractive area for agriculture in Russia was the southern region due to its favorable climatic conditions.

In the Southern Federal District of Russia (North Caucasus), there has been a substantial increase of population in the sub-Caucasian Plain territories of KrasnodarskijKraj, StavropolskijKraj, and Rostovskaja Oblast. In the beginning of the 1990s, these were the most attractive rural regions for migrants. Around 40 percent of the migrants to these areas were from their surrounding autonomous okrugs, especially from Chechnya, and the republics of the Northern Caucasus. At the same time, the towns in the sub-Caucasian Plain attracted sizeable population flows from many regions of Siberia, the Far East, and the European North (Stanilov, 2007).

The general direction of internal migration flows during the last 25 years were termed “western drift”. It was strongest in the 1990's when eastern Russian regions lost about 150,000 people every year. In the 2000's, the migration flows to the west reduced due to an exhaustion of migration sources in eastern regions. At the same time, Siberia continued to lose population. The data of the last several years shows an increasing out-migration from the eastern regions to the West. It means that in the future, the eastern regions will unlikely will be able to keep a zero balance of out-in-migration.

The analysis of the census data at the level of federal districts shows that the northern and eastern Russian regions lost a significant portion of their population: from 9% in the Siberian Federal District to 22% in the Far Eastern Federal District. In general, only three of eight federal

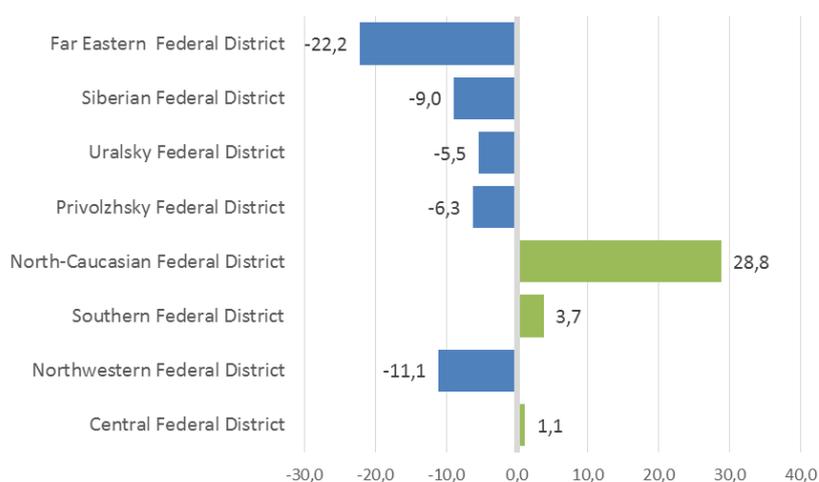
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districts in Russia were characterized by population growth between 1989 and 2010: the Central Federal District (which includes Moscow and the Moscovskaya oblast'), the Southern Federal District and the North-Caucasian Federal Districts. The last one demonstrates the highest level of relative population growth, which reached almost 29%. The Southern Federal District took the second position in this ranking.

Figure 2.3.5.

Change in population of federal districts between the censuses of 1989 and 2010, %.



To classify Russian regions according to their population change, the data of three censuses held in 1989, 2002 and 2010 was analyzed. Additionally, statistical information about recent population change occurring between 2010 and 2015 was also used. To understand the specificity of population change in each region, the current research used two main characteristics: the relative change in population during the period 1989-2015 and the pattern of population change. As a result, three different groups of regions were defined: stable regions (where the relative population change was within interval from -4.9% to +4.9%), shrinking regions (with population reduced by 5% and more) and growing regions (with population growth by 5% and more)¹⁰.

The group of shrinking regions is the most numerous and includes 53 regions (or 68% from the total number of investigating regions). Growing regions were 14, and the group of stable regions is presented by 11 subjects of federation.

Table 2.3.3.

Russian regions classified based on their demographic pattern between 1990 and 2012.

Category	Shrinking	Growing	Stable
N. of regions	53	14	11
N. of regions (%)	67.95	17.95	14.1

Source: author's own elaboration on data from Rosstat.

¹⁰ In this classification Nenetsky, Yamalo-Nenetsky and Khanty-Mansyisky autonomous Okrugs are counted as parts of other administrative-territorial units. Chechen Republic, Republic of Ingushetia and regions of Crimea are excluded from the classification due to lack of the statistical data for these regions for the whole period under review.

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The patterns of population change are not always simple, but, generally, they do not transform the classification done by relative population change. Thus, 51 regions out of the 53 that lost some of their population were shrinking during the entire period and only two had short periods of growth. Even for those two regions, population decline was the main trend resulting in relative population loss. Among 14 growing regions, nine were characterized by a constant increase of population. Another five had some short periods of population decline in the past though that did not change the result much. The rest of the 11 “stable” regions demonstrated fluctuating population change, but the difference in total number of population in 1989 and 2015 is less than 5% (including both population growth and population decline).

Figure 2.3.6.
Population change in the region between 1989 and 2014.



Which kind of regions represent these groups?

The most numerous category of shrinking regions includes all the regions of the Far-Eastern federal district, most of the Siberian and northern regions, most of regions in the Privolzhsky and the Central federal districts. The least number of shrinking regions is in the Ural'sky and the southern federal districts and there are no shrinking regions in the Northern-Caucasian federal district. Fourteen regions from this list have lost between 5% to 10% of their population; twenty one regions lost 10.1 to 20% of population; sixteen regions lost 20.1 to 40% and two regions lost more than 60% of their population.

Growing regions include:

- Moscow, Moscovskaya oblast' and Leningradskaya oblast' as the main economic poles of the country;
- several ethnic republics where the second demographic transition is not yet completed and, accordingly, the birth rate is very high (the Republic of Altay, the Republic of Tatarstan and several republics of the Caucasian region);
- the regions successful in economic development due to the favorable natural condition, advantageous geographical location, presence of natural resources and

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effective migration policy: Kaliningradskaya oblast', Belgorodskaya oblast', Krasnodarsky krai, Tomskaya oblast' and Tyumenskaya oblast'.

Population growth in most growing regions did not exceed 16% with exception of Moscow and its 36% of population growth and the Republic of Dagestan with almost 66% of population growth.

Saint Petersburg and ten regions in southern areas of Russia present stable regions. If Saint Petersburg will be likely stable or even growing in the future, most of other “stable” regions can extend the list of shrinking regions: six of them have already demonstrated a negative population change during the period 1989-2015.

The patterns of population change at the regional level demonstrate indirectly the results of uneven development of Russian regions. The country's depopulation trend was caused mainly by natural decline in many regions, but was then worsened by out-migration. Internal migration in Russia is a result of changes in the sectoral and territorial structures of economy and a way for people to adapt to new socio-economic conditions. The regional population change clearly reveals the availability of population resources for migration policy at the municipal level. However, in reality they are very limited. Further analysis of the population projections and urban population change will demonstrate that migration policy is unlikely to be the main solution for cities experiencing depopulation, or may be a solution for very few cities.

Projections.

The demographic situation in Russia at the end of the 20th century caused a widespread public discussion that seemed hopeless to many experts. The demographic processes are characterized by inertia and it is impossible to reverse the trend in a moment. This is why negative trends continuing for many years will likely remain the primary trends in the future. A quick internet search will give the impression of a dying country. Very often journalists speculate on negative aspects constituting the demographic situation in Russia.

Image 2.3.1.
“Russians Are Concerned About Their Demographic Situation”.



Source: Long-Term Global Demographic Trends: Reshaping the Geopolitical Landscape.

Russia is not alone in facing future negative population trends. According to UN projections, Europe will be the main area in the world experiencing population decline as the population is projected to reduce by 4% by 2050 and by 12% by 2100 (United Nations, 2015).

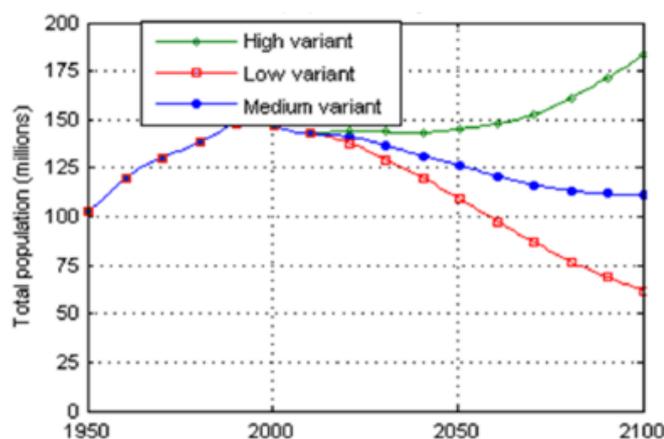
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...the populations of 48 countries or areas in the world are expected to decrease between 2015 and 2050. Several countries are expected to see their populations decline by more than 15 per cent by 2050, including Bosnia and Herzegovina, Bulgaria, Croatia, Hungary, Japan, Latvia, Lithuania, Republic of Moldova, Romania, Serbia, and Ukraine. Fertility in all European countries is now below the level required for full replacement of the population in the long run (around 2.1 children per woman, on average), and in the majority of cases, fertility has been below the replacement level for several decades. Fertility for Europe as a whole is projected to increase from 1.6 children per women in 2010-2015 to 1.8 in 2045-2050, but such an increase will not prevent a likely contraction of the total population size.

Population predictions are very complicated, influenced by many factors and can never be completely precise. Despite the fact that they are revised and actualized constantly, the real future situation may differ significantly. Normally such projections include several scenarios, but even those scenarios are based on many assumptions, unable to avoid inaccurate data and unpredictable external factors. Even current projections done for Russia by different organizations demonstrate a variety of results. The main sources of such projections follow competent statistical institutes: Federal State Statistics Service (Rosstat) and UN Department of Economic and Social Affairs. However, there are also non-official demographic prognoses done by scientific organizations or some experts. One of the most well-known organizations developing demographic projections for Russia is the Institute of Demography.

Figure 2.3.7.
Population growth and projections for Russian Federation, 1950-2100 by three variants.



Source: The projections are based on the revision of WWP by UN Population Division

Usually, the domestic projections are more optimistic, because Russian experts tend to give more value to the probable migration flows influencing the demography development. According to the most probable variant of the last UN outlook for the further development of depopulation processes, Russia's population might reduce to 128.6 million by the middle of the twenty-first century, or by almost 14.9 million people (United Nations, 2015). This projection resulted from revising the data about the country's demography. The previous prognosis predicted a sharper decline: about 24 million people less in 2050. That revision is an important fact that signalizes significant improvement of the demographic situation, but also this fact shows the high level of uncertainty in demographic projections. Predictions of population change until 2030 created by the Federal Statistic Service includes three scenarios: low, with a population decline to 141.9 million people (less than minimum of 2009); medium, with a slight growth to

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147.7 million people and high, with a growth to 152 million people. The Institute of Demography developed 36 variants of possible demographic situation development: 25% of them are optimistic and assume population growth, 30% demonstrate stabilization in number of population, others predict population decline. All the projections from any institution predict the ageing of the population and rise in demographic burden. Investigating the analysis and projections for Russian demography, it is possible to conclude that the current age-sex structure of Russia's population will likely cause future decline in the coming years.

Even if the population change at the national level may be positive, at the regional level the pattern of population change will be very far from homogeneity. Predicted population changes will keep current demographic trends in the region. Growth is projected for the currently growing regions and shrinking regions will continue to lose their population. As well as today, the number of depopulating regions will predominate, which will mean a continuing relevance of shrinkage problems for most regions, rural and urban areas in the future. Interestingly, Russian regions develop their own population prognosis in socio-economic and spatial planning documents. Very often, such projections are much more optimistic than described above and are based on the assumption that a region will attract internal migrants. This aspect will be discussed in Chapter 3.

Urban population change in the post-Soviet period.

During the Soviet period, with the exception of the dramatic events the country population was growing, which also meant an urban population growth. Most of the existing cities were growing during the second half of the 20th century and many new cities were founded during that period.

Decline was the main trend after the USSR collapse and though it differed at the regional level, it was even more pronounced at the municipal and settlement level. At the city level internal migrations play a very important role and, accordingly, the city's success in demographic development depends a lot on many factors defining the city's attractiveness from location, size, administrative status, economic diversity, presence of educational and cultural facilities, level of life, quality of urban environment, ecological aspects, etc. In this situation, the large cities – regional capitals and economic poles - have much more advantages than small remote cities and towns. This chapter presents the analysis of transformation of the network of cities, urban population change in Russia and differences in population change in cities.

Since the end of the Soviet period, the number of cities in Russian Federation increased by 77 from 1,037 in 1989 to 1,114 in 2015. There are several reasons for this. 17 additional cities are located in the Republic of Crimea, 14 settlements have turned into cities from their previous status as settlements of “urban type” (towns), while some cities grew were villages (like in Northern Caucasian republics) and there are also several new cities founded. An increasing number of cities seem to maintain a positive factor, but analysis of the population change at city level demonstrates that population decline was the main trend for the majority of cities in Russia.

The regional population change highly determines the pattern of population change in the settlements located within regional borders. However, in many cases, the situation is not so simple. Investigating the relation between regional population change since 1989, a kind of classification of regions based on urban population change in a region as well as population change in cities in specific regions can be developed. The table below (table 2.3.4) shows the result of that classification including the general explanation of population change causes and

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assumption of their future demographic development. This classification is based on population change in cities and regions between 1989 and 2015 without considering dynamics and patterns of demographic development.

*Table 2.3.4.
Classification of the Russian regions according to the dynamic of the regional and urban population change in 1989-2015.*

Code	Characteristic of regions	What the process is behind of population change and possible future development	Number of regions	Percent of total number
1_1	Shrunk region, all cities shrunk, urban population decreased	Natural decline and out-migration both in urban and rural areas. Future population decline.	16	19,0
1_2	Shrunk region, 1-2 grown cities, shrunk urban population	Natural decline and out-migration both in urban and rural areas, usually only a regional capital attracts people mainly from the same region. Future population decline, even in a regional capital, because of recourses' limits.	23	27,4
1_3	Shrunk region, shrunk and grown cities, shrunk urban population	Natural decline and out-migration both in urban and rural areas, but several economic poles attract people from rural areas and other regions. Future population decline, even in a regional capital, because of recourses' limits.	6	7,1
1_4	Shrunk region, 1-2 grown cities, grown urban population	Natural decline and out-migration both in urban and rural areas, usually only a regional capital attracts people mainly from the same region. Usually regions of this type have developed and relatively stable system of rural settlements, that provide recourses to continuing process of urbanization. Future population decline after resource exhaustion.	7	8,3
1_5	Shrunk region, shrunk and grown cities, grown urban population	Natural decline and out-migration both in urban and rural areas, but several economic poles attract people from rural areas and other regions. Future decline, even in a regional capital, because of recourses' limits. Usually regions of this type have developed and relatively stable system of rural settlements, that provide recourses to continuing process of urbanization. Future population decline after resource exhaustion.	7	8,3
1_6	Shrunk region, all cities grown, grown urban population	Only one region in this category: Nenetsky autonomous okrug. Population growth based on economic development and in-migration, but also on natural population growth. Future population change depends on economic development. Since the region's economy is based on oil-gas extraction and its climate conditions are not favorable, it is likely to expect population decline in the future.	1	1,2
2_1	Grown region, all cities grown, grown urban population	Two cities of national significance are in this category (Moscow and Saint-Petersburg) attracting population from all over the country. There are also two ethnic regions characterizing by both natural population growth and in-migration. Future population growth.	4	4,8
2_2	Grown region, 1-2 cities shrunk, urban population grown	They are mainly ethnic regions with natural population growth in this category, but also a region with economic based on oil-gas extraction. Future population growth.	9	10,7
2_3	Grown region, cities are shrunk and grown, urban population grown	They are mainly economically developed regions attracting migrants from other regions of Russia and international migrants. Internal inequality of development. Natural population decline. Possibly more stable in the future.	7	8,3
2_4	Grown region, cities shrunk, urban population shrunk	One region, Republic of Adygea. Natural population growth, stable system of rural settlements. Ethnic region, but in cities there is higher percent of Russian ethnos explaining urban population decline due to natural process. Future population decline.	1	1,2
2_5	Grown region, 1-2 cities shrunk, urban population is shrunk	One region, Chechen Republic. Urban population decline caused by war. At present all cities and region as a whole are growing. Future population growth	1	1,2
2_6	Grown region, 1-2 cities grown, urban population grown	One naturally growing (ethnic) region and one economically attractive region. Different scenarios.	2	2,4

Importantly, all shrunk regions tend to keep the same depopulation trend in the future, while amongst regions that have grown there are several characterized by preconditions for the future population decline.

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At the city level, the classification according to population change was done in the same way as for the regions: the cities were divided into three groups according to the total population change during 25 years. Not all cities are included into the classification. There is available data about the population for all periods since 1989 for 1,072 cities¹¹.

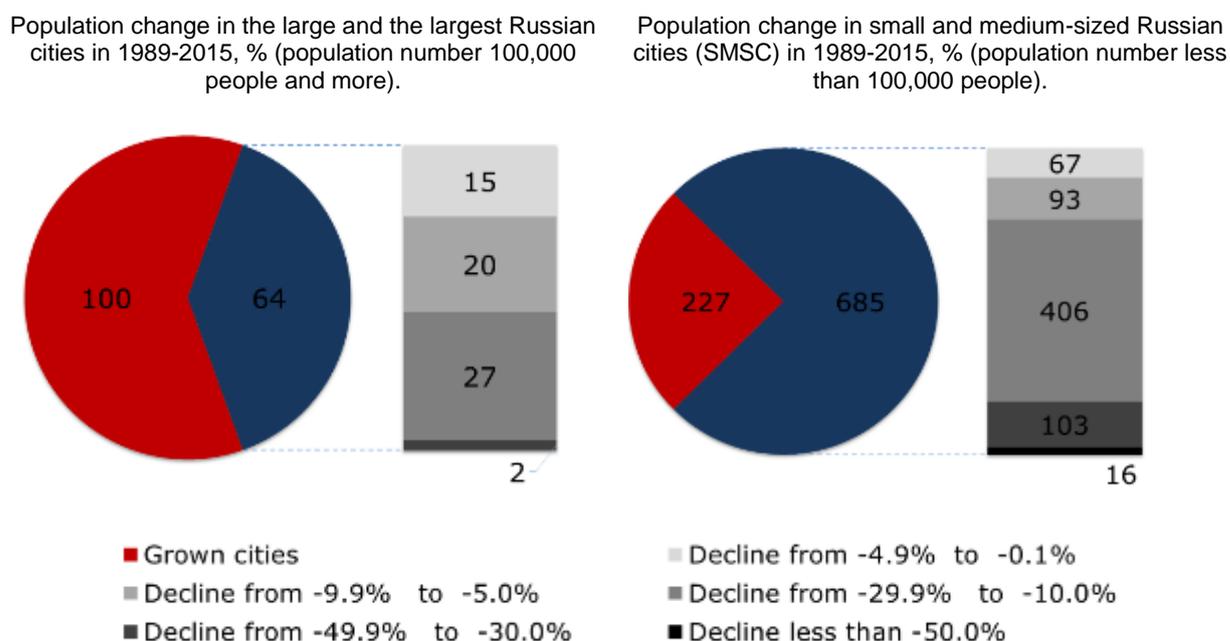
The result of the classification:

- a) 666 cities (62%) have lost more than 5% of their population.
- b) In 152 cities (14%) the population number was almost stable within the interval from -4.9% to 4.9%.
- c) 252 cities (24%) have increased their population by more than 5%.

The first group of shrunk cities includes 112 cities that lost 5-10% of their population, 246 cities lost 10.1-20% of population, 188 cities lost 20.1-30% of population, 103 cities lost 30-50% and 16 cities lost more than half of their population (two of them more than 70%).

Figure 2.3.8.

Comparison of population change in large and small Russian cities in 1989-2015.



An assumption about better resistance of the larger cities to the demographic crisis somehow is confirmed by the share of depopulating cities in the total number of large cities and small cities. Thus, among the cities with a population of more than 100,000 people, 61% of them are growing cities, while among small and medium-sized cities, only 25% are growing. The scale of depopulation is also different as there are 16 small and medium-sized cities that have lost more than half of their population, while the biggest loss among the large cities was about 30%, found in Murmansk, Petropavlovsk-Kamchatsky and Grozny.

¹¹ The cities of Republic of Crimea are not included into the investigation. Other cities, for which data is not available could be the rural settlements in one or more census period, or “closed” cities with a specific function.

2.4. Case of southern Russia.

The term “Southern Russia” is used for describing a geographical area that includes two federal districts: the Southern Federal District and the North-Caucasian Federal District. The total area of southern Russia is 587,279 km² or 3.4% of the total Russian territory. The whole southern region includes 13 subjects of the Federation: the Chechen Republic, the Republic of Adygea, the Republic of Ingushetia, the Republic of Dagestan, the Republic of Kabardino-Balkaria, the Republic of Kalmykia, the Republic of Karachay-Cherkessia, the Republic of North Ossetia-Alania, Krasnodarsky krai, Stavropol’sky krai, Astrakhanskaya oblast’, Volgogradskaya oblast’ and Rostovskaya oblast’. Among these regions, there are eight republics based on ethnicity. An important characteristic of southern Russia is that it is a border region of great geopolitical significance. Russia shares the border with the Republic of Kazakhstan, Ukraine, the Republics of Abkhazia and South Ossetia (both are partly recognized countries), Georgia, the Republic of Azerbaijan and, by sea, with Iran and Turkey. This position makes it very sensitive to external political factors.

The economic activities of the region are based on its rich natural resources. The agro-industrial complex of southern Russia has a leading role in the state’s economy and is characterized by a specialization in mechanical engineering (production of agricultural machinery in Rostov-on-Don, Taganrog, Millerovo and Krasnodar), production of technological equipment for sectors of the agro-industrial complex in Krasnodar and Stavropol and by the chemical industry (production of nitrogen and phosphate fertilizers and pesticides in Nevinnomyssk and Belorechensk). The food industry has also evolved in the area and specializes in the processing of various agricultural products: fruits and vegetables, production of meat, butter, flour and cereals. Access of the region to three seas (The Sea of Azov, the Black Sea and the Caspian Sea) and the presence of navigable rivers formed the basis for the development of shipyards. The construction of ships of the “river-sea” type, of tankers and bulk carriers is based in Astrakhan and Volgograd. The fuel and energy complex specializes in oil (Dagestan, Grozny, Stavropol, Krasnodar fields), gas (Kuban-Azov, Stavropol fields and fields in the Volgograd and Astrakhan regions) and the coal industry (Eastern Donbas ring in the Rostov region). The recreational complex of the North Caucasus is based on the unique natural conditions and resources of the region and has national significance. There are famous resorts at the Black Sea, such as Anapa, Gelendzhik, Tuapse and Sochi. The subtropical and sunny climate, beaches, mud and water therapy attract many tourists and vacationers. The area of the Caucasus Mineral Waters includes bathing resorts at Essentuki, Kislovodsk, Pyatigorsk, Zheleznovodsk. There are also several existing and developing ski resorts, such as Dombay, Prielbrusie, Arkhys, Lagonaki, Zei and Mamison.

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Map 2.4.1.
Geographical location of southern Russian.



The population of southern Russia is 23.6 million people, 16% of the total Russian population. The Russian south is one of the most densely populated areas in Russia thanks to its favorable climate and its historical and economic development. It is also one of the most

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multicultural areas of the country. There are more than 40 ethnic groups, mostly belonging to the Slavic, Nakh-Dagestani and Turkic families. The most numerous world religions are all present in southern Russia and their distribution is closely related to the geography of ethnic groups that historically adhere to them: Islam in most North-Caucasian republics, Buddhism in the Republic of Kalmykia, while Orthodoxy is present in all regions. There are also followers of the Armenian Apostolic Church, Judaism, Catholicism, Protestantism and other religions, but they are minorities. Local traditions and adherence to a particular religion influence the way of living and create a diverse picture of social processes and population change.

During the period from the last Soviet census in 1989 to the first Russian census in 2002 the population of southern Russia increased by 2.3 million people (about 11%), mostly due to the positive migration from other regions as a direct consequence of the post-socialist transition. After the first decade of a new Russian history, the intensity of migration processes has been decreasing across the country. In Northern and Far Eastern regions population loss slowed. Accordingly, positive migration flows to the Russian south decreased. Census data from 2002 and 2010 demonstrate an increase of the population in southern Russia by a meager 127,800 people in eight years (0.6% of region’s population). Analysis of the data on the rate of population growth by federal districts between censuses shows a stable level of this indicator in the Southern Federal District over a background of a decreasing average annual rate of population growth in all other federal districts as well as in the whole country. It is very important to note that southern Russia is the only area that has shown an average annual increase in rural population during the post-socialist period. A relatively stable system of rural settlements is the main distinctive feature of the southern region within the Russian context. Thus, in the whole country, the share of the rural population was 25.8% in 2013. In most federal districts these indicators are close to the national one and no more than 30% with two exceptions: the Southern Federal district with 37.2% of rural population and the Northern Caucasian Federal district with 50.9% of rural population.

The population change at the regional level was analyzed over a five-year period and the results are presented in the table below. Components of those changes were also analyzed through the literature research.

Table 2.4.1.
Relative population change in the regions by 5-years periods, %. Red and green colors show population decline and growth of the region in comparison with the previous period.

Region	Population change, %					
	1990-1995	1995-2000	2000-2005	2005-2010	2010-2015	1990-2015
Republic of Adygea	3,47	-0,18	-1,28	-0,75	2,09	3,31
Republic of Kalmykia	-2,59	-2,62	-4,92	-1,26	-3,08	-13,68
Krasnodarsky krai	8,25	2,24	-0,28	2,10	4,34	17,58
Astrakhanskaya oblast'	1,67	-0,18	-1,40	1,19	1,11	2,38
Volgogradskaya oblast'	3,73	0,76	-3,01	-1,73	-2,02	-2,39
Rostovskaya oblast'	4,04	-0,61	-2,28	-1,72	-0,84	-1,53
Republic of Dagestan	20,87	11,03	8,60	9,71	2,75	64,29
Republic of Ingushetia	38,95	29,24	27,54	-4,88	12,45	145,01
Kabardino-Balkar Republic	7,72	7,04	-0,19	-1,98	0,09	12,91
Karachay-Cherkess Republic	3,90	1,03	2,33	6,14	-1,84	11,91
Republic of North Ossetia-Alania	3,77	3,41	1,85	0,93	-1,08	9,12
Chechen Republic	11,60	-9,59	2,07	11,99	7,98	24,53
Stavropolsky krai	9,36	2,89	0,01	1,65	0,47	14,93

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Thus, in 1995, most of the regions in southern Russia demonstrated a population increase compared to the 1990 levels due to both natural and migration growth (except for Krasnodarsky krai, where growth was based on positive migration, and the Republic of Kalmykia, Astrakhanskaya oblast and the Republic of Ingushetiya, where population increase was based on natural growth). In 2000, the mobility of population through migration was higher and we could observe a different picture where most growing regions were characterized by a natural decline coupled with positive migration (except in the Chechen Republic and the Republic of Adygeya, where migration was negative). Only three regions demonstrated an increase due to both migration and natural growth: the Republics of Dagestan, Ingushetia and Kabardino-Balkaria. For the last two regions, a high level of positive migration could be explained by the tense political situation in the Caucasus and significant migration flows from the Chechen Republic. 2005 was marked by a worsening demographic situation: indicators of natural and migration growth in many regions became negative. Only in the Krasnodar and Stavropol regions (with a natural population decline), as well as the republics of Ingushetia, Karachay-Cherkessia, North Ossetia-Alania was a positive migration balance maintained. Emigration from the Chechen Republic declined significantly, while the rate of natural population increase began to dominate migration loss. Recent years have been characterized by positive shifts in increasing fertility rates and lower mortality in the Southern Russian regions. In 2010, we observed a significant increase in natural population growth in all Northern-Caucasian republics, the Republic of Kalmykia and in Astrakhanskaya oblast. At the same time, these regions are mostly characterized by negative migration. Other regions are still experiencing natural decline with migration growth.

It is possible to classify southern regions by several groups according to the patterns of demographic change. The first group is represented by such members of the federation as Volgogradskaya oblast', Rostovskaya oblast', the Republic of Adygeya and the Republic of Kalmykia. These regions have demonstrated depopulation during the majority of the period after the Soviet Union's collapse. Rostovskaya oblast' was a leader in absolute population decline, but in the Republic of Kalmykia the losses are characterized by the highest level in relative value: the population decline was 15% relative to the value of 1990. Within these regions, the causes of depopulation are complex and include different factors. Meanwhile, natural decline is the main aspect causing depopulation with the exception of the Republic of Kalmykia, which has demonstrated natural population growth since 2005 associated with significant negative migration.

The second group includes such members of the federation as the Chechen Republic, the Republic of Dagestan, Krasnodarsky krai and Stavropolsky krai, characterized by positive demographic change during the whole period (with the exception of the short period in Chechen Republic's population change). Again, these four regions have different components of population growth. Thus, Krasnodarsky and Stavropolsky regions grew thanks to positive migration associated to a decline in natural population, the Republic of Dagestan presented both natural and migration growth and the Chechen Republic was a naturally growing region with slight negative migration.

The third group is presented by Astrakhanskaya oblast', Kabardino-Balkar Republic, Karachay-Cherkess Republic, the Republic of Ingushetia and the Republic of North Ossetia-Alania. These regions showed fluctuating population growth, but most of them demonstrated growth in 2015 compared with 1990 (with the exception of the Republic of Ingushetia, for which adequate statistical data is not available). In addition, components of population change varied

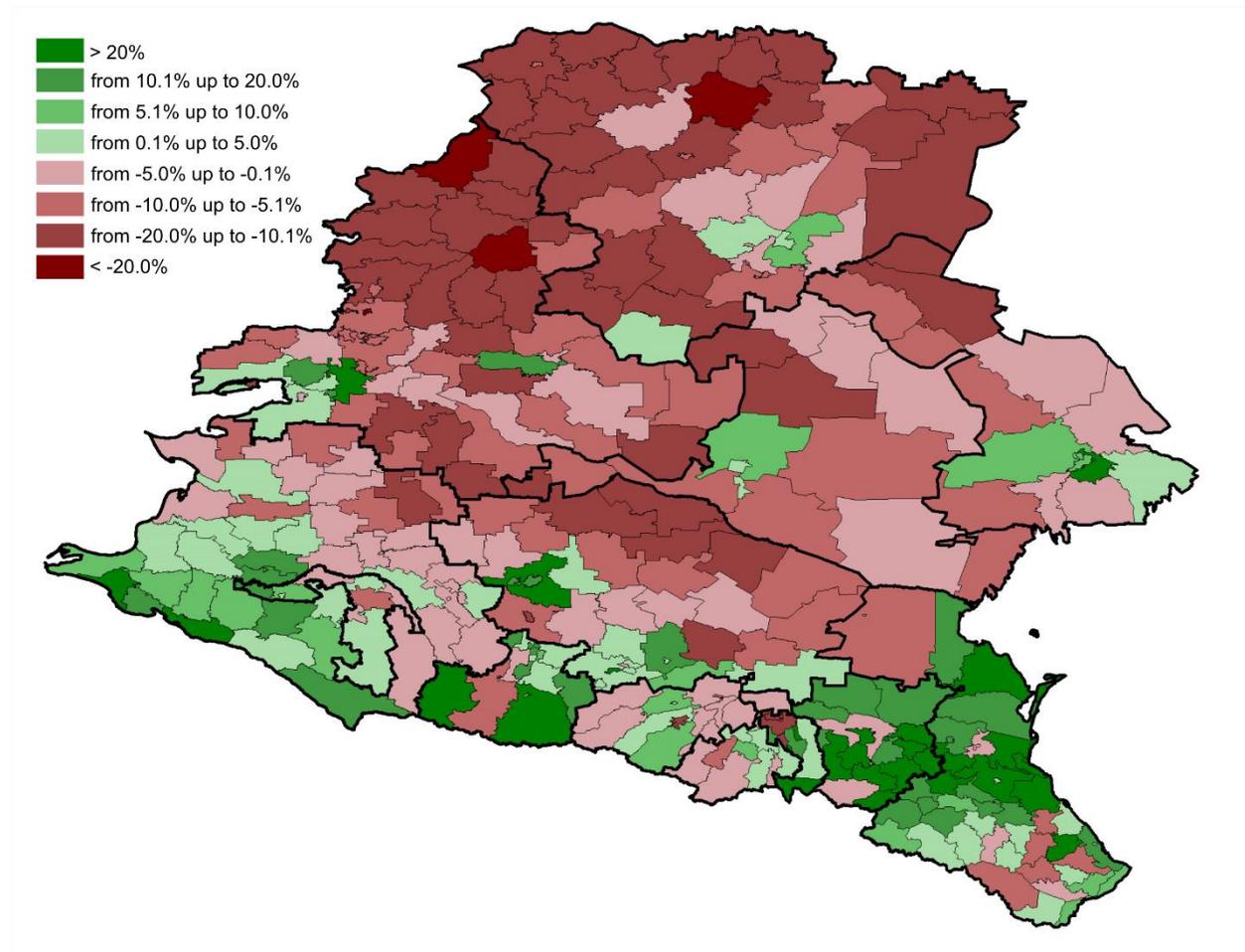
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during the period. However, the general trend was that in almost every region of this group natural decline was associated with positive migration during the first part of the period described, with an inversion in trend during the following years: the birth rate increased but people started to migrate out of the area.

Investigation of the population change at municipal level presents an even more complicated picture without clear correlation with the process at regional level.

Map 2.4.2.
*Population change (%) in Southern Russia at the municipal level
(municipal districts and urban okrugs, NUTS-3).*



A population change at the municipal level (the level of municipal districts and urban okrugs) allows to evaluate a scale of depopulation or population growth/decline in Southern Russia. It is obvious that the vast rural areas are depopulating and the dynamic of this negative population change is quite high, especially in the northern part of southern Russia. The presented map demonstrates an absolute population change in the period from 1989-2015, but a detailed investigation shows many potentially shrinking areas, where the depopulation processes have already begun, but with a population number still higher in 2015 than in 1989. Actually, the growing areas are concentrated in the national republics, in the southern part of Krasnodarsky krai and in the surroundings of the regional capitals.

2.5. Definition for the current research.

As mentioned previously, there is no accepted definition of urban shrinkage. Considering the specifics of the transitional period of Russia, the main feature of which was moving from a planned to market economy, development of private property rights and construction boom in many cities in southern Russia. The physical degradation of urban environment related to depopulation is not seen in most cities. Thus, this quality of urban shrinkage cannot be used in constructing the definition for this particular research. Economic development may be evaluated at the regional level only due to the specifics of Russian political-administrative system, budget distribution and low level of cities' independence. Accordingly, the economic growth or decline at the city level can be shown indirectly through the indicators of income levels, purchasing power of the population, level of unemployment and out-migration. Taking into account the fact that depopulation in most Russian cities is caused mainly by natural population decline (this is especially true for southern Russia, which was and still is attractive for in-migrants), enhanced in some cases by out-migration, the population change is used as the main indicator for the classification of cities in southern Russia.

The phenomenon has not yet been studied extensively by the Russian scientific community due to its relatively recent emergence. The translation of the term "shrinking city" into the Russian language causes a lot of controversy, because Russian words, suitable for the translation alone can not describe the essence of the phenomenon. Thus, the most commonly used words include «убывающий» (ubuyayushchy, diminishing), «сжимающийся» (szhimayushchiysya, shrinking), «сокращающийся» (sokrashchayushchiysya, shrinking) or even " вымирающий" (vymirayushchy, dying) city (Batunova, 2017). Each of these terms may be subject to criticism due to the differences in the processes happening in Russian regions and cities, because some of them are associated with spatial or physical compression that is not presented everywhere. Thus, the population change in the cities of the northern and far eastern regions is often characterized by strong out-migration and severe physical transformation of urban environment. For many cities in those regions the problems of abandonment and vacant land are presented. In southern Russia, the situation is very different. Despite the population decline in many of them, they are continuing to sprawling, which may be explained by lack of housing and infrastructure and a tradition of living in one-family houses, which have their own gardens.

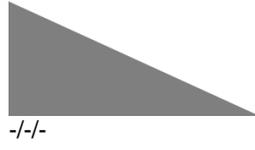
To define cities as shrinking in this research I analyzed, first of all, the patterns of population change in every city during the period 1989-2015. For this purpose I used the data of three censuses conducted in 1989, 2002 and 2010, but also the statistical data on cities population from 1 January 2015. Based on this data, the cities of southern Russia were classified into six categories according to the different patterns of population change during the period from 1989-2002, 2002-2010 and 2010-2015 (the classification is presented in the table 2.5.1). Then in every category I defined three types of the cities: 1) the cities where the population number decreased by 5% and more; 2) the cities where the population number increased by 5% and more; 2) the relatively "stable" cities, where the population change did not exceed the interval from -4.9%

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Table 2.5.1.

Classification of the cities of Southern Russia by the nature of demographic changes and the relative change in population during the period 1989-2015.

Category	Population change pattern	Number of cities			Category	Population change pattern	Number of cities		
		Declined population 1989-2015	Increased population 1989-2015	Stability (population change within the interval from -4.9% to +4.9%)			Declined population 1989-2015	Increased population 1989-2015	Stability (population change within the interval from -4.9% to +4.9%)
I	 -/-/-	15	0	2	IV	 +/-/+	0	8	1
II	 +/-/-	7	24	26	V	 -/+/-	0	1	4
III	 -/+/+	3	5	3	VI	 +/+/>	0	36	0

Type I.

There are 17 cities included in the first category that were experiencing population decline during the whole period under review. All of them lost a part of their population, in 15 out of 17 the population loss exceeded 5%. They are “classical” shrinking cities, experiencing the depopulation during the whole period. In many cases, they started to decline in the Soviet period (Taganrog, Zverevo, Tikhoretsk, Uryupinsk) and the causes combine both natural decline and out-migration.

Type II.

The cities from the second category gained population during the first decade after the USSR’s collapse by attracting migrants from other regions. Nevertheless, since the 2000’s those cities started to lose their population. In seven cities out of fifty seven in this category, the dynamic of population decline was very intensive, therefore the reduction in population in 2015 was more than 5% when compared with 1989. In most of the cases that means the city’s attractiveness during the first decade could not improve the demographic structure of the city’s population and did not prevent further population decline. This fact may be very important in understanding that the short period of in-migration cannot be a solution for a city losing population. In southern Russia the specificity of in-migrants’ flows was in their structure. Many people coming to the southern cities were pensioners from the north and far east, searching for better conditions for living and surviving. Good climate and their ability to own their own garden helped older people to organize their lives in a better way. Moreover, most of those people in the past were part of the Soviet governmental program, stimulating people to move to the remote parts of the country by paying extra-salary, housing construction and earlier retirement age. It

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was natural during the Soviet period for people after retirement to move to the regions with better climate, but the government could regulate work forces' flows. During the first decade after the Soviet Union collapse, huge migration flows were no longer regulated. Young people were migrating to big cities searching for jobs, but older people were moving to the rural areas and small cities. Accordingly, many Southern cities attracted pensioners that, of course, could not improve the birth rate, so, the population growth was very quickly replaced by decline. The in-migration in such cities postponed the start of their population decline.

Another 50 cities from this category are characterized by relatively stable population number, or even increased population since 1989. However, in most of the cases it simply means that those cities could attract more migrants during the first decade and the latest population decline has not resulted in a total population number yet. A more detailed investigation demonstrates stability or worsening of depopulation trends. Such cities will likely join the group of shrinking cities in the nearest future.

Type III.

The third category is represented by the 11 cities, which first lost a part of their population, but later gained population. The temporary loss of population was connected with migration outflow, provoked by the loss of the cities' economic attractiveness for a short period (Anapa) or by a political and ethnic conflicts (Grozny). In some cities from this group (Adygeysk), population growth in recent years has been associated with an increase in the birth rate due to entry into childbearing age of a large number of women. Such cities have demonstrated a more or less stable demographic situation in the past, accordingly the increasing birth rate affected the general population growth. It can be assumed that this phenomenon is temporary and will soon be replaced by a population decline.

Type IV.

The fourth category includes nine cities. The population change in some of them is explained by a revision of the current statistics of the population by the census of 2002 (the cities of the Republic of Ingushetia, Mozdok). Other cities attracted people in the first decade of the new Russian history, which were then were experiencing depopulation, and in the last few years have again demonstrated population growth due to an increase in fertility and in-migration (Armavir, Novokubansk).

Type V.

The fifth category includes five cities, four of which are located in the Rostov region (Volgodonsk, Donetsk, Shakhty, Novoshahtinsk). Fluctuation in population number is associated with the specifics of the statistical account as well as with the actual demographic processes taking place in the cities. However, all these cities are characterized by a slight change in the relative size during the reporting period.

Type VI.

The last category of growing cities is represented by 36 cities, where population growth did not cease during the entire period. Basically, they are the cities of the Chechen Republic and the Republic of Dagestan with their high level of natural increase and migration influx from the countryside which includes the cities of Krasnodar and Stavropol' regions as well as some regional capitals. It should be noted, that among the cities in this category there are those that are

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characterized by unfavorable preconditions for the further demographic situation development. For example, the capital of the Republic of Kalmykia the city of Elista has a high migration outflow on the background of the retaining natural growth. The loss of population is currently compensated by natural growth and in-migration from the rural areas of the region. However, the region as a whole is characterized by relatively high rates of population decline, and soon the regional capital will begin to experience a lack of population growth based on in-migration.

Based on the previous classification, I defined this category of shrinking cities as one to be given not only to the cities losing population during the whole period, but also to the cities characterized by a changing pattern of population with some periods of strong decline. “Strong” decline was defined as the average population loss 1% and more per year.

Finally, the definition of a **shrinking city** in Southern Russia will be the following:

A city experiencing depopulation throughout the 25-year period, which has lost more than 5% of its population, as well as a city, characterized by high dynamics of population decline (by 1% per year) in the period between censuses 2002-2010, regardless of the size of the relative decline of the population.

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Chapter 3.
**Planning in the context of population
decline.**

Chapter 3. Planning in the context of population decline.

3.1. International experience.

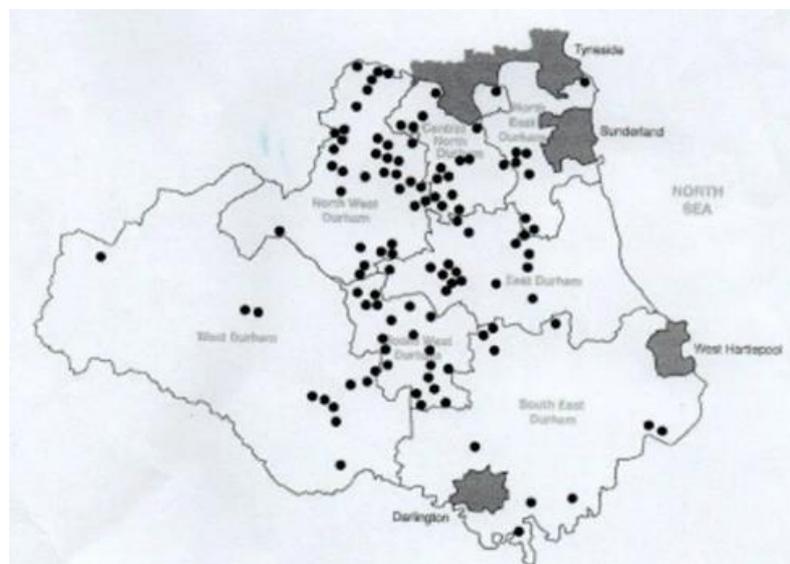
3.1.1. Historical perspective.

Spatial planning as an independent discipline arose from the need to organize and control urban growth (Piro, 2016). It is therefore no coincidence that the 20th century was the heyday of the theory and practice of urban planning, when the need to address the enormous number of tasks and contradictions for the organization of people living together in fast-growing cities became apparent. Urban planning had to find a new “physical form that was, varying degrees, efficient, healthy and beautiful” (Piro, 2016). From local urban planning, the scale of regional spatial planning has emerged, whose task is to balance, distribute and prevent enormous urban growth. Of course, the fast urbanization and population growth in industrializing cities was accompanied by a population decline in rural areas, resulting in a labor loss due to the mechanization of agricultural activities. Relocation rural populations to cities was required by this new economy, but at the same time became an important issue for the state governments in many countries. However, the level of problems being addressed was national or regional and, the solutions depended a lot on the state’s strategy of the development of the national settlements’ system. Those examples come mainly from European and American experience, where planning tradition developed first (Piro, 2016). Thus, attempts to prevent the fast growth of the largest cities and to find a balance between rural and urban development, were expressed in the urban utopias and models, such as Garden City or linear city.

Thus, in the United Kingdom before the outbreak of World War II, federal officials devised a strategy for shutting down mining towns in the countryside where mines had been closed. In 1951, a strategy called County Durham development plan was implemented: it divided villages in the area into 4 categories in accordance with their potentiality for the future development with new investments. The villages of “Category D” were those where further population decline was expected and, accordingly, they did not have perspectives for their development. In the end, the strategy was not successful, led to significant degrade of the existing settlements and caused many protests (Pattison, 2004).

Image 3.1.1.

The 1951 County Durham development plan, East England. “Category D” villages (Pattison, G. 2004).



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During the Soviet period in Russia, the similar program of “unpromising villages” was implemented: the difference was in economic activities of the villages, which in Russia were occupied in the agricultural sector and their population decline referred to the state reorganization of the agricultural system with the enterprises’ consolidation. That policy is analyzed in section 3.2.2.

Officials in New York City developed a similar program in the 1960’s under the banner of triage planning and planned shrinkage. Facing fiscal disaster due to declining tax revenues associated with population loss, the New York City Housing Commissioner, Roger Starr, led an effort to remove housing for the poorest residents and invest in the city’s most economically viable areas (Hollander and Nemeth, 2011). The opposite solution was in worsening the situation in declining areas in order to spur a natural death of shrinking settlements.

Transformation of settlements could be implemented at the national level only in countries with a significant level of centralization. There are not many examples in literature, and those described cannot be called successful. Most of such attempts were made in the 20th century and were strongly connected with the organization of the state economy. This approach is concerned with providing special programs at regional or national level, the main goal of which was removing population from settlements that are not promising from an economical point of view. Nowadays, when all the economic activities are spread globally, implementation of such kinds of programs within the national borders is almost impossible (Piro, 2016).

3.1.2. General approaches and existing tools for planning under the conditions of population loss.

Chapter 2 described a shift in attitude towards shrinkage from considering it a taboo and ignoring it, to its acceptance and understanding of development planning instruments within a new paradigm. Scholars have raised the question: can we plan for new tasks using existing processes and mechanisms? (Pallagst, 2013). It is a logical question as all planning tools were developed for managing fast urban growth.

Because most urban scholarly research builds on the experience of growth, the discussion also underlined the necessity to re-think general urban challenges such as social cohesion, ecological challenges or land use set against the experience of urban shrinkage (Grossmann, 2012).

While scholars and many planners have come to an agreement about the necessity of new approaches to unavoidable shrinkage, among policy-makers at a regional level and city-managers this process is more complicated. Even accepting shrinkage may mean a very different understanding of the phenomenon and also the use of a variety of approaches and methods. Obviously, a negative attitude to shrinkage provokes fighting against negative trends and the orientation of all efforts to prevent continuing decrease and to turn it to growth. This idea is very strong due to its perfect correlation with the contemporary model of the world economy. Competitiveness is at present one of the main goals of every city and under conditions of shrinkage it is difficult to position a city as being competitive.

Planners have tried a variety of redevelopment interventions to revive shrinking places in the United States. These range from raze-and-rebuild projects that re-mall old shopping centers with big box retail (e.g., Jennings, MO and Richfield, MN) to outright city downsizing, turning vacant land to parks and open space (e.g., Youngstown, OH). Following the ideas of postindustrial gurus,

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these interventions can also involve fortifying regional airports (e.g., Detroit) or pursuing new-age town regeneration by attracting the creative class (e.g., Kalamazoo, MI) (Audirac, 2009).

As seen from the example above, most urban strategies are made considering growth, or at least stability, as the main goal. Some cities continue to invest in downtown projects hoping for a return to growth even as they face population loss (Shetty, 2009).

Some cities understand that the root of their problems are in economic decrease and try to develop a new economy, such as a creative or green economy (Aber, 2009). This approach assumes the action of a city as an individual economic subject that must attract inhabitants, businesses or tourists. Another approach refers to intermunicipal cooperation that helps cities to share the fiscal burden among them (Domhardt and Troeger-Weiß, 2009). All these methods are based on a belief in the market's self-regulatory abilities. Decision-makers and practitioners continue to focus on 'linear' trajectories of urban development, which have their roots in a confidence that local actors can attract inward investment and create economic growth (Schlappa, 2013). However, the existing examples show that market-based strategies are not very effective in shrinking cities and are characterized by limits in their application (Hackworth, 2014).

Places like Detroit, Flint, and Gary are so troubled that expecting the market to magically, benevolently and independently solve the city's problem is considered naive. (Hackworth, 2014).

Some municipalities decide to be smaller and try to plan using a concept of “smart decline” - planning for less—fewer people, fewer buildings, fewer land uses (Popper and Popper, 2002).

Notably, many of the regeneration strategies try to re-orient the paradigm of growth to pragmatic downsizing (Germany) while in other cases the focus is on improving residential housing and living conditions, strengthening future socio-economic structures, and improving urban governance (Switzerland). Some countries continue efforts towards brownfield site regeneration, social planning, and housing policy (Czech Republic) while others think in terms of a new urban governance system, regeneration strategies, and new development models for residential use (Spain). In some countries there is no explicit urban policy imposed by the central state, existing planning documents are not sufficiently used for the clear identification of shrinkage processes in cities, and the potential of local planning is not sufficiently utilized for setting the context of different kinds of development priorities (Slovak Republic) (Martinez-Fernandez et al., 2012).

A very important aspect is that municipalities often are not able to manage shrinkage by themselves. Moreover, shrinkage's causes very often lie out of municipalities' competence and work as external uncontrollable factors. Urban planning has little influence on the main forces at hand: deindustrialization, demographic change, or even suburbanization (Oswalt, 2006). That is why scholars often emphasize the necessity of participation by regional or national governments.

Local attempts to cope with shrinkage are faced with declining local budgets and thus depend on external resources attached to long-term national urban policies (as opposed to just short-term interventions), and the alignment of urban regeneration policy and spatial planning. (Grossman et al., 2013).

“...collective efforts by both national and local governments are important in better managing the fluctuating trends (i.e. population growth and shrinkage in a given geographic area) and to respond appropriately to the changing environment... Efforts made at the individual city/municipality level

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alone may not be sufficient, and more consolidated regional efforts may be required.” (Martinez-Fernandez et al., 2012).

Moreover, solutions for such a complex problem as shrinkage cannot be easy. At every level of governance some particular tasks may be solved: the state sets rules and taxes, as well as the structure of local governance. States decide where national infrastructure projects will be implemented and their influence on regional economic growth (Vey, 2007). At a local level only the main challenges of specific city and key players who are able to change the situation could be defined.

Haase A., Hospers G., Pekelsma S. and Rink D. (2012) in their publication “Shrinking areas. Front-runners in Innovative Citizen Participation” (2012) identify four types of policy responses: (1) trivializing shrinkage, (2) countering shrinkage, (3) accepting shrinkage and (4) utilizing shrinkage. All these types of reactions are usually dependent on the severity of the shrinkage effect: the fewer negative consequences, the more difficult to believe in the inevitability of having to change the traditional methods of management and planning.

In any case, trivializing shrinkage by simply denying it is not a sensible idea. Trying to counter or to utilize it with growth and marketing strategies will also lead to disappointing results. The best strategy for shrinking cities is to accept shrinkage and improve the quality of life for the existing residents. In other words, try to avoid the stay-behinds moving out as well. (Haase et al., 2012).

Another important thing that makes formulating new planning approaches very difficult is the impossibility of predicting future world development under conditions of fast transformations and a high level of uncertainty. Some opinions may be extreme and predict the end of the growth epoch:

The term “shrinkage” does refer to an essential change: the epoch of growth has come to end (Oswalt, 2006).

Like growth, shrinkage implies a transformational process that is temporally limited. Some cities will disappear, others will lose substance over the course of several decades and stabilize at a lower level and perhaps grow again (Oswalt, 2006).

Therefore, as shown above, differences in approaches depend on the level of acceptance of shrinkage, its causes and negative effects, but also on the attention paid to the phenomenon in general or to some produced problems. For example, some investigations are devoted to approaches to one particular negative effect, such as abandonment (Hackworth, 2014; Bernt, 2009) or land vacancy (Burkholder, 2012; Gross, 2008). Other researches are oriented to collect a variety of tools and methods used in different conditions in order to develop recommendations: such international research projects as “Shrinking cities” (Oswalt, 2006), “Demographic Change and Local Development: Shrinkage, Regeneration and Social Dynamics” (Martinez-Fernandez et al, 2012) or “Shrink Smart – The Governance of Shrinkage within a European Context” (Rink, 2012).

Many scholars emphasize the increasing significance of the role of planners. Shrinkage is a very complicated task that usually implies the highest level of uncertainty according to Christensen’s theory: the presence of both non-agreed goals among key players and an unknown solution. It requires planners to be more active, innovative and to play a leading role in many cases.

3.1.3. *Preventing demographic decline.*

Preventing population decline is the most obvious task that comes to mind in connection with shrinkage problems. Achieving growth is the most desirable goal for every shrinking city. This goal is usually sought through a policy oriented towards an improvement of the demographic situation (stimulating fertility, reducing mortality, improvement of the health care system) or attracting external migrants. Obviously, both of these directions could hardly be implemented by municipalities without participation of the regional or national government (Haase et al., 2012). Demographic processes are difficult to manage and their roots are usually on a larger scale than that one particular municipality. Some of them could be successful in attracting migrants from the rest of the region, but not in presence of a region which is, itself, shrinking (as it often is). That is why Wiechmann called Europe the “islands of growth in a sea of shrinkage” (in Haase et al, 2012).

In the international project “Shrink Smart – The Governance of Shrinkage within a European Context” (2012), coordinated by D. Rink, much attention was paid to investigation of existing policies. Preventing population decline is the focus of many countries in Europe due to the prevalence of this trend. It is shown that most countries apply demographic policies that include financial support of families, development of the health care system, migration policy etc. All these strategies cannot be implemented at a municipal level. The problem here is that the national government usually cares about population of the country as a whole without paying attention to spatial aspects of the population’s distribution. Under the influence of globalization every city competes with others and big cities have more potential to attract people. Capitals concentrate most of countries’ resources, draining population from regions. Thus, for example, Moscow produces the extinction of many settlements around it.

However, some successful attempts to create new centers of attraction have been made in the last decades. The decisions were found in the development of a “creative economy” and produced some impressive examples of urban development in terms of realizing growth, competitiveness, more and better jobs, sustainable development, and innovation in cities that have not been “global” (Aber, 2009). It is unfair to claim that the expectation of growth is hopeless. On the contrary, some cities accepted shrinkage as the unavoidable trend of their future development after returning to unexpected growth, like Leipzig or Dresden in Germany. Their planning strategy oriented on a smaller but better city brought positive results and new growth is a well-known issue for future management.

3.1.4. *Elimination of shrinkage’s consequences.*

In the “active” part of debates for several reasons, this topic caused numerous investigations. First, the usual negative effects of shrinkage are very impressive and provoke strong public attention. National debates usually focus on the most obvious issues such as economic decline and housing abandonment in the United States, housing demolition policies in Germany, urban renewal in Great Britain or demographic change in Eastern Europe (Grossmann et al., 2012). Dramatic shrinkage in the cities in developed countries provoked negative consequences such as abandonments, vacancy and infrastructure surplus. Abandonment and vacancy in turn produce social problems (such as crime, drug addictions, citizen apathy) and cultural problems (Youngstown 2010 Citywide Plan, 2005). These issues are usually compounded by a budget reduction and inability to solve them with local recourses. Thus, a city gets involved

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in a closed circle of causes-effects. Evidently, such negative effects, which sometimes put cities on the brink of survival attracted the principal attention of scholars and planners.

The political and administrative actors concentrated on the consequences of population decline: oversized infrastructure – such as one million vacant flats, unnecessarily large sewer systems, underused schools, kindergartens, and public transport system – and shrinking municipal budgets (Grossmann et al., 2008).

Thus, land abandonment is called one of the most challenging planning problems facing shrinking cities in the United States (Hackworth, 2014). Investigations in this field and experimental strategies, such as the citywide plan Youngstown 2010, led to the development of such widespread approaches as demolition and the forming of land banks. For example, the Youngstown 2010 Plan identified several goals in dealing with this issue: targeting highly visible demolitions; converting surplus school buildings into green space; creating a housing court; improving the city’s land bank program; and seeking state funds for demolition and redevelopment of larger commercial structures.

Demolition seems necessary due to a strong public demand. Vacant buildings threaten the safety of residents and create a very depressive image of a city, producing further out-migration and decreasing investment attraction. Moreover, one of the main aims of demolition is to reduce the housing market to keep the value of houses at the same level. Some scholars claim that in many cases this is the only goal of demolition (Grossmann et al., 2008). In many cases houses are demolished to prevent an oversupply without considering any plans for future development. In any case, demolition programs became very popular in USA and Germany. In Cleveland, for example, over one thousand homes are demolished each year (Schwarz, 2012). In Germany the Stadumbau Ost (Urban restructuring in the new federal states) program became very well-known as it was supported by the state government in order to reduce the problem of abandoned houses in shrinking cities of Eastern Germany and to help them in the creation of a more attractive urban environment. The program offered money for demolition in exchange for a city’s strategy (Haase et al., 2012). Because of these requirements, more than 270 municipalities reworked their planning schemes in a very short period and made the demolition of vacant buildings their prime urban development goal (Bernt, 2009).

In its turn, demolition produced vacant land that had to be managed while avoiding speculation. This is the goal land banks serve.

Kildee and others advocate a smart-government approach wherein cities and counties establish land banks to rationally manage the disposition of foreclosed properties. Land banks could be used to acquire such properties before they go to auction, to focus re-sales on owner-occupiers (or responsible land owners), and even to remove some properties from the market altogether. (Hackworth, 2014).

Land banking in the USA has existed for decades in some states. Actually, different states are characterized by opposite attitudes to land banking creation. As Hackworth (2014) writes, “land banks are not a panacea that will automatically inhibit or prohibit speculation in cities”.

...and other critics, for example, argue that land banks like those in Cleveland, Saint Louis and Atlanta have existed for decades and abandonment in those cities is as bad if not worse than in other shrinking cities in the United States. (Hackworth, 2014).

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There are wide varieties of land holding strategies for managing urban vacancy, like greening strategies and landscape beautification that create a perception of stability and can increase the market value of vacant properties for potential investors (Hollander et al., 2009).

Numerous strategies for vacant-land management and reuse are being explored in some of the cities most affected by population decline, including Detroit, Cleveland, Youngstown, Pittsburgh, Philadelphia, and Buffalo. Generally categorized as “greening” strategies, these approaches have the potential to stabilize fragile real estate markets, restore urban ecosystems, improve public health and well-being, and foster economic growth. (Schwarz, 2012).

The greening of vacant land in order to improve its ecological and aesthetic characteristics is one possibility of land use in shrinking cities. Another issue is making this vacant land productive. What types of production may this land be used for within a city? Schwarz (2012), for example, lists food production, agriculture, alternative energy production, watershed restoration, large-scale land reclamation and forming of a transitional urban landscape.

In 2008, the Cleveland Urban Design Collaborative and Neighborhood Progress, Inc. produced a vacant land pattern book to serve as a guide for pilot projects throughout the city of Cleveland. The pattern book included design concepts for gardens, small-scale farms, parks, parking lots, geothermal wells, infill development, native-planting schemes, and other interventions, along with cost estimates for implementing these concepts (Schwarz, 2012).

All attempts at managing land vacancy may be subject to criticism. All of them are effective in one way or another. However, they are not able to solve one problem: despite increasing areas of vacant land, shrinking cities continue to sprawl.

Vacant plots and areas are left behind, usually turned into various kind of green space. At the same time, land consumption went on at the outskirts of the cities (Grossmann et al., 2008).

Land consumption, at least in Europe, is still increasing. Often it cannot be explained by increasing household numbers. Living arrangements and types of housing play an important role (Haase et al., 2013). Such examples show that land management does not assume just the simple replacement of existing city functions in a more compact way – this process is much more complicated and requires specific investigations and the development of new approaches.

Surplus infrastructure in addition to problems in its functioning and maintenance creates fiscal problems for shrinking cities. Cities face a reduction in the tax base without a concomitant reduction in the amount of network-related infrastructures (such as water, sewer, and public transport) and social public infrastructures (such as schools, libraries, and swimming pools) which must be maintained at the same fixed costs (or even rising costs). The bulk of literature indicates that most shrinking cities are unable to reduce their expenditures on infrastructure and services at a rate equal to that of population decrease. At the same time, the social infrastructure offers greater flexibility and adaptability (Hollander et al., 2009). In addition to a possible change of function, social infrastructures often become a base for intermunicipal cooperation (Domhardt and Troeger-Weiß, 2009), or even more: they may play a role in creating attractive city centers. Social institutions located in this infrastructure in cooperation with municipalities may produce new ideas for city development, as it happened in Youngstown, where the Citywide Plan was produced in cooperation with the local university. Another important thing is that states are usually responsible for such institutions and support them financially (Vey, 2007).

Unfortunately, there are not many different options in dealing with surplus housing, land and infrastructure. All approaches aim to improve the quality of urban environment, but they are not able to reshape the city by simply removing decreasing neighborhoods. Cities continue to sprawl and solutions may lie in the combination of many approaches focusing on market strategies, government cooperation, citizens' participation etc. Another picture is now present in post-socialist countries, where the amount of housing and infrastructure is still not satisfying. However, the experience seen in developed countries shows the possible future for those countries in case of continuing uncontrolled extensive urban development.

3.1.5. Accepting shrinkage.

Actually, elimination of consequences is a necessary element of any strategy for a shrinking city – it does not matter if a city is going to be smaller or plans its future growth, because it is a requirement of the urban environment's quality. However, those measures can be done within totally different concepts and approaches to shrinkage: from seeing it as a temporary condition caused by some extraordinary external factors to understanding of the inevitability of the process and the need to adapt to it.

It is still not precisely clear how planning paradigms, systems, strategies, and cultures are changing when shrinkage and decline are taking place (Pallagst, Cunningham-Sabot, Mulligan, and Fol, 2017; Pallagst, Fleschurz, and Said, 2017) even a necessity of such changes seem obvious (Pallagst, 2010; Piro, 2012). Scholars define several stages of planning evolution in the conditions of shrinkage (Pallagst, Fleschurz, and Said, 2017; Zingale and Riemann, 2013). At first urban shrinkage is a kind of 'taboo' that planners and policy makers view as temporary and prefer to ignore. The second stage is acknowledgement of shrinkage. At this point, one of two policy pathways is chosen - counteracting shrinkage, i.e. trying to reverse the process, or accepting it (Hospers, 2013; Pallagst, Fleschurz, and Said, 2017; Hartt and Warkentin, 2017). However, it is doubtful that strategies for counteracting shrinkage are actually effective, since most cities, which experience shrinkage, do not have the real competitive advantages to attract both population and business; therefore, acceptance is viewed as a more sustainable path (Hospers, 2013). Although, mere acceptance of the phenomenon is not enough to come up with proper policies for shrinking cities, there should be actors particularly interested in coping with the phenomenon (Bernt et al., 2014).

In this chapter I consider "accepting shrinkage" as an approach to planning for less populated city in the future. It means not only the elimination of consequences for the improvement of the urban environment, but changing the whole ideology of city management and of its strategies. This approach assumes understanding of fewer needs in infrastructure and housing in the future, finding flexible ways for adaptation and use of what is already existing, preventing continuing urban sprawl, in other words, "...to plan with decline, rather than against decline" (Morrison and Dewar, 2012). I believe that accepting predicted shrinkage before the emergence of negative effects will help to soften the consequences of shrinkage and reduce further decline. Post-socialist countries, now entering international debates on the topic of shrinkage are still not facing most of the problems of degradation of the physical environment found in developed countries. Therefore, they should learn from this experience sooner in order to prevent such dramatic consequences later.

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Planning for shrinking cities needs a new theory, methodology and specific instruments that still do not exist.

Today, dealing with the effects of urban shrinkage has become a daily business for many cities and towns. Unlike experiences with population decline in the US or the UK, questions of coping with or adapting to urban shrinkage dominate the discussions today in both research and in practice, rather than the search for a silver bullet to turn around cities' fortunes. This is due first of all to the strong focus on demographic processes that – in either scenario – suggest that the population decline will continue (Grossmann et al., 2008).

Few publications and little professional training exist to guide planners as they try to intervene in the process of persistent decline. Schwarz explains that in “a handbook of local planning” existing in the USA, much attention is paid to encouraging citizen participation, reusing surplus property, and building on the strengths where population has declined, but always with an orientation towards new growth in the future. “Several chapters address the revitalization of blighted neighborhoods with new development to replace old, abandoned, or obsolete uses but do not consider what to do when such new development is not practically possible” (Schwarz, 2012). The same attitude to shrinkage prevails in European countries.

In many European cities where population decline can no longer be denied, policy makers are trying to reverse the trend. The idea is that shrinkage is only a temporary problem that can be resolved by attracting new people and businesses. This market-based, pro-growth policy response is popular in many European countries, especially in Central, Eastern and Southern Europe... Attempts are made to stimulate population growth by means of new real property development, urban restructuring and place marketing. In the new member states of the EU, in particular, creative people have top priority on local authorities' wish lists. (Haase et al., 2012).

Examining the recommendations of present literature on shrinking cities, it is not difficult to notice that most of them are not really specific and actually express peculiar needs of such cities. Many recommendations suggest improving the urban environment, transforming the physical landscape, achieving social justice, better ecological conditions, new economic development, job creation, accessibility, social services optimization etc. (Oswalt, 2006; Martinez-Fernandez et al., 2012; Rink, 2012; Vey, 2007; Schlappa, , 2013 and others). All of these recommendations are valid for any other city in a competitive environment. The specific recommendations for planning under conditions of urban shrinkage are usually developed at different scales with policy recommendations and notes for future researches are more general and recommendations for planners are developed for implementation at local levels. Concerning policy recommendations, three directions are noticeable: raising awareness, cooperation and strategic planning.

Awareness means more information about the phenomenon, improved forecasting and understanding of its future development among all decision-makers and participants of the planning process. To meet these goals, recommendations include the improvement of data collection, development of monitoring systems, open discussions and publications, forming more realistic strategic and planning documents, scenario planning and better communication between participants (Martinez-Fernandez et al., 2012; Rink, 2012; Schatz, 2010).

Cooperation includes many different actors. Urban governance should maximally use both vertical and horizontal dimensions. The horizontal refers to the diversity of types of actors, groups and institutions involved, whereas the vertical aspect deals with the different

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administrative scale levels that play a part, from the European to the local (Haase et al., 2012). As already discussed, cities cannot tackle shrinkage alone, regardless of whether they are large or small. It would seem that even in a highly regulated and finely balanced federal system like Germany, regional support for shrinking cities is lacking, leading to a fight for survival in a zero-sum game. (Schlappa, 2013).

Coping with urban shrinkage requires the involvement of many stakeholders. After all, population decline is a complex and comprehensive issue: it transforms parts of the city and affects all aspects of people's daily life. In such a context, local government is dependent on the capacity of many other actors, varying from corporations, schools, business networks, local associations and citizens themselves. Thus, shrinkage is a “wicked problem” that requires urban governance. (Haase et al., 2012).

As shrinking cities are always characterized by lack of recourses, the principle of cooperation should be used at a local level to involve all participants able to change the situation: citizens, social institutions, local businesses, investors etc. Success of using this method has been demonstrated, for example, by the Youngstown 2010 Citywide Plan's cooperation with the local university and citizens' involvement, (Youngstown 2010 Citywide Plan, 2005; Schatz, 2010) and the Wächterhaus project in the Leipzig coalition of architects, planners and residents (Rink, 2012; Haase et al., 2012).

The Wächterhaus project was initiated in Leipzig in 2004 at a time when the city's attractive inner-city districts suffered from high vacancy levels and lack of investment by owners. A coalition of architects, planners and residents created a voluntary organization which facilitates the creation of flexible rental agreements between owners and tenants. In this agreement the tenant pays no rent, but in return agrees to protect the building from vandalism and carry out simple repairs to prevent structural damage. Some properties are being released from this initiative and owners have begun to refurbish them for residential purposes. At present there are 16 such Wächterhäuser in Leipzig and the initiative is beginning to shape planning policy in declining neighborhoods. It also fosters social and economic inclusion in the neighborhood (Rink, 2012).

The type of communication and cooperation will be very different from place to place according to local traditions of self-governance and the system of state organization and management. Thus, Western Europe is characterized by a strong municipal tradition and autonomy is coupled with a fierce competition between municipalities for public and private investments (Martinez-Fernandez et al., 2012). Eastern European countries are characterized by a stronger centralization and budget distribution dependent on population counts (Grossmann et al., 2008). Therefore, models of cooperation definitely will be different.

The principle of strategic planning requires decision-makers to keep in mind an adopted strategy and use it in daily policy making. Due to the recent entrance into debates of the topic of planning for shrinking cities, there is no classification of all the possible strategies offered in the world. At the same time, in some research projects such attempts were made. For example, the international project “Shrink Smart – The Governance of Shrinkage within a European Context” (Rink D., 2012) defines two types of strategies presented in European countries:

1) ‘Western’ holistic explicit growth or stabilization strategies dealing implicitly with consequences of shrinkage, and

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2) Post-socialist pro-growth strategies emphasizing job-creation based on attraction of inward investment and European funding, rather not regarding at causes and consequences of shrinkage.

It is noted, that both types are based on external resources due to the lack of local abilities to manage shrinkage and eliminate its consequences. Western strategies combine growth orientation with the elimination of consequences. Eastern strategies are more market based; they tend to implement “market-first” or “market-only” strategies (Hackworth, 2014). Discussing principles offered in literature for planners we notice a correlation with policy principles, of course, but most attention is paid to the local level and to practical implementation in a physical environment. In order to prepare a more realistic planning, document planners should use specific tools, for which their background at present is not sufficient (Martinez-Fernandez et al., 2012).

The principle of participation is the same for planners as for politicians and is best seen in the Youngstown example. A challenge here is for pro-active planning is the presence of barriers between local, regional and national policy-making as discussed by Joe Schilling. (Grossmann et al., 2012).

A balanced approach is required by the lack of city recourses. There is already agreement that exclusively pro-growth strategies are inappropriate, possible alternative goals ranging from moderate re-growth via stability to controlled shrinkage. The main idea in this field is the idea of smart decline, adopted mostly in the USA and Europe. The German Shrinking Cities Project (2008) published a book *Interventions*, which broke smart decline practice into four categories: deconstruction, re-evaluating, reorganizing, and imagining (Hollander and Nemeth, 2011). Nonetheless, despite some examples to the contrary (see especially Oswalt 2006 and Hollander et al., 2009), many of these smart decline practices suffer from three serious flaws: a top-down orientation, the assumption of a blank slate at project locations, and the requirement for a quieted public. This typology provides a basis for evaluating the work of smart decline against the foundational theories of planning and public policy (Hollander & Nemeth, 2011).

Schatz claims that the role of planners should be changed. Most successfully implemented practices demonstrate active “design intervention” or specific planners’ role, in which they are not just contractors or problem solvers, but active participants of the process from the point of view of formulation of questions and problem definition. Thus, the complexity of the tasks facing planners in Youngstown provoked the necessity of changing their role in the plan’s preparation. At first the planners and political leaders together had to act as problem-finders, according to Christensen’s theory. The goal of problem finding and formulation was achieved through a wide involvement of local actors in the process and careful organization of this process step by step. Planners in Youngstown claimed that that “the idea of admitting that Youngstown is a smaller city essentially came from the people” (Schatz, 2010). The main goals defined as a result of the finding process were those that interested most of the actors. Thus, it was the initial agreement between them that helped to reduce uncertainty. Later, again according to Christensen’s theory, when the main goals were agreed upon, the planners’ role changed. They moved to “another sector” of uncertainty and had to become innovators, because there were no ready-made solutions for the situation of Youngstown. The great interest in the Youngstown Citywide Plan 2010 shown by other cities is the best evidence of its innovative character. A huge volume of articles were written about Youngstown’s experience and many investigations were made. It also resulted in state law transformation, so, that “waves of consequences” continue to affect reality.

Despite the apparent success of many implemented practices in different cities, there are still no definitely “good” or “right” solutions. All strategies offered should be better analyzed and evaluated through monitoring and specific studies. Thus, the above mentioned example of Youngstown received positive results and improved its situation in many ways, but is still suffering from shrinkage and its future has not become less uncertain. The Youngstown plan was developed in the hope of stabilizing the population at 80,000 residents, but from the year 2000 until now the city’s population has decreased by 20%. In 2012, an updated Census report showed that Youngstown led the nation in population loss between 2010-2012 among cities with a population of 50,000 or greater. Meanwhile, Mahoning County led Ohio in population loss from 2011-2012. In fact, between 1990 and 2010, the only area of the city where the number of residents grew was the East Side due to the construction of two prisons (Kidd, 2014).

3.1.6. *Shrinkage as an opportunity.*

Are there only negative effects of shrinkage? Some authors have gone further and tried to change the negative attitude to the phenomenon and to consider it as an opportunity for cities. These opportunities are seen in improvement of the urban environment’s quality, the ecological situation and in having more space for living for the rest of the population.

The most optimistic points of view are based on turning the disadvantages of urban growth to advantages of urban shrinkage. Shrinking cities are considered as greener, less polluted places (Gross, 2008), giving citizens opportunities for food and energy production (Schwarz, 2012), more sustainable cities. Significant opportunity lies in the establishment and provision of ecosystem services through strategic design and management of large vacant sites in order to create a web of sustainable land-uses. Vacant landscapes can provide significant improvements in urban biodiversity and environmental education (Burkholder, 2012). For the ex-socialist cities, shrinkage gives more space for living and helps to satisfy housing needs (Novak and Nowosielsky, 2008).

Many scholars also see new opportunities for planners and researchers in the development of new approaches and the possibility of experimentations. They consider this an opportunity to create something better and something new (Schlappa, 2013).

Shrinking cities in the Ruhr Area, for instance, are experimenting with smart living concepts for elderly people. In this sense, shrinking cities are societal laboratories where new methods are tested that are also useful for growing cities (Haase et al., 2012).

Despite the optimism of some authors, there are not too many ways for dealing with shrinkage as a new opportunity for a city. This statement is based on the strong dependency of the city budget and, accordingly, of its ability to solve problems, on city population. Those municipalities that have lost population have lost resources as well. Thus, an interrelation between population figures and city budgets remains an important nexus for local governing capacities (Bernt, 2009).

So, as scholars conclude:

...we should not be over-optimistic when it comes to utilizing shrinkage. (Haase et al., 2012).

3.2. The Russian experience: historical perspective of managing demographic issues in planning.

This chapter aims to demonstrate how the policies in Russia during different historical periods have been characterized by its extensive territorial development, the city's foundation and urbanization, including current policies at national, regional and municipal level, were/are considering territorial aspects of demographic decline and how they were/are expressed in spatial planning. The macro processes aggravating urban shrinkage at the local level are difficult to face by the local authorities. Accordingly, it is important to know which efforts are done at the regional and the national levels of governance and which advantages they bring to the municipality.

3.2.1. Pre-Soviet period.

Russian development in the history is characterized by the enormous territorial extension: between the 15th to 16th centuries in less than in a hundred years, the Russians have colonized the territory from the Volga to the Pacific Ocean stretching over 5000 km and more than 10 million square kilometers. It required a significant development of the settlements' system. The construction of new cities was considered by the state as a way to stake out the territory and to exploit its natural resources. The intensive construction of new cities in Russia has happened since the appearance of the centralized Russian state in the 15th century (Bunin and Savarenskaya, 1979) and each historical period served to meet the specific needs of the state. Thus, at the beginning, the state founded cities-monasteries, cities-fortresses, cities-fairs, later appeared mining and industrial cities, cities-transport nodes or resort cities. With a rise of the state power, cities began losing their independence and, accordingly, the cities' planning and the population distribution within the country had become an important part of the national policy.

The Empress Catherine II (1762–1796) implemented the most notable policy in Russian Empire in the field of the demographic development and urban planning. She realized the most important reforms in urban planning of that time. The reform started from the detailed investigation of the existing country's sources: land, settlements, population, industries, buildings, natural sources etc. Based on this information the reform implemented a new administrative-territorial division and defined a new hierarchy of the existing cities. According to the data of 1787, Russia had 496 cities, 176 of which were new cities, founded by the state mainly in eastern parts of the country (Lyubovny, 2013). The general plans, starting from the city of Perm', were also developed for the existing old cities in order to improve sanitary conditions and fire safety. The centralization of construction management and urban planning was strengthened significantly. Simultaneously, Catherine II had been realizing a wise demographic policy. In order to populate empty eastern Russian territories and new cities, she allowed foreigners to settle down in Russia and guaranteed the special rights and privileges for them. Catherine II had written: “Russia not only does not have enough people, but still has too much land that is inhabited and uncultivated” (Pisarevsky, 1909).

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Image 3.2.1.

The territorial expansion of the Russian Empire in 1533-1894 (Encyclopedia Britannica) and the general plan of the city of Perm' (18 century).



For those purposes two manifesto had been created: 1) “About allowing foreigners to settle in Russia and the free return of the Russian people, who had fled abroad” (1762) (Lykova and Osekina, 2004); 2) “About the permission to all foreigners, entering Russia, to settle in the different provinces of their choice, about their rights and privileges” (1763) (Chistyakov and Novitskaya, 2000). That policy gave migrants personal freedom, the right to choose the place of living, exemption from all taxes for quite a decent time (in the cities of five years, in rural areas up to thirty years). The state provided interest-free loans for ten years on housing, reimbursement of relocation expenses, buying food until the first harvest, buying cattle, agricultural implements and tools for craftsmen. Migrants, who created their production, were allowed to trade and even to export goods abroad duty free. They were given the right of religious freedom the right to create their own local authorities in the areas of compact residence. They could freely leave the Russian Empire. Moreover, the settlers were exempt from conscription. Thus, the new Russian citizens had received advantages and benefits, which did not have Russians and other native inhabitants of the Empire. In this way, for example, have been formed from the German settlements in the Volga region. The internal migration helped in the development of the new territories, but they were limited by the serfdom. In following 19th century the state was not so consistent: the internal migrations had been organized in the cases of political needs (as in Far Eastern regions), but the general idea was in the belief in self-organization of population according to the economic needs. At the turn of the 18-19th centuries by the construction of the railway in Siberia played an important role in resettlement, for which the special rules of relocation were created.

3.2.2. *Soviet period.*

The establishment of the Soviet state and its new laws changed significantly the opportunities for the government to realize the demographic policies and planning. After the abolition of private ownership of land in 1918, the USSR was relieved of the need to compensate for the loss of property of the citizens in resettlement and the migration policies could serve more effectively the appearing goals. Plans for the population relocation had been changing according to the state's current needs. Thus, at the beginning of the 20th century, the government was trying to prevent the population's replacement to the far eastern areas of Russia, but since the 1920's, this direction became important for the national migration policy. Since the 1930's, due to industrialization, the USSR started to stimulate and regulate the urbanization process. Later, the state implemented different measures to control and guide the population distribution within countries: from the restrictive measures limiting free replacement or repressive measures of forced relocation to the stimulating tools for the attraction of population in the far northern and far eastern regions. The development of those regions had been intensified during WWII and afterward due to the evacuation in those areas of the industries from the European Russia during the war.

The Russian or the Soviet government was always associated with population growth security and the ability of the state to preserve the territorial integrity. It is not a specificity of the Russian perception: in most of states and cities population decline is perceived as a threat for the future (Bontje and Musterd, 2012). Nevertheless, in Russia, due to the happened historical events, a perception of population decline was especially negative. The dramatic events of the 20th century, such as the First and the Second World Wars, Socialist Revolution, emigrations, hunger and repression, provoked significant population losses in the Soviet Russia. Nowadays, many attempts have been made to estimate those losses, but, of course, the exact number is difficult to calculate specifically. Experts talk about a diapason from 25 to 35 million people within the contemporary borders of the Russian Federation (Vishnevsky, 2006). The population losses of the 20th century provoked a dramatic transformation of the demographic processes in Russia and have been called “demographic catastrophes”. Accordingly, the Soviet Union implemented different policies addressing demographic issues. The state experimented with the demographic policies in different ways: from the special taxes for single people and people without children (1941) to anti-alcohol program in the 1980's.

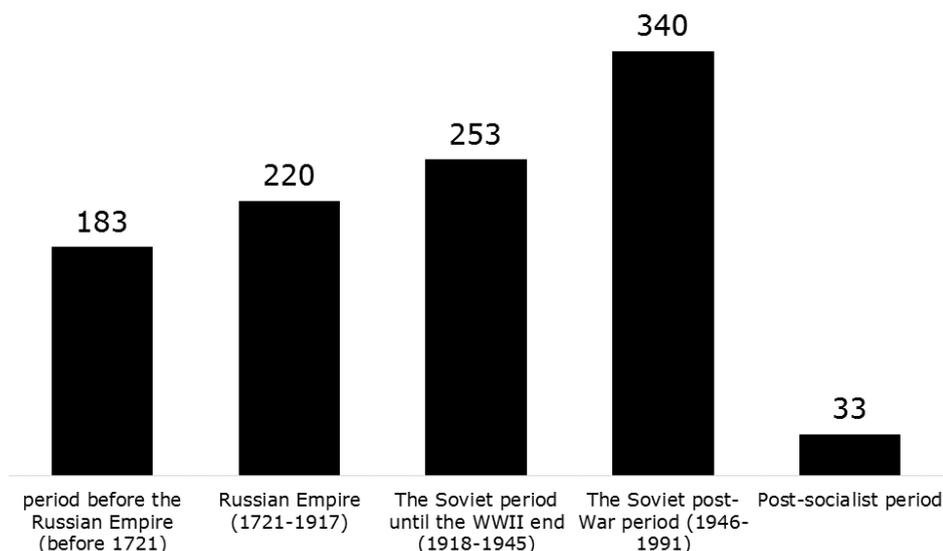
Besides the policies oriented to the improvement of the demographic situation or stimulating people's relocation, the very strong hierarchical system of territorial planning was developed in order to organize places of new residences for citizens and to implement the ideas of new type of a socialist city. During the Soviet period, more than 57% of the currently existing Russian cities were created. The Russian word used for the term “urban planning” is “Градостроительство” (*gradostroitel'stvo*), which could be translated in English as a “construction of cities”. It perfectly describes the ideology of the socialist planning system, the system of centralized management and growth-oriented planned economy.

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Figure 3.2.1.

A number of cities founded in Russia during the different historical periods.



Territorial planning functioned in close connection with economic planning and aimed to express territorially those goals defined by the national and regional plans of economic development. Centralized planning required detailed investigation of the natural and economic resources of the regions in order to form scientifically based plans. The history of the Soviet territorial planning is closely linked to the development of geographic science. Thus, with the beginning of the WWI the state discovered that in the Russian Empire there was no accurate data on strategic raw materials required for the production of modern weapons. In 1915, the Commission for study of natural productive forces of Russia in Russian Academy of Science was founded (Asaul, 2005) under the leadership of Vladimir Vernadsky, a Russian and Soviet scientist, one of the representatives of the Russian cosmism and creator of science of biogeochemistry. The goal of the commission was in accumulating data on different natural resources (from soil fertility to oil deposit capacity) and their exploration. Under the supervision of the Commission, a network of specialized research institutes was created, such as the State Hydrological Institute or the Energetic Institute. In 1929, the Commission was transformed into Council for Study of Productive Forces.

By the end of the 1950's enough knowledge had been accumulated (Adamesku, 2007) and the Soviet government changed the functions of the Council, reorienting it from the investigation of the natural resources to the planning of effective organization of productive forces' distribution in the country. In 1960, the Council presented the report "**General scheme of distribution of productive forces, ensuring the most efficient use of natural and labor resources, the full development of the economy and culture of the Union republics and economic areas**" (Генеральная схема размещения производительных сил, обеспечивающая наиболее эффективное использование природных и трудовых ресурсов, всестороннее развитие хозяйства и культуры союзных республик и экономических районов). In 1962, the Council was included into the structure of Gosplan USSR (USSR State Planning Committee, Госплан СССР). The most important planning document was developed in 1966-1970: it was the General scheme of distribution of productive forces of USSR for 1971-1980. It was an impressive voluminous document consisting of 50 volumes, which was developed with the participation of 560 scientific organizations (Adamesku, 2007). The plan aimed to balance uneven development

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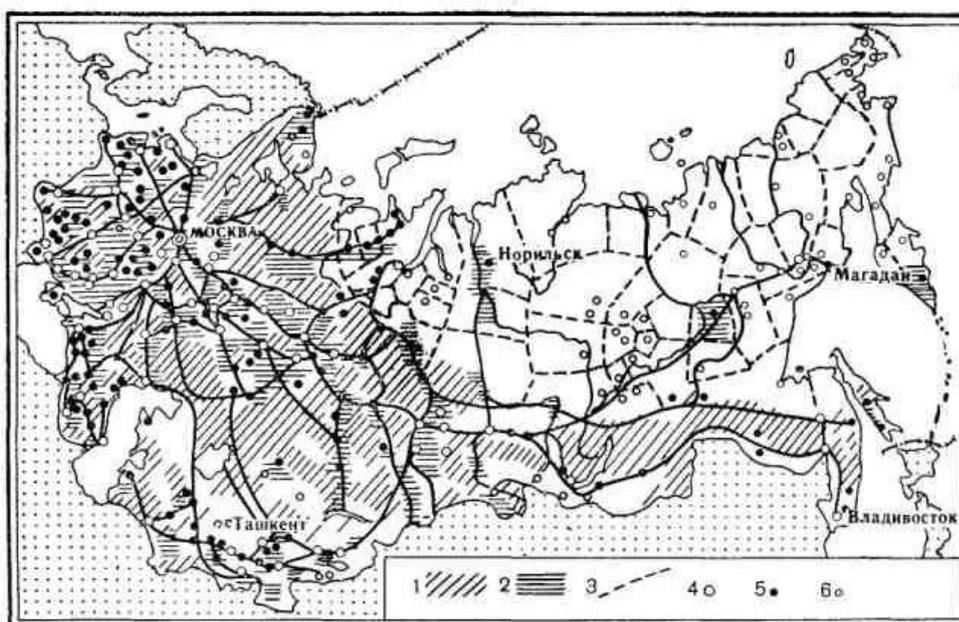
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in the regions, resourcing of accelerated economic development, distribution of economic units in order to effectively use labor forces and distribute the population and settlements.

The hypothesis of the economic development created on the basis of human geography then needed the implementation expressed first in regional and urban plans and at the end in the construction. For these purposes in the USSR, the system of territorial planning has been developed, which represented a strongly hierarchical structure assuming the consistent development of planning documents: from the national to the local level. Those documents had to consider all the decisions done in the upper level documents and the economic plans. The main document in this hierarchy was the **General scheme of settling in the USSR** (Генеральная схема расселения). The document was based on the concept of a unified settlement system, the formation of network of basic centers of various ranks and "group systems of populated areas." The unified settlement system was supposed to form a network of interconnected urban and rural settlements of varying size and economic profile, integrated by the developed transport and economic connections, common production infrastructure, unified network of public centers of social, cultural and recreational activities.

Image 3.2.2.

The concept a perspective settling in the Soviet Union, developed in 70s by the Central Research and Design Institute for Urban Planning of the Russian Academy of Sciences (Центральный научно-исследовательский институт по градостроительству Российской Академии наук (ЦНИИП Градостроительства)).



The General scheme of settling aimed to balance the uneven development of the settlements and the regions: the planners tried to limit the overly rapid growth of the largest cities and to strengthen position of the smallest towns considered as important nodes of the national settlement's network. Thus, for example, in the Moscow region many new cities have been constructed in order to stop too fast capital's growth.

How were the existing demographic issues in that period considered by the territorial planning? In the soviet planning system, the planning documents of different levels and for various purposes, succession of their development was strongly defined. For each type of the documents, planners were provided with the detailed instructions, formulas and necessary data.

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One joke in that period was very popular among urban planners: “Read the instruction and give out production”. The detailed instructions have been developed and for addressing the demographic issues. The most important terms considering demographic issues in spatial planning were “demographic capacity of territory” (the maximum number of inhabitants of the territory, which can be settled within its borders, provided with all important daily needs at the expense of resources of that territory taking into account the preservation of the ecological balance) and “prospective population number”.

Demographic capacity of territory was used for the limitation of excessive development in the regions. Nowadays we would say it was an indicator of sustainable development. This indicator was not constant and depended on many factors, including the level of technical progress.

The population projection aimed to achieve two goals: prognosis of population number for every administrative unit (region, district, city or village) and prognosis of the future age-sex structure. Planners distinguished population projection, based on the demographic indicators, and target population projections, which set a population number that a city or a region had to reach through the special measures (economic development, policies, limiting in-migration etc.). Notably, in the Soviet methodic documents an importance of the scientifically based demographic projection was emphasized with the remark about expected natural population decline and change in age structure in the 1990’s, which in reality happened, but in a much worse way due to the USSR collapse.

*Table 3.2.1.
The demographic issue in the Soviet documents of territorial planning.*

Level of governance	Territorial planning document	Demography in the document
USSR	General scheme of settling in the USSR	Calculation of prospective population based on demographic indicators and correction calculation based on indicators of the labor balance
Soviet republic and large economic areas	Regional scheme of settling	
Regions (oblast', krai, autonomous republic)	Regional planning scheme	
Parts of regions	Regional planning project General plans of cities and urban-type settlements Planning projects for rural settlements	Calculation based on indicators of the labor balance and correction calculation based on demographic indicators

In the territorial planning documents both methods of demographic projection were used: calculation of prospective population based on demographic indicators (birth and death rate, migration rate, age-sex structure, marriage and divorce rate etc.) and another method called “method of labor balance”. The last one assumed the population number change on the basis of enterprises development, which were established or planned to be established in area, for which a population number had to be projected. Normally those two methods complement each other and priority of one of them depended on the character of planning document (table 3.2.1). Thus, in schemes of settling and regional planning schemes, which were considered as pre-design documents, the priority was the calculation of prospective population based on demographic indicators. Then the basic calculation had to be corrected with the method of labor balance. For

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the regional planning projects, the sequence was different. The idea was that the hypothesis of economic development evolving in the schemes had to be based on the territories' demographic potential. At the next design step, a population number had to be set as a target indicator in order to satisfy economic or military functions.

During the existence of the USSR, the state government had to deal mainly with a population growth and a task to satisfy population needs in housing and infrastructure, especially after the dramatic events when the urban physical environment was destroyed. However, a fast urbanization and use of rural areas' human resources, caused significant population decline in rural areas (a similar process took place in the western countries). To address this problem, the Soviet Union chose a strategy to aggravate the situation in shrinking rural areas and, consequently, to stimulate the relocation of people. Thus, a program of “unpromising villages liquidation” was initiated by the December (1959) Plenum of the Central Committee of the CPSU and somehow reminiscent of a plan implemented by County Durham development plan in the UK, which placed mining villages into one of four categories (Chapter 3, 2.4). The December Plenum decided that large numbers of small settlements is a major obstacle for rural development in production, as well as in cultural and community relation. Consequently, the villages had to be transformed gradually into bigger settlements of urban type with comfortable dwellings, public services, domestic enterprises and cultural and medical institutions. At the end, cultural and everyday life conditions of the rural population had to be equal to the urban population's conditions. That idea was developed in the Communist Party Program, approved by the XXII meeting in October 1961.

In 1961-1964, the All-Russian Research Institute of Agricultural Economics and the Institute of the USSR Academy of Economics conducted the special research to determine the optimal size of socialist agricultural enterprises and farm entities. In that study, in order to make use of capital investment more efficient, rural settlements in its economic value were divided into three main groups (Plotnikov, 1965):

- a) promising settlements, which must be allowed construction of buildings of all types and full landscaping;
- b) the relatively large settlements with large livestock farms, where the possible construction of schools, shops and other much needed public buildings, but so that new buildings do not exceed the longevity of the life of the settlement;
- c) unpromising villages, which are not allowed any new construction and are gradually transferred to other settlements.

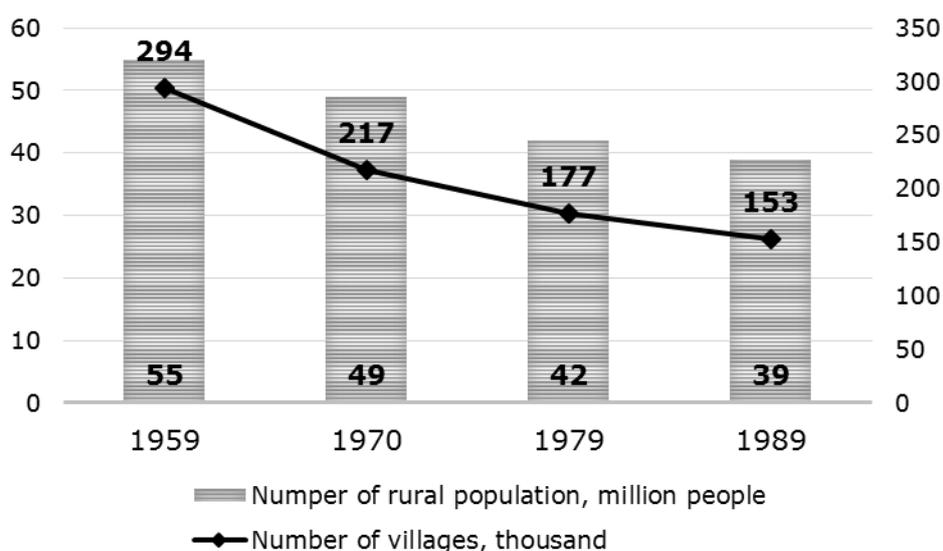
Appearing in the documents labeled “unpromising village” in practice was likely signifying a village's death (Nikitaeva, 1995). Relocation and liquidation of “unpromising villages” was carried out by order without considering villagers' opinion. Once on the “black list”, the village was doomed, because real estate construction was stopped, clubs, schools and shops closed, bus routes eliminated. Such conditions forced people to leave their homes. However, most people did not move to the settlements, which had been predefined for them, but they migrated to other larger villages or to the cities and other regions. That policy has not been fully implemented as it had originally been conceived due to a lack of recourses and to difficulties in the organization process. Yet, it caused extremely negative effects influencing the development of the system of settlements. First, it has irreparably damaged the rural settlements network, which later provoked population decline in small cities as well.

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According to the All-Union census in 1959, the number of Russian rural population was about 55 million people who lived in the 294,000 settlements (figure 3.2.4). In 1970, there were 49 million people in 217,000 rural settlements. By 1979, the number of rural residents decreased to 42 million people, the number of villages declined to 177,000. A 1989 census recorded 39 million rural inhabitants and 153,000 rural settlements (Lukhmanov, 1996). Simultaneously, with the decline in number of settlements, the structure of their distribution also changed. A number of the smallest and the largest settlements increased with a significant decline in number of medium-sized rural settlements, which meant a higher polarization of space.

Figure 3.2.2.
Change in rural population and rural settlements number in Russia in 1959-1989.



Depopulation affected (to varying degrees) small, medium-sized and large rural settlements. Moreover, beginning in the countryside, it has captured many small Russian cities. In addition to the quantitative changes, the significant qualitative transformations happened: in many regions urban population was characterized by healthier demographic characteristics than rural ones, such as fertility rate, age structure, family size etc. Such metamorphosis occurs in the population, which reached some limit for the area and this time. The restored degraded settlement system is unlikely (at least under the existing conditions and territory management schemes) or requires a level of activities, which are not comparable with what was previously possible and sufficient. In general, the process of depopulation of rural areas in Russia can be divided into three stages: stage of outflow, stage of unstable destruction of the settlement structure and the stage of its sustainable destruction (Lukhmanov, 1996).

The problem of small settlements with a population number less than 20,000 people became very important in the 1970s. The total number of such settlements of an urban type reached 5,000 in that period. Small cities and towns were losing young people as fast as the villages, many of them have become something of a transfer station on the way from the villages to the larger and biggest city (Gutnov and Glazychev, 1990). At that period, it became clear to the planners, that consideration of such settlements developed separately from the development of the areas of their location and the network of local settlements could not be sufficient. Consequently, planners started to consider small urban settlements through their role of service, leisure and cultural centers for the surrounding agricultural areas. Thus, in new approaches to planning, small urban settlements were integrated in a larger structure including the local

settlement system, forest cordons, railway stations and sidings linking them to the road, state forests and rural lands etc. (Gutnov and Glazychev, 1990).

However, the policy of “unpromising villages”, already proven to be ineffective in the past, is now again being discussed in public debates of modern Russia in attempts to find solutions for the shrinking network of “unpromising cities”, in which more than 16 million people are living.

3.2.3. *Post-Soviet period.*

The socioeconomic transition obviously has affected the Russian urban planning system, the transformation of which requires time: urban planning lost its position in a highly centralised integrated socioeconomic planning of the Soviet Union and became a separate branch of physical planning under new conditions, serving land property and land use regulation. The process went through a ‘no-planning’ period when strong belief in market regulation ability weakened the state’s role in that process and was accompanied by a constant change of laws and norms regulating planning. Urban planning legislation was created from zero, because during the Soviet period with the state as the only one actor in this field, it did not need any regulations and only with the appearance of private property did this necessity appear. The above transformations are also linked to the redistribution of power between territorial levels of governance. Providing the idea of the self-governance of development, the state reorganised the regulation of the functions of local authorities. However, now there is still a significant contradiction between the existing budget policy, the subordination model and the intention of the national government to push municipalities into the development of their strategic vision and strategic planning. The municipalities should take responsibility for their future while very often they do not have enough sources for it nor financial nor human.

In the Russian planning system, two types of planning exist in a parallel way: socio-economic planning (strategic planning) and territorial (spatial) planning. Both types of planning are carried out at four levels of governance: national, regional and two municipal (level of municipal districts and the level of urban okrugs and settlements). Territorial planning is dependent on socio-economic planning: the Urban Planning Code (Federal Law № 190-FZ) sets the priority of the socioeconomic planning over the territorial planning.

“preparation of territorial planning documents should be implemented on the basis of strategies (programs) of development of individual sectors of the economy, the priority national projects, international programs, programs of socio-economic development of the Russian Federation, plans and programs of socio-economic development of municipalities (if available)” (Urban Planning Code of Russian Federation).

Thereby, spatial planning documents should define the functional zoning of territories, the location of infrastructure and housing to match the general strategic vision of future socio-economic development. Accordingly, regarding urban planning’s orientation to regulating the city’s physical shape, it remains ‘Soviet’, which considered a city ‘an engineering system rather than a social organism’ (Golubchikov, 2004). In reality, the very general character of socioeconomic planning documents accompanied by the absence of any measurable indicators to link them to the spatial ones does not permit to express the aims and tasks of socio-economic planning in the cityscape. The demographic issues are tackled differently in socioeconomic and

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spatial planning documents. The main difference is in the territorial blindness of socioeconomic planning documents and the contrary neglect of available economic, organisation and human sources necessary for the implementation of the territorial plan in spatial planning documents.

The development of planning process regulations has been slow and uneven. Thus, the territorial planning at all levels of governance became mandatory with the adoption of Urban Planning Code in 2004, while the law about strategic planning was approved in 2014 (The federal law №172 from 28/06/2014 “On the strategic planning in the Russian Federation”). The Urban Planning Code makes development of spatial planning documents obligatory for every administrative unit of Russian Federation from the national level to the municipal one, while according to the law “On the strategic planning in the Russian Federation”, the development of socio-economic strategy for the municipality is not mandatory and depends on the local policy-makers’ decision. In practice, the municipal districts, large cities and urban okrugs mainly have developed their strategies, while for most small and medium-sized cities, spatial planning remains the only document including long-term strategic visions.

The consideration of the demographic issues is different in planning documents at a various level as well (table 3.2.2). Since demographic policy in Russia is an important concern of the national policy, evolved as an independent direction out of socioeconomic or spatial planning and then developed at the level of regions, normally planning documents do not offer special solutions to address population decline, which is different from the demographic policy. Unfortunately, both socioeconomic and spatial planning do not adapt demographic policies to link them to the specific territories and to find a form of the territorial expression of those policies. The socioeconomic planning at all levels operates by general aspects affecting the demographic situation, such as economic development or health care. When (if) those documents include demographic projections, they usually just stress that a regional government or local authority should pay attention to the population decline and offer a set of typical solutions (investments, economic diversification, death number decrease through healthcare improvement, increasing birth rate by financial support of women or propaganda of traditional family model, etc.). Normally those solutions are too generic and do not make a difference depending on the regional or city specificity, while those particularities can change problems significantly, which should be addressed as we may observe from the international experience and further investigation of the cases. In spatial planning documents, the demographic analysis and projection become necessary at the settlement’s level only, because it serves as a basis for the calculation of designed housing and infrastructure.

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Table 3.2.2.

Comparison of the demographic issues consideration by socioeconomic and spatial planning at different levels.

Socio-economic (strategic) planning	Spatial planning
National level	
General measures influencing demographic development: healthcare, social infrastructure, emergency prevention, security and etc.	Sectoral plans (plans for educational facilities, transport system development, etc.)
Regional level	
Measures influencing demographic development: healthcare, social infrastructure, emergency prevention. No consideration of spatial features.	Territorial plan aimed mainly at infrastructure development outside settlements' border and determination of settlements' hierarchy.
Municipal level	
Measures influencing demographic development: healthcare, social infrastructure, emergency prevention. No consideration of spatial features.	Demographic trends are used to estimate housing needs according to state requirements (future population number multiplied by required/desired housing floor area square meters per capita). Following calculation of need in social, technical and transport infrastructure.

Both socioeconomic and spatial planning documents regarding managing of demographic decline will be analysed afterwards with respect to all the levels of governance for the case of southern Russia: national, regional and municipal. Despite this, it is important to mention other current and past state initiatives attempting to address spatial unevenness in country's demographic development and strong population decline in particular areas.

Strategic planning in Russian Federation.

Strategic planning in Russia is quite a new phenomenon. Until the end of the 1990's, the national and regional governments had been operating by such terms as money supply, exchange rate or share of the federal budget in terms of GDP (Knyaginina and Lipetskaya, 2008) without considering regional variety. However, since the beginning of the 2000s, the amount of investments in the Russian economy had been increasing the required managing and planning of available resources to stimulate further development. Thus, in 2005 the "Concept of the Strategy of socioeconomic development of Russian regions" (Концепция развития регионов «Стратегии социально-экономического развития регионов Российской Федерации») created and later, in 2006, the "Technical standards for the formation of strategy for socioeconomic development of the RF subject" (Технические стандарты разработки стратегии социально-экономического развития субъекта РФ) appeared. Since this period, the strategies of socioeconomic development approved at national and regional levels in most Russian regions, while strategic planning at municipal level became relevant much later.

Presently, the regulations, creating a framework for the current strategic planning in Russia are following:

- Federal Law of June 28, 2014 № 172-FZ "On the strategic planning in the Russian Federation" (Федеральный закон от 28 июня 2014 г. № 172-ФЗ «О стратегическом планировании в Российской Федерации»).
- Fundamentals of strategic planning in the Russian Federation, approved by Presidential Decree of May 12, 2009 № 536 (Основы стратегического

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планирования в Российской Федерации, утвержденные Указом Президента Российской Федерации от 12 мая 2009 г. № 536).

- Russia's National Security Strategy, approved by Presidential Decree on 31 December 2015 № 683 (Стратегия национальной безопасности Российской Федерации, утвержденная Указом Президента Российской Федерации от 31 декабря 2015 года № 683).
- The concept of long-term socioeconomic development of the Russian Federation for the period until 2020, approved by the Federal Government on November 17, 2008 № 1662-г (Концепция долгосрочного социально-экономического развития Российской Федерации на период до 2020 года, утвержденная распоряжением Правительства Российской Федерации от 17 ноября 2008 г. № 1662-р).
- The decrees and instructions of the President of the Russian Federation in the sphere of socio-economic development.

The Federal law "On the strategic planning in the Russian Federation", being now the main document on strategic planning, approved in 2014. Accordingly, very few documents created in the framework of this new regulation. Importantly, the law defines hierarchy and typology of the strategic documents in Russian Federation, which for the national and regional levels are presented in the table 3.2.3.

*Table 3.2.3.
Documents of strategic planning of national and regional level.*

Category of the strategic planning document	Type of the planning document	The period for which the document should be developed
National level		
Developed for the definition of objectives	The annual message of the President of the Russian Federation to the Federal Assembly of the Russian Federation on the situation in the country and the main directions of domestic and foreign policy	One year
	Strategy for Socioeconomic Development of the Russian Federation	12 and more years
	Russia's National Security Strategy	12 and more years
	The strategy of scientific and technological development of the Russian Federation	12 and more years
Developed for the definition of objectives on a sectoral and territorial principle	Sectoral documents of Strategic Planning of the Russian Federation	12 and more years
	Spatial Development Strategy of the Russian Federation	12 and more years
	Strategy of socio-economic development of the macro-regions	12 and more years
Developed in the framework of forecasting	Forecast for Scientific and Technological Development of the Russian Federation	12 and more years
	Strategic forecast of the Russian Federation	12 and more years

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Category of the strategic planning document	Type of the planning document	The period for which the document should be developed
	Forecast of socio-economic development of the Russian Federation for the long term	12 and more years
	Budget forecast of the Russian Federation for the long term	Six years and more
	Forecast of socio-economic development of the Russian Federation in the medium term	3-6 years
Developed in the framework of planning and programming	The main directions of the Russian Federation Government activities	Six years
	State programs of the Russian Federation	Defined by the government
	Schemes of Spatial Planning of Russian Federation	20 years and more
	Plan of the federal executive authority activity	Six years
Regional level		
Developed for the definition of objectives	Strategy for Socio-Economic Development of the Subject of Russian Federation	12 and more years
Developed in the framework of forecasting	Forecast of socio-economic development of the subject of the Russian Federation for the long term	12 and more years
	Budget forecast of the subject of the Russian Federation for the long term	Six years and more
	Forecast of socio-economic development of the subject of the Russian Federation for the medium term	3-6 years
Developed in the framework of planning and programming	Action Plan to implement the strategy of socio-economic development of the subject of the Russian Federation	For the period of the strategy's implementation
	State program of the subject of the Russian Federation	Defined by the regional government
	Scheme of territorial planning of the subject of the Russian Federation	20 years and more

According to the law, the system of strategic planning represents a complicated structure at the national level, which at the regional level becomes notably simpler. In this system of strategic planning two innovations for the Russian legislative system are remarkable in terms of bridging the gap between socioeconomic and territorial planning in Russia: 1) for the first time in this new history, the documents of spatial planning are included in the category of strategic planning; 2) a new strategic document, Spatial Development Strategy of the Russian Federation, appeared in the state legal framework. However, strangely, the municipal spatial planning documents are not included into the category of strategic documents. Accordingly, the gap between socioeconomic and spatial planning persists at the municipal level, where decisions on territorial development are the most concrete and physically expressed.

Strategy for Socio-Economic Development of the Russian Federation.

The current Concept of the Russian Federation for its long-term socioeconomic development for the period until 2020 was approved in 2008. In this document, much attention has been paid to the demographic problems, and the demographic policy is placed in the first position among the steps for the potential human development. However, the demographic situation is discussed for the whole country without considering regional aspects and the territorial distribution of population. Therefore, the measures of the strategy are oriented to the improvement of indicators of natural population growth mainly, such as increasing the birth rate and decreasing the death rate through the development of the health care system, preventing emergency situations etc. International migration is also seen as a tool to better the demographic situation within Russia. However, this tool is now seen as secondary as the Russian government still orients towards the use of internal country resources.

Further evaluation of the strategic documents at the national and the regional levels includes those coping with the issue of population decline in a varying degree.

The strategy of Spatial Development of the Russian Federation.

A fundamentally new document type for the Russian Federation (after the end of socialism), the Strategy of Spatial Development of the Russian Federation combined the approaches of strategic and spatial planning, designed to be a "projection" of socio-economic development priorities of the territory, to assess the current settlement system in the Russian Federation and to give proposals for its harmonization". In August 2015, the Resolution of the Russian Government № 870 "On the content, composition, procedure development and approval of the spatial development strategy, as well as on the procedure for the monitoring and control of its implementation" approved. According to this document, the Strategy of Spatial Development should be oriented to the improving the system of settlement in the territory of the Russian Federation and distribution of economic activities and infrastructure based on the consideration of the regional aspects. These positions refer to the existing in USSR practice of territorial planning, where allocation of economic activities and of the population had been prevailing.

The Concept of the Strategy until 2030 was developed in 2016, and is now in the process of public discussion. This document defines the main five challenges for Russian spatial development, among which the demographic issue is not mentioned. However, the first listed challenge called "centripetal vector of development", which provokes a concentration of population in larger cities, consequent "shrinkage of space" and overgrowth of peripheral areas. The second listed challenge is uneven regional development, which the authors link to the first one. The Russian demographic situation is called "stable in general and unfavourable in most regions". The main cause of the depopulation in the regions is seen in uneven economic development that again confirms the imperfection of the existing planning system in Russia and its inability to consider multifactorial aspects of the current challenges. Accordingly, the offered strategic variants are oriented on the alignment of development, stabilisation of population growth in the Moscow region and stimulating population growth in regional agglomerations. The factors of natural population growth are not mentioned among the risks or limits of the strategy implementation.

Thus, we observe a contradiction between strategic planning documents at the national level and their blindness to the complexity of the demographic decline, its influence on the settling structure and a necessity to consider that affect in territorial planning.

Regional Strategies of socioeconomic development, the example of southern Russian regions.

The Federal Law as “strategic planning documents developed within the framework of the goal setting” classifies the regional strategies of socioeconomic development. According to the requirements to those documents set by the law, a regional strategy should include an assessment of the achieved goals of social and economic development; priorities, goals, objectives and directions of socioeconomic policy; target indicators; expected results of strategy implementation; assessment of financial resources necessary for a strategy implementation; and information on regional programs approved for the purpose of the strategy implementation. However, the federal law is oriented to the specification of the requirements to the document in the regional regulations, on which basis the strategies should be developed. The federal law set a dependence of the regional spatial planning documents, which should be developed on the basis of the strategies. The regulation supposed to construct a hierarchy of the planning documents distinguishing tasks every level has to address. Somehow, such system had been used during the Soviet period. However, currently, it does not work very well due to many factors: a weaker subordination hierarchy between different levels of governance than in the past; weak correlation between sectoral planning of different ministries; gaps and mismatches in national and regional regulations; absence of requirements to the documents’ development order and any monitoring system. In practice, there is little correlation between strategies of socioeconomic development and spatial planning documents, because usually different ministries are responsible for their development.

Between the national strategies and the regional ones, there is also a level of the federal districts, at which the strategies develop. This level is also considered “national” because a “federal district” structure was created to support vertical of executive power and provide national policy into regions. Within the area of investigation in 2005 was created as the Strategy of Southern Federal district, but after the division of Southern Russia into two federal districts, the new strategies were developed for both new units.

The Strategy of socio-economic development of the Northern-Caucasian Federal District (NCFD) until 2025 was created in 2010. The document is quite general and descriptive; it represents a collection of the indicators and characteristics of the different economic and social sectors of development. A small part of the analysis is dedicated to the demographic development. Seen from the presented data a huge contradiction between the demographic situation and economic development is the brightest example of the absence of direct relation tip between them. Thus, the Northern Caucasian economy is characterized by the agricultural sector prevalence in gross regional product, which share is about 22 percent (while in the Russian Federation as a whole its share is 5 percent). The most illustrative factor about the regional economic development is that the main contribution to the gross regional product makes the sector of public administration and the social services (including the municipal level), which share in the GDP is up to 55 percent (while in the Russian Federation as a whole its share is 16 percent). The document emphasizes a very high level of unemployment in the North Caucasus Federal District that varies officially from 8% to 55%, which is 1.5 - 9 times higher than the national average. There is also a hidden unemployment and a large percentage of employment in low-

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paid sectors of the economy. Accordingly, the very low indicators of quality of life characterizes all the regions of the Northern-Caucasian district. On the background of such a negative economic situation, the NCFD demonstrates the best demographic indicators in many positions. Thus, by the fertility rate, it occupies the first position in the country ranking. The mortality rate in the North Caucasus Federal District is the lowest in the Russian Federation, while the value of life expectancy of the population is the highest in the country. However, the negative economic situation provokes job related out-migration, which is the main negative demographic trend in NCFD regions.

No described factors were analyzed deeply in the document and no specifications about different regions were provided, when in reality not all of them represent positive demographic situation, which is particularly the case for the remote mountain areas. In the strategic goals, measures and target indicators, demographic aspects are not mentioned at all, as well as the territorial aspects. Offered goals of the future economic development are quite banal and general, including such positions as “environmentally friendly production”, “tourism” etc. If in the previous Strategy, created in 2005 for the Southern Federal District, the deficit of labor forces and, especially, of skilled workers was marked a threat for the future economic development, the current Strategy does not pay attention to the same aspects. At the end, the “strategic actions” represent a set of actions defined by the different federal ministries, such as construction of hydro power plants or roads in particular regions. Those actions did not consider the local demographic conditions or aspects of spatial development. The strategy simply ignores those important factors despite on mentioning them when analyzing the current situation, but not one of the three described developmental scenarios includes even demographic indicators.

The Strategy of socio-economic development of Southern Federal District (SFD) until 2020 was created in 2011.

The document emphasizes the internal unevenness of the regional development, highlighting the two different areas: the Azov-Black Sea area with the population of 9.85 million people and the average population density of 53.5 people per square kilometer and the Volga-Caspian area with the population of 3.9 million people and the average population density of 16.4 people per square kilometer. According to the document, such a contrast indicates a significant difference in climatic conditions, socio-demographic and economic potential of the two areas. Immediately after that statement the territorial integration and the balanced development was set as one of the strategic goals.

Among the main threats for the future development, the strategy lists staff shortages and negative changes in the demographic structure of the population. However, the other aspects of demographic development are not considered due to the quite optimistic perception of the Southern Federal District as one of the most attractive area for migrants. The detailed analyses of demographic situation are absent and an assumption about the future is based on the positive results of the previous decades. As we have seen in Chapter 2, southern Russia was attractive for the internal migrants after the collapse of the USSR, but then that process has slowed down significantly. The Southern Federal Districts is attractive for the migrants from the neighbouring Northern-Caucasian Federal Districts due to the better economic development of SFD and redundant workforce in NCFD, but the Southern Federal District is characterized by the worse performance regarding demographic situation. Moreover, many areas in the Southern Federal District experience job-related out-migration in addition to the natural population decline. All those factors mean the demographic development in the area is not as stable as it seems according

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to the strategy's authors. They also see the rural-urban migrations as a positive factor and consider rural areas as a secure demographic resource for the cities located in the SFD. However, the analysis presented in Chapter 2 shows a likely stable long-term population decline in most rural areas of the Southern Federal District. Seeing from the experiences of the other regions, desolation of rural areas negatively affects small cities and drives a continuing natural population decline in larger cities as well. However, the document dedicates a chapter to demographic policy, which repeats the main points from the national demographic policy, such as family support, decreasing the death rate, and employment or migration policies. Again, the Strategy does not specify goals and target indicators according to the regional diversity. Demographic indicators are not included in the list of target indicators. The document ignores the issues of demographic development and population spatial distributions.

In order to illustrate existing approaches to regional strategic planning and also to understand a context, in which the case studies' planning documents were developed, the strategies of socioeconomic development of southern Russia have been analyzed. The strategic documents of 13 regions with different patterns of demographic change and economic development revealed how much planning approaches and tools differ depending on the regional conditions.

To analyze the strategies, the following criteria were used (table 3.2.4):

- 1) Criteria, demonstrating attitude towards demographic processes (presence of the demographic analysis and projection, their quality, their consideration in planning decisions, strategic solutions oriented to the improvement of the demographic situation);
- 2) Criteria, demonstrating attention to the spatial aspects in population development (presence of classification or zoning of the regional territories according to demographic processes, presence of different approaches to the strategic goals formulation according to the demographic development).

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Table 3.2.4.

Perception of the demographic problems in the socioeconomic planning documents in the regions of Southern Russia.

Region	Population change 1989-2015, %	Strategic document	Analysis/projection of the demographic situation in region	Territorial aspects of population distributions and settlements network	Consideration of the demographic issue in the strategic goals and actions
Astrakhanskaya oblast'	+2	The Strategy of socio-economic development of the Astrakhanskaya oblast' until 2020	A short analysis of the current demographic situation, which is evaluated as positive.	No specifications on differences between the municipalities and settlements (some of which experience dramatic demographic crisis).	No specific actions addressing the demographic issue. The Strategy is also territorially blind.
Volgogradskaya oblast'	-1.5	The Strategy of socio-economic development of the Volgogradskaya oblast' until 2025	The detailed analysis of the demographic situation in the region in general and in its different municipalities	Focus on forming of the Volgograd agglomeration (the regional capital)	The Strategy repeats the regional demographic policy; its measures are too general and do not have any specifications according to the municipalities and settlements diversity.
Krasnodarsky krai	+7	The Strategy of socio-economic development of the Krasnodarsky krai until 2020	No demographic analysis or projections	Territorial aspects are mentioned only in relation to the concrete projects determined for implementation	The Strategy repeats the regional demographic policy; its measures are too general and do not have any specifications according to the municipalities and settlements diversity.
The Republic of Adygea	+4	The Strategy of socio-economic development of the Republic of Adygea until 2025	Demographic analysis is presented as well as the population projections for three different scenarios	Analysis of the existing settlements system	Migration is seen as the main solution for the natural decline compensation. Migrants should be attracted by creating additional jobs and environment with high social standards. All the actions are general and do not respond the specific needs of the concrete territories
The Republic of Dagestan	+66	The Strategy of socio-economic development of the Republic of Dagestan until 2025	No demographic analysis or projections	Lack of land resources is mentioned as a problem for the growing population	No specific actions addressing the demographic issue. The Strategy is also territorially blind.
The Republic of Ingushetia	No data	The Strategy of socio-economic development of the Republic of Ingushetia until 2030	No analysis Some data on demographic situation is presented (several indicators without dynamic of their change in time)	Territorial aspects are mentioned only in relation to the concrete projects determined for implementation	Population growth is considered as a factor creating difficulties for employment and maintenance of salaries' high level. However, in indicators for different scenarios bigger

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Region	Population change 1989-2015, %	Strategic document	Analysis/projection of the demographic situation in region	Territorial aspects of population distributions and settlements network	Consideration of the demographic issue in the strategic goals and actions
			Population projection is included into target indicators for three scenarios.		population number corresponds to the lower level of unemployment.
The Republic of Kalmykia	-13	The Strategy of socio-economic development of the Republic of Kalmykia until 2020	A short-term demographic analysis is presented. A positive population projection including one scenario.	Low population density, non-optimal distribution of productive forces, unevenness in municipalities' development, territorial disproportions and lack of water resources are listed among the internal negative factors.	Among strategic goals, there are the development of the scheme of productive forces distribution and regional demographic policy. Focusing the efforts in “growth poles”, defined in the document.
The Republic of Kabardino-Balkaria	+13	The Strategy of socio-economic development of the Republic of Kabardino-Balkaria until 2030	No demographic analysis or projections	Territorial aspects are mentioned only in relation to the concrete projects determined for implementation	Among the strategic goals, the only quality of life and high income are mentioned. No specific action oriented to the demographic situation change of human capital development.
Karachay-Cherkess Republic	+12	The Strategy of socio-economic development of the Karachay-Cherkess Republic until 2035	Demographic analysis is presented, but population projection is not.	Territorial aspects are mentioned only in relation to the concrete projects determined for implementation or possibility to develop specific economic clusters within municipalities	No specific actions addressing the demographic issue. The Strategy is also territorially blind.
Republic of Northern Ossetia-Alania	+11	The Strategy of socio-economic development of the Republic of Northern Ossetia-Alania until 2030	The population is considered as labor force. No detailed demographic analysis or projection are presented.	The Strategy highlights the specific conditions of “mountain areas”, which occupy about 57% of the regional territory and experience long-term shrinkage process (including severing economic decline and depopulation)	The Strategy offers ideas for possible regulation and economic activities in mountain areas; economic development is seen as the main driver of population growth.
Stavropol'sky kray	-3	The strategy of socio-economic development of the Stavropol'sky krai until 2020.	A short-term analysis of the demographic situation. It is noted that natural population decline has been compensating by positive migration rate, but in the future it is unlikely possible. Depopulation is listed among the threats in SWOT analysis	Territorial diversity is used in the construction of “territorial-cluster” approach to the regional economic development. The Strategy emphasizes a negative demographic situation in rural areas, experiencing long-term intensive out-migration.	Demographic situation improvement is one of the strategic goals, In general, the Strategy is more balanced than others are and includes many actions oriented to the demographic situation improvement and increase of the regional attractiveness for the migrants. However, those actions are not

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Region	Population change 1989-2015, %	Strategic document	Analysis/projection of the demographic situation in region	Territorial aspects of population distributions and settlements network	Consideration of the demographic issue in the strategic goals and actions
					specified according to the conditions of particular areas and settlements. The solution of depopulating areas problem is seen in low quality of life and urban environment in rural settlements and, accordingly, a need to create an alternative way of living. The Strategy offers creation in the region of “settlements of the 21 st century” or “agropolicies”
Rostovskaya oblast'	-2	Strategy of socio-economic development of the Rostovskaya oblast' until 2020.	No detailed analysis, the data for two-three years period is presented. However, demographic decline is mentioned among the threats for the future development.	The territorial aspects are mentioned in analysis of the demographic situation in relation of the centre-peripheral development: the Strategy emphasises that the positive processes characterize the only Rostov agglomeration, while the rest of the region is experiencing population decline	The Strategy repeats the regional demographic policy; its measures are too general and do not have any specifications according to the municipalities and settlements diversity.
Chechen Republic	No data	Strategy of socio-economic development of the Chechen Republic until 2025	A short analysis of the current demographic situation. A projected population number is included into the list of the target indicators. No scenarios.	A concise chapter “Spatial analysis” tells about the concentration of economic activities in the regional centre and weak development of the peripheral territories.	Support of the positive demographic trends as one of the strategic priorities, but no specific actions are offered. The Strategy is territorially blind.

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The presented analysis shows that regional strategies differ significantly in their structure, content and consideration of the chosen aspects. All of them are rather characterized by an absence of a comprehensive view, clear definition of priorities in socioeconomic development, weak understanding of the current and future threats and opportunities and unrealistic mechanisms of the strategy's implementation.

Most of the regional strategies except a few documents ignore the demographic issue; do not provide a detailed analysis of the demographic situation and adequate population projections. In some documents, demographic aspects are not included at all in the list of strategic goals and target indicators. In this case, goals of social development, which are set by the documents, do not seem relevant and convincing. Only one strategy of the Stavropol'sky krai places the improvement of the current demographic situation among the priority strategic goals, reinforcing it with the spatial development solutions. Other documents mainly repeat basic points of the national demographic policy. Interestingly, in the Republic of Ingushetia, population growth is mentioned as a factor provoking unemployment increase.

Territorial characteristics are the weak points of almost any regional strategy in Russia. Most concerns are linked to the uneven development within the regional border and concentration of the resources and development in the regional capital. However, most strategies operate with such terms as “growth poles”, which are presented by the same regional centres, often forming an agglomeration of several settlements. Consequently, the strategies usually propose further concentration of activities in those “poles”, which will enhance the polarisation.

Specific policies coping with the demographic issues at national and regional levels in contemporary Russia and their expression in territorial planning.

The demographic development in Russia has been a subject of the national policy for quite an extended period of time: scientists and policy makers have widely discussed the Russian demographic crisis, it is considered as a factor influencing national security, and the level of awareness about the problem is quite high. The policies at different levels of governance in Russia dealing with demographic problems are represented by demographic, social and family policies addressing various aspects of demographic development. Thus, demographic policy aims to affect self-reproduction of the population: the focus of demographic policy is the natural aspects of population reproduction. Social policy deals with employment, level and quality of life, support of the social sphere and prevention of social conflicts. Family policy as a part of social policy focuses on support for families, strengthening of the family institution, development and protection of its rights and interests, development of legal regulations and social guarantees. All three directions of governmental policy are strongly interconnected. Nevertheless, their components are represented variously in regional and municipal policies: regional governments and local authorities see the priorities in the development of policies affecting demographic development in different ways. This specific attitude is implemented in the structure of government and local authorities and the presence of departments is dedicated to particular aspects of demographic question.

Demographic policy concept of the Russian Federation for the period until 2025.

In 2007, the principal document of Russian national demographic policy was approved: **“Demographic policy concept of the Russian Federation for the period until 2025”**, which had as goal the improvement of the main demographic indicators. The specificity of the demographic policy is its orientation to improving the indicators of the natural population change, such as birth and death rate, lifetime, marriage and divorce rate, family size, health etc. Migration is mentioned as a part of the demographic policy, but in reality, very little attention is paid to migration policy as a tool of demographic compensation in depopulating areas. Different programs and initiatives have been implemented as the development of the Demographic Policy Concept, such as the provision of maternal capital or free plots of land provided for housing construction. The demographic policies, both at the national and regional levels envisage the work of many ministries and consider many aspects influencing demographic development that are resulted at the local level in the development of social infrastructure, housing construction support or financial help to families. Importantly, those measures of the demographic policy are equal for all Russian citizens and do not consider territorial aspects and do not even consider existing differences in the demographic development of Russian regions. Thus, for example, a support of childbirth in the regions characterised by a high birth rate, but losing population due to poor economic development and following job-related out-migration, are unlikely to be effective. The national demographic policy has been reflected in different national projects (such as “Health”, “Education” or “Housing”) and in special federal and regional programs.

The effects of the national policy are questioned and discussed by demographers: there is no clear answer if the recently improved demographic situation has been the result of the national demographic policy or if it was the natural consequence of the demographic structure change of the Russian population. Nevertheless, this policy has been supported at the regional level in all subjects of the Federation. Although the regional policies supposed to specify and concretise the national policy, the analysis of those attempts shows they mainly copy the general positions offered by the national policy.

Separately, the **Concept of the state migration policy of the Russian Federation for the period until 2025** developed in 2012. This document has become the first state document oriented to the increasing of the country’s population number through the attraction of international migrants by emphasising migrants’ economic function. The core provisions of the concept is the claim that “foreign workers ... in accordance with the needs of the Russian economy is a necessity for further progressive development.” Returning to the Russian compatriots of the migrants who decided to stay and live and work in Russia, as well as educational migration are the only source of replenishment of the natural loss of our population of working age”. It is linked to the projections of the Federal state statistic service, according to which the number of labour resources will decline by five million people in 2015-2020 (considering the fact they decreased by four million people in 2011-2014). However, the new policy until now does not change significantly the official migration, which remains almost at the same level (while illegal immigration has risen dramatically according to experts’ estimations). Despite the understanding of the economic significance of migrants, Russia does very little for their adaptation and change of population’s perception of immigrants as a threat to the Russians’ well-being. Again, the state migration policy does not consider the territorial aspects.

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In addition to the development of national strategies and programs, the state tried to create a framework for the implementations of the similar regional strategies that could focus on particular regional problems in demographic development. However, this process was very slow and many regional demographic policies copy the national documents.

Thus, in 2005, the Russian Ministry of Emergency Situations published a monograph “**Russia’s Strategic Risks: Estimation and Forecast**”. This document places the current demographic situation in Russia among the strategic risks for the country. What was important in this document, is the indicators of demographic development, offered for the evaluation of the existing risks for the future development and the target indicators setting. Those indicators can use any administrative unit preparing documents of strategic or territorial planning.

In 2012, the Ministry of Labor and Social Protection of the Russian Federation decided to analyze the experience of the Russian regions in development and implementation of the demographic policies to publish after the “**Guidelines for the Development of Regional Demographic Programs**” based on that experience. The guidelines include recommendations for the demographic analysis and projections, goals and objectives for the demographic programs, priority areas, measures and evaluation of demographic development programs

Analyzing approved by the regions documents, the “Guidelines” concludes that in practice, the development of the regional concepts are marked by common mistakes:

...mechanical transfer of the provisions of the federal concept of demographic development of the Russian Federation, although the semantic content of the concepts of demographic development at the federal and regional levels must be different; a mixture of conceptual issues with the program, i.e., in an attempt to turn the concept of demographic development on its implementation.

Several statements linked to the regional and territorial aspects of the demographic development are critical in this document. For example, it states that the planning of population growth based on in-migration for the areas already attractive for the internal migration due to their role as economic centres, does not correspond to the geopolitical interests of the state. This statement refers to the balanced development of the Russian territory and the economic tools of the demographic processes managing. Another one claims: it is not appropriate to set the stabilization in population number as the target goal, if it is not possible at all (due to the current gender and age structure of the population) in the real perspective of fertility changes, mortality, and migration increase, even in the case of very active and effective population policy. The second statement calls for the realistic assessment of the demographic situation and the consequent planning based on the realistic view. In general, the document admits the impossibility to turn the current depopulation in many regions into population growth. However, those recommendations are not obligatory and can serve in a case of adequate perception of the current situation by the regional government and its attempt to develop a program addressing the real problems.

Regional demographic policies.

The analysis of the presence and the contents of the current regional policies in the example of southern Russia demonstrates the very different approaches to the organization of the regional government structure and the defining of the departments responsible for the demographic policy. In most regions of southern Russia, the different departments of the Ministry of Labor and Social Development are responsible, but in four regions out of 13, a special

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department is absent (including the Republic of Kalmykia, where the demographic situation is critical). The demographic policies are absent in several regions as well, or are presented by the “action plan” of the implementation of the national policy.

Table 3.2.5.

Regional demographic policies and related governmental department in the regions of Southern Russia.

Region	Population change in 1989-2015, %	Demographic development program or strategy	The presence of the relevant ministry for population policy or independent agencies	The presence of the competent ministry for family policy or independent agencies
Astrakhanskaya oblast'	+2	An action plan for the implementation of demographic policy of the Russian Federation	-	The Department of Family Policy in the Ministry of Social Development and Labor
Volgogradskaya oblast'	-3%	-	-	-
Krasnodarsky kray	+7	The regional target program "On improving the demographic situation in the Krasnodarsky kray in 2011-2015."	-	The Ministry of Social Development and Family Policy
The Republic of Adygea	+4	The departmental target program "State stimulation of population growth in the Republic of Adygea" for 2013-2015	-	The Department of Children, Women and Family in the Ministry of Labor and Social Development of the Republic of Adygea
The Republic of Dagestan	+66	-	-	-
The Republic of Ingushetia	No data	-	-	-
The Republic of Kalmykia	-13	The comprehensive program to improve the demographic situation in the Republic of Kalmykia, 2008-2011	-	-
The Republic of Kabardino-Balkaria	+13	The Republican target program to improve the demographic situation in the Kabardino-Balkarian Republic for the period till 2015	-	-
The Karachay-Cherkess Republic	+12	The Republican target program "Demographic Development of the Republic of Karachay-Cherkessia to 2015."		The Department of Family in the Ministry of Labor and Social Development
The Republic of Northern Ossetia-Alania	+11	Republican target program "Improvement of the demographic situation in the Republic of North Ossetia-Alania» in 2008-2010		The Department of Family and population policy and social support to families with children under the Ministry of Labor and Social Development
Stavropol'sky kray	-2	Action Plan to improve the demographic situation	Department of Demography and human resources at the Ministry	The Department of social support for families and children in the Ministry of

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Region	Population change in 1989-2015, %	Demographic development program or strategy	The presence of the relevant ministry for population policy or independent agencies	The presence of the competent ministry for family policy or independent agencies
		in the Stavropolsky kray in 2011-2015 "	of Labor and Social Protection	Labor and Social Protection
Rostovskaya oblast'	-2	Demographic policy concept of the Rostov region for the period till 2025	Department of Demography, labour and development of personal potential in the Ministry of Labor and Social Development	-
The Chechen Republic	No data	-	-	The Department of Family Policy of the Ministry of Labor and Social Development

The analysis of the policies' content shows that in the majority of subjects they simply translate the one proposed by the federal centre social support for the families. As a rule, the demographic and family policies in the regions are reduced to the fact that local governments act only as the operators of the federal budget on the distribution of "mother's capital", the distributor of allowances for child care, birth certificates, compensation costs for parents on preschool education, and distribution of the regional budget to equip health facilities for a particular profile (perinatal centers, cancer centers, maternity hospitals and clinics).

Spatial planning system and documents.

Development of spatial planning regulations has a longer history in contemporary Russia compared to strategic planning and is closely linked to the private ownership of land appearance and regulation of land relations development. The regulations of land relations for an extended period of time were the basis for any kind of urban development. Thus, in 1990, for the first time in the new Russian history, rent and payments for the land were set. In the same year, the law "On Land Reform" was enacted, in which there was the first legislative fixation of private land ownership. Nonetheless, the Russian Constitution of 1990 established a 10-year moratorium on the right to dispose of land. In 1991, a new Land Code was enacted, but it still was limited by a 10-year moratorium set by the constitution. In 1992, many amendments to the Constitution were made, allowing citizens to purchase and sell land in four cases: private farming, gardening, dacha construction and individual housing construction. In 1993, a new constitution that fixed private land ownership rights was adopted. All the same, until 2001, the privatisation process and development of private property rights were governed by presidential decrees that made a lot of contradictions and inconsistencies. Finally, in 2001, a new Land Code enacted, which became a base for the current model of land relations in Russia. Therefore, within ten years after the Soviet Union collapse, Russian land law experienced a significant transformation.

In contrast, planning law was almost entirely out of the state's interests. As it was mentioned above, during the Soviet period there was not any kind of regulations for planning and it had to be created without reliance on the Soviet legacy. New Urban Planning Codes were enacted in 1998, but it could not play a visible role on a background of rapidly changing land legislation. It became just a formal framework for spatial planning projects. In fact, during the last decade of the twentieth century, the cities almost had not been developing any urban projects. Experience of work with many cities showed only individual projects were prepared during that

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time. Moreover, those rare plans simply could not be approved in the conditions of law transformations and were not legitimate.

The unplanned period has been resulted in many problems still relevant nowadays:

- destruction of the planning system in general including all its components (project institutions with accumulated archives and data, multi-stage system of vocational education, scientific organisations);
- an extended period of absence of state requests for the design and research led to the loss of skilled personnel in the field of urban planning;
- uncontrolled land privatisation in the lack of planning documents led to many urban planning mistakes, such as construction in contravention of rules, construction in the corridors of engineering and transport communications, loss of public spaces;
- continuing extensive spatial development of settlements despite declining population due to the priority of land laws and use of land as a new resource for enriching.

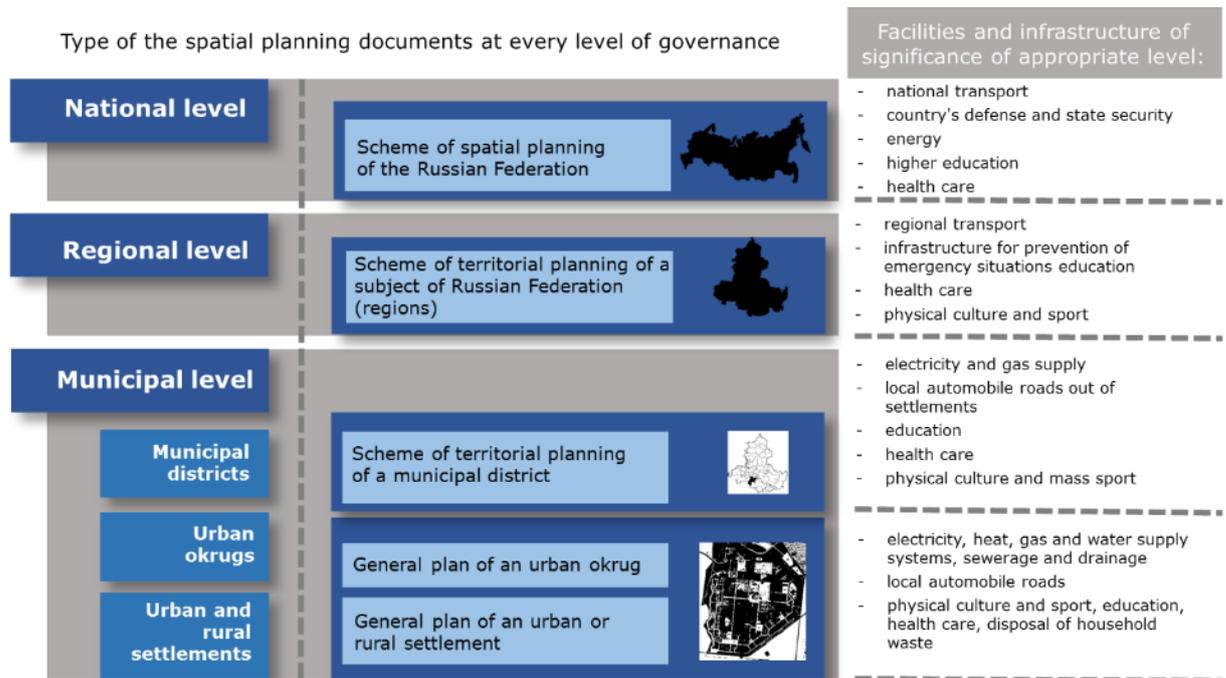
Enacted in 2004, the new Urban Planning Code became a starting point for the contemporary period of planning. The most important initiative of the new code was legislative bans on any operations with land in the absence of planning documents prepared by the new legislation. Therefore, the new code somehow set limits for uncontrolled land use. From that moment, preparation began for a large-scale campaign of the regional and urban spatial planning documents. Today every region and municipality in Russia have new documents regulating their spatial development approved by new legislation (see figure 3.2.6).

Enacting of the Urban Planning Code in 2004 did not change the main peculiarity of the modern Russian legislative system characterised by continuing a priority of land law and land relations over the urban planning law. It is seen as a big difference in the development of land and urban planning law. If the land law is supported by the creation of many additional regulations, requirements, structures, information systems, the urban planning legislation is still presented by just one framework law and a couple of optional methodical documents, describing formal requirements to the projects. During the ten-year period after its enacting, the Urban Planning Code was significantly transformed by a large number of amendments that made its implementation more difficult for planners as well as for local authorities. At the same time, according to the current version of Russian Urban Planning Code, the main purpose of spatial planning documents is the provision of land and building permits. It does not provide conditions for the comprehensive strategic planning and solving of complex issues.

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Image 3.2.3.
Spatial planning documents in Russia according to Urban Planning Code.



The situation is aggravated by the absence of any qualification requirements from the state to planning bureaus and individual planners, as well as control over the quality of created general plans. A typical procedure of a general plan preparation is that a city (municipality) puts up the ordering of the development of a general plan onto an auction. The winner is a bureau, which charges less for the work, usually regardless of its professionalism and experience.

The idea of the current Russian planning system is in the possibility to specify the general planning law in the development of the regional documents. Thus, every region can create its urban planning law specifying urban planning activities in the particular regional conditions. Unfortunately, despite the fact that all regions in Russia have created such regulations, they do not differ too much from the national Urban Planning Code. The reason is in the high centralisation and absence of real regional independence in lawmaking, but also sometimes the inability and unwillingness of the regional governments to take this responsibility.

At the regional level, two documents are relevant regarding managing of demographic issues and territorial development of settlements: the regional standards of urban planning and the schemes of spatial planning of regions.

Regional standards of urban planning.

The regional standards of urban planning should establish a set of calculated indicators characterising the minimum level of provision of the objects of regional importance (which are defined by the special law, but normally they are infrastructural elements). A number and a capacity of such objects are calculated on the basis of population number. In practice, the regional standards might include specific requirements to the urban environment and set target indicators of urban development (such as housing and infrastructure provision or characteristics of urban microclimate and so on), might provide definitions for the elements of urban environment (or

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even define “urban” itself). The last edition of the Urban Planning Code has left only the possibility to calculate a capacity and accessibility of providing infrastructural objects. Among the analyzed regional standards in southern Russia, no one includes any specific target indicators for planning under conditions of population decline.

Territorial planning at regional level, the example of Southern Russian regions.

A scheme of the territorial planning on the subject of the Russian Federation according to the Urban Planning Code should serve for the design of infrastructure at the regional level with appropriate justifications. It should be based on a regional strategy of socioeconomic development. However, there is no detailed explanation of the required content for the documents. In practice, the regional spatial planning document became one of the first attempts to plan future for the administrative units under modern conditions. Most of those documents were developed in the first years of the Urban Planning Code and became experimental planning documents not for the regions only, but also for the national government. That is why they are very different in used approaches, structure and contents.

The presented below table 3.2.6 includes the results of the analysis of the schemes of spatial planning content, which were developed for the regions of southern Russia. The analysis is conducted with the use of the same criteria as were used for the strategies’ investigation.

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Table 3.2.6.

Perception of the demographic issues in the regional spatial planning documents in Southern Russia.

Region	Population change 1989-2015, %	Spatial planning document	Analysis/projection of the demographic situation in region	Territorial aspects of population distributions and settlements network	Consideration of the demographic issue in the strategic goals and actions
Astrakhanskaya oblast'	+2	The Scheme of territorial planning of the Astrakhanskaya oblast'	Short-term demographic analysis, no population projection. The current demographic situation is considered as positive, despite the fact that many municipalities experiencing a dramatic population decline.	The document does not mention demographic issues of particular municipalities in the region. It sees the demographic development of the regional capital as potential of its future economic development. No attention is paid to the peripheral depopulating areas.	Strangely, but the territorial plan is territorially blind as well as the strategy of socio-economic development. The population is seen as labour force, and its predicted number is used while calculating infrastructural needs and location future economic activities.
Volgogradskaya oblast'	-1.5	The Scheme of territorial planning of the Volgogradskaya oblast'	Long-term demographic analysis. The document uses a population projection developed by the Federal State Statistic Service (10-year period and three scenarios): it predicts further population decline according to all scenarios.	The document emphasises a necessity to "stop" the centripetal tendencies by development of peripheral rural areas.	The document does not provide any specific solutions for the shrinking areas except the claim that development of peripheral rural areas should be implemented through the construction of transport and technical infrastructure. It also repeats the statement about successful economic development as a guarantee of the regional demographic stability
Krasnodarsky krai	+7	The Scheme of territorial planning of the Krasnodarsky krai	Long-term detailed demographic analysis. Population projection for the 30-year period includes three scenarios. The negative scenario predicts population decline, the other two project population growth. The document chooses the medium scenarios, in which expected population growth is not significant and close to stabilisation in population number.	The spatial distribution of population and settlements is analyzed from the point of view of infrastructure's optimisation and opportunities for economic activities. There is no determination of areas according to the specificity of demographic development and no settlements classification. However, the document emphasises the issue of population decline in the inland areas of the region.	Since the document labels the current demographic situation in the region as favourable, there are no specific solutions regarding it or territorial population distribution. The population is rather seen as labour force, and its predicted number is used while calculating infrastructural needs and location future economic activities.
The Republic of Adygea	+4	The Scheme of territorial planning of the Republic of Adygea	A detailed demographic analysis for the period more than 15 years. Population projection for the 20-year period includes three	The document confirms the concentration of development in the regional capitals of the Republic and the neighbouring Krasnodarsky krai	The offered measures oriented to the population stabilisation are linked to the economic development and increase of life quality. Thus, the spatial plan promotes active development of touristic activities in

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			scenarios. The negative scenario predicts population decline, the other two project population growth. The document chooses the medium scenarios, in which expected population growth is not significant and close to stabilisation in population number.	and negative processes in the southern mountain areas.	the southern mountain areas. In the other peripheral territories, the document focuses on the provision of technical and transport infrastructure.
The Republic of Dagestan	+66	The Scheme of territorial planning of the Republic of Dagestan	A long-term demographic analysis. Several scenarios of population projection for a 30-year period, all scenarios are positive.	The document emphasises disproportion in territorial development of the region and its population distribution and particularity of the mountain area. It also claims the necessity to consider ethnic factors in planning due to polyethnic structure of the population.	No special measures are offered for the management of population distribution. However, high dynamic of population growth and high settlement density are seen as positive factors for the development of mountain areas for touristic purposes. Rising population according to authors requires also forming additional settlements-service centres in peripheries.
The Republic of Ingushetia	No data	The Scheme of territorial planning of the Republic of Ingushetia	The analysis of the current demographic situation demonstrated the absence of the adequate data for the prognosis. Authors used official projections for the region, created by the Federal State Statistic Service and predicted further population growth.	The specificity of mountain areas is emphasized in the document in relation to the population distribution.	There are no actions designed for the transformation or optimisation of the settlements' networks except the development of transport and engineering infrastructure.
The Republic of Kalmykia	-13	The Scheme of territorial planning of the Republic of Kalmykia	A long-term demographic analysis. Population projection for a 20-year period, three scenarios. The negative scenario predicts population decline, the other two project population growth. The document chooses the medium scenarios, in which expected population growth is not	Uneven development and unequal distribution of population and settlements, low density of settlements and transport infrastructure are defined are mentioned among disadvantages of the region.	There are no special measures for the vast declining areas since the scenario with population stabilisation was chosen for the spatial planning. The document promotes the development of the additional economic centres in the peripheral areas.

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Region	Population change 1989-2015, %	Spatial planning document	Analysis/projection of the demographic situation in region	Territorial aspects of population distributions and settlements network	Consideration of the demographic issue in the strategic goals and actions
			significant and close to stabilisation in population number.		
The Republic of Kabardino-Balkaria	+13	The Scheme of territorial planning of the Republic of Kabardino-Balkaria	A long-term demographic analysis with the specification of differences between internal areas as well as the situation in population economic activities. Several variants of the population projections: included projections done by other organizations and three own scenarios.	Demographic characteristics of the territory show a significant territorial differentiation of the demographic situation and population's occupation in the cities and regions of the republic. Zoning of the territory according to its demographic potential. The network of settlements, the demographic and labour potential of mountain areas is not sufficient for the development of recreational areas. Resettlement of the republic is characterised by positive trends - the stability of urban and rural settlements and negative - the decline in their population. In the existing system of resettlement, there is certain disproportions and underdevelopment of individual district settlement systems and their centres.	As a result of the implementation of project proposals for improving the population distribution and settlement systems, the project settlement system becomes more territorially balanced, and also polycentric, which ultimately ensures the stability of settlements and the supporting framework of the settlement, the connection of the territory into a single economic and urban space. The improvement of the situation by the infrastructural and economic development. Orientation to the touristic development
The Karachay-Cherkess Republic	+12	The Scheme of territorial planning of the Karachay-Cherkess Republic	A long-term detailed demographic analysis. Population projection for a 20-year period, three scenarios. The negative scenario predicts population decline, the other two project population growth. The document chooses the medium scenarios, in which expected population growth is not significant and close to	The project states continuing concentration of population and economic activities in the regional capital and predicts further depopulation in peripheral mountain areas.	No special solutions are offered for the depopulating areas in addition to the typical measures promoting economic and infrastructural development. As in other mountain regions, the document states positive influence of the touristic activities on population change.

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			stabilisation in population number.		
The Republic of Northern Ossetia-Alania	+11	The Scheme of territorial planning of the Republic of Northern Ossetia-Alania	A detailed demographic analysis for the period more than 15 years. Population projection for a 20-year period, two scenarios. A population projection, developed in 2006, quite precisely predicted population number according to optimistic scenario (evaluation by population number in 2015)	The issue of the mountain areas is emphasised. Other areas experiencing population decline do not have special attention and no territorially specific actions offered to those areas (such as small cities and rural areas).	The only one correlation between the regional strategy and the spatial planning document: a definition of mountain area as a zone needed special attention. The actions developed for those areas in both documents are blurry and does not have practical significance.
Stavropol'sky kray	-3	The Scheme of territorial planning of the Stavropol'sky krai	A long-term detailed demographic analysis. Authors used official projections for the region, created by the Federal State Statistic Service and predicted population stabilisation.	The document distinguishes rural areas, which are characterised by the constant depopulation, which “with increased unemployment will continue to lose it in favour of cities.”	Since the document labels the current demographic situation in the region as favourable, there are no specific solutions regarding it or territorial population distribution. The population is rather seen as a labour force, and its predicted number is used while calculating infrastructural needs and location future economic activities.
Rostovskaya oblast'	-2	The Scheme of territorial planning of the Rostovskaya oblast'	A short-term demographic analysis, no population projection	Four categories of cities according to the opportunities for the future development, more than half of cities are in the worse two classes and 31% of cities are in the worst category. Particularly acute is the problem of the revival and development of small towns, including historical ones. A feature of most small towns is unattractive for investors, previously attributed to local industry. Many small cities lost their traditional economic base (especially mono industrial cities) These cities, as a rule, do not have developed infrastructure. Despite the existence	A document emphasises a necessity and inevitability of the extensive territorial development for all cities. The reason is seen in the new way of land use and increasing welfare of citizens.

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				<p>of federal programs, including the revival of historic cities, their implementation is almost not carried out with a rare exception. The difficult situation in the cities of the Eastern Donbass - high unemployment, difficult socio-economic conditions - the influx of migrants to these cities will intensify the already considerable competition in the labour market, social tension - all this creates the ground for interethnic and social conflicts.</p>	
Chechen Republic	No data	Scheme of territorial planning of the Chechen Republic	No data	No data	No data

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The spatial planning documents in the end have similar disadvantages as the strategic documents. While the strategies focus more on economic development and abstract indicators, the schemes of spatial development represent mainly collections of solutions for the infrastructural development without serious consideration of actual needs and problems. Paradoxically, the spatial planning documents pay more attention to the demographic issue and most of them include the detailed analysis of the current situation as well as a population projection. It is explained by the fact that in the absence of new methodologies for the development of planning documents, planners used examples from the Soviet regional planning documents, entitled “Scheme of comprehensive development”. However, despite this positive aspect, none of the documents uses those projections to address the existing and future demographic issues through special measures. The offered solutions represent a mere combination of common phrases, such as “economic development” or “life quality improvement”, which are not specified according to the regional needs and are not expressed in the concrete mechanisms and tools of implementation. No single document sees depopulation as a reason for implementing special approaches.

Contemporary initiatives responding the existing depopulation issue territorially.

In contrast with the USSR, in contemporary Russia, the national strategy of territorial development (an analogue of the General scheme of distribution of productive forces or the General Scheme of settling) does not exist alongside a strategic vision on how the Russian territories should be developed. However, an increasing unevenness and tendency towards a spatial polarisation worries the national government, which sometimes comes up with ideas and initiatives oriented towards solving those contradictions. Those worries periodically result in various state initiatives, discussed in this section.

Mega-events as a way towards new growth poles stimulation.

The continuing fast population growth of the national capital, Moscow, and the concentration of resources in it creates an obvious enormous imbalance. In Moscow, currently more than 12 million people live (officially) or 8% of the total number of the Russian population. The Moscow metropolitan area produces a quarter of the Russian GDP, 15-20% of annual volume of housing is constructed there and 25% of all the taxes are also collected from the city. Moscow has become a growth pole to which there is no competitor in the Russian Federation. The closest by population number is Saint Petersburg, which has a population of 5.2 million people, is less than Moscow by nearly 6 million people. The other big cities have population of about one million people. Recently, the Russian government made attempts to create other growth poles in the country through the implementation of the classical strategy of mega-events (Gorokhov, 2014). Those events have been the APEC Russia 2012 in Vladivostok, the World Student Games (the Universiade) in Kazan in 2013, the Winter Olympics 2014 in Sochi as well as the upcoming 2018 World Cup. Those events have been organized or are being organizing out of the Central Federal district and even out of the European part of Russia. Those events were presented as a way to improve and regenerate obsolete infrastructure in the cities hosting events, but also to create specific infrastructure that could be a stimulus for the further development. One of such examples is a construction of the Far Eastern Federal University on Russian island, which was a part of APEC Russia 2012. As stated by President Vladimir Putin at a meeting in 2007, the APEC Summit

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2012 was not a status event, but an important project for the development of the far east of Russia and Primorsky Krai (Lutchenko and Krivelevich, 2012).

Image 3.2.4.

Russian President V. Putin at the presentation of the project of the Far Eastern Federal University on Russian island and the completed construction.



However, the decision to organise mega-events in Russia was not part of the national strategy of the territorial development. Following the mega events, the hosting cities have to face infrastructure and surplus of facilities, remaining gifts, that in many cases become “white elephants”.

Act on Far Eastern hectare.

After many years of neglecting the far eastern regions (with the exclusion of attempts to improve the situation through a mega-event), the Russian government came up in 2016 with the new initiative, called “Far Eastern hectare”). The idea of this initiative was in the attraction of new citizens to the far eastern regions, which are underpopulated and have a huge amount of land resources, by providing plots of land for free for economic activities or housing construction, which later may be given to permanent ownership.

Image 3.2.5.

An advertisement of the program on its official website <https://надальнийвосток.рф> saying there are 140,000,000 ha for use.



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In 2016, Law № 119-FZ was approved "On the specifics of providing citizens with plots of land owned by the state or municipal property and located on the territory of the Russian Federation, included into Far Eastern Federal District, and on the Amendments to Certain Legislative Acts of the Russian Federation". The Far Eastern Federal District includes nine regions (Amurskaya oblast', Jewish Autonomous Oblast, Kamchatsky krai, Magadanskaya oblast', Primorsky krai, Republic of Sakha (Yakutia), Sakhalinskaya oblast', Khabarovskiy krai and Chukotka Autonomous Okrug) and a population density in this geographic area is one person per square kilometre. During the Soviet period, the settling in the region had been supported by special privileges, housing provision and higher income. After the collapse of the USSR, the area's population declined by 23% and in particular regions, it dropped by more than 30% (for example, in Kamchatsky krai or Chukotka Autonomous Okrug). Thus, the vast land resources started to be seen by the state government as a potential driver for the future development and a possible attraction for new citizens in these regions, but also a way to slow down out-migration in the area. Such a strategy referred to the Stolypin agrarian reforms, which was held in Russia between 1906–1914 and included the provision of peasants by land. In the period of the reform more than three million people had relocated from the European part of Russian to Siberia and the far eastern regions. The current program envisages the use of one hectare for agriculture, business, forestry and hunting management and "any purposes not prohibited by law".

"Any economy is a network, which is based on a network of households, concentrated in small, medium and large settlements. If we do not have this network, there is no economy, which is one of the foundations of Russian sovereignty in these territories." (From interview with a professor of Far Eastern Federal University, director of the Far Eastern center of economic development and the integration of Russia in the Asia-Pacific region and leading specialist in the field of economy, Alexander Abramov) (<https://надальнийвосток.рф/news/>).

Thus, the program assumes a use of providing land plots primarily for economic development, and from this point of view, the program has many critiques, because of the insufficient land area for most of the mentioned economic activities. Now, the program is at its beginning and land is provided, first, to the citizens of the Far Eastern Federal District. Starting from February 2017, a land plot may be requested by any Russian citizen. The program will unlikely change the existing situation significantly. First, land provision is not supported by infrastructure provision. Second, the new law does not consider any specifications linked to land location, geographical, economic or infrastructural aspects. Third, no single document detailing the procedures of land provision and its future use has been developed. Then, financial support for startups is not mentioned, which significantly limits a number of people willing to start their business in new areas.

Support of mono-cities (Monogoroda).

Monogorod (mono-city) in Russia refers to the city (town, village), where most of the economic activities are linked to one enterprise (or group of businesses of the same economic sector). Their appearance is strongly connected to the planned economy and distribution of economic activities between settlements during the Soviet period: most of the one-company cities and towns had been founded in that period. These cities very often represented elements of the All-Union economic system and had been operating in cooperation with the cities located in other regions or even other Soviet republics. Accordingly, after the Soviet Union disintegration, those economic links were destroyed. The problems that emerged were at such a significant scale that

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the state has not yet found an appropriate solution. The solutions offered in different periods varied from the attempts to “close 250 cities” and relocate all the citizens in larger centres (which reminds of the Soviet program of “unpromising villages very much” and uses the same terminology) to the program of mono-cities supporting.

The last one aims to induce economic diversification to mono-cities and search for their places in new economic conditions. However, the program lacks a comprehensive approach, and there is also a problem of cities’ labelling with the prefix “mono” itself. The program of support addresses cities and towns, included into a special list defined by the government. That list has been changed many times due to several reasons: a) absence of the general strategic view of Russian territorial development and, accordingly, inability of the government to determine which settlements are the most important strategically; b) lack of financial and organizational resources allowing to implement significant transformations of the settlements network (which even the USSR was not able to realize); c) lack of scientific basis to support the decisions made.

In many such cities and towns, the main sector of the economy becomes the budget sector: social services guaranteed by the state, which includes administration, education, health care, culture or sport. Being a basis for the local economy, such services often affect settlements’ fate: with the state providing an optimisation program of the social facilities network. As the number of such facilities are reducing, the settlements suffer from the dramatic change of their significance in the settlements network.

In the late 1990’s, the Expert Institute has conducted a study on the basis of statistics about 400 cities and had been classified as mono-cities. In 2014, the Russian Government Resolution № 709 “On the criteria for the classification of municipalities of the Russian Federation to the single-industry (one-company cities) and the categories of single-industry municipalities of the Russian Federation (one-company cities), depending on the risk of deterioration of their socioeconomic conditions” approved. In the document, the criteria described for one-company city describe it as a city (town), in which a number of employees of one of the organisations (or several organisations working in the same industrial and technological process) represents 20% of the total number of staff in the municipality.

In 2014, a non-profit organisation, “Monocities Development Fund”, was created with the goal being the creation of jobs and attracting investments into the cities with the most dramatic socioeconomic situation.

The concept of federal target program "Social-economic development of small cities of the Russian Federation for the period 2015-2020".

The concept of the program appeared in 2013, but until now, the government has not approved the program. The target group of settlements for this program was small cities with a population number of 50,000 people and less, which meant the vast majority of cities (787) with a total population of 16 million. 447,000 people or 12% of Russia's population. Among the most important problems had to be addressed with that program mentioned the growing gap in quality of life level in small cities and big cities, with continuing depopulation (about 3% annual average) and economic decline (the same 3% of GDP annually).

In the concept, the results of a previous “Federal comprehensive program of development of small and medium-sized cities in Russia under conditions of economic reforms”, implemented from 1996 – 2001, are analysed.

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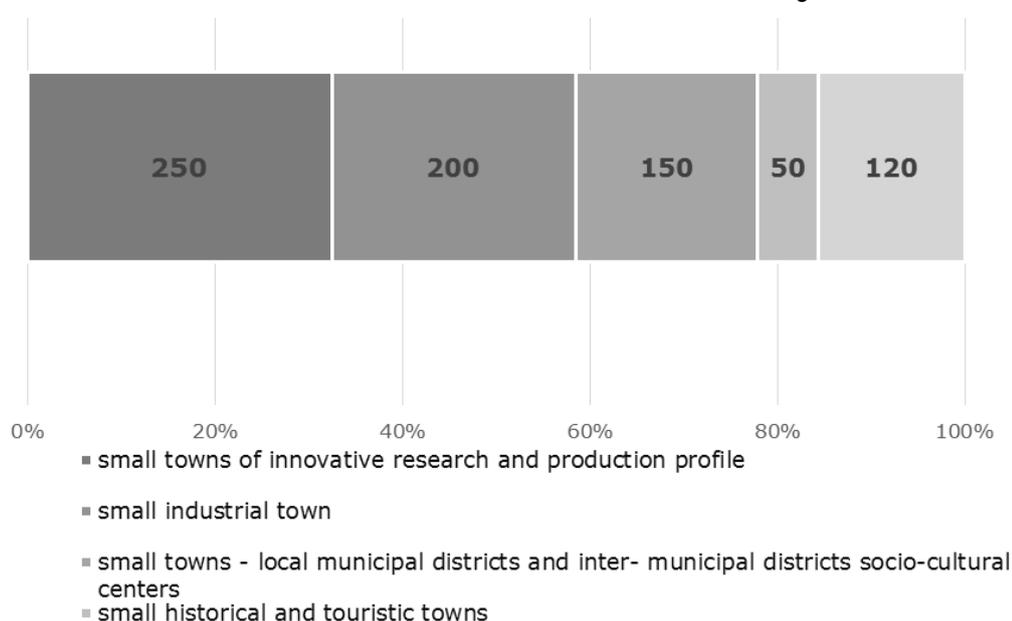
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Improving the socio-economic condition of the small cities by using the only prevailing customary methods is almost impossible and innovations are needed.

Small cities occupy the key economic and geographical position within the regions, for which, particularly in low population density, they are the “supporting frame”. They have a diversified economic complex and have objective prerequisites for accelerated economic growth (relative to the surrounding rural settlements).

The concept provides a classification of the small cities in Russia, which includes 1) small cities of innovative research and production profile, 2) small industrial cities, 3) small cities - local municipal districts and inter- municipal districts socio-cultural centres, 4) small historical and touristic cities, 5) other.

Figure 3.2.3.
Cities' number distribution according to the functional classification.



Work in all the small cities should begin with the formulation of socioeconomic and demographic development objectives and potential assessment of the achievement of these objectives.

The concept considered three possible ways for the solving of a “problem of small cities”. First it assumes an implementation of current investment programs and projects without the development of new strategies. The second way is called “extreme” and envisages citizens’ relocation to larger cities and the closing of small cities. However, this solution is considered to be the worst due to the importance of the settlements network for the Russian economy and sovereignty. Also, finally, the third variant offers a comprehensive solution using innovations, improvement of the budget distribution system, life quality improvement, etc.

Modernization of social infrastructure.

Due to the significant change in the population age structure and constant population decline in many regions and, especially in rural areas, a dramatic change in social infrastructure use provokes appearance of special state programs. Those programs were oriented mainly to the

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change of educational facilities network. In the 1990's, Russia lost many institutions of preschool education due to their privatisation. Many of them were maintained by the big enterprises (industrial or agricultural) and with the economic crash of those enterprises could not exist anymore. Other were closed due to the sharp decrease in birth and, accordingly, the number of children. The schools' network for a while remained more stable, but then started to decline steadily.

Currently, in terms of management, the existing contradiction between the young population number and capacity of educational facilities, the Development Concept of educational institutions network was created under the Rosobrazovanie (Federal State Agency for Education). The concept aims at the integration of educational institutions both in horizontal (consolidation of educational institutions of the same level of education) and vertical (integration of educational institutions of various levels of vocational education) ways and the elimination of educational institutions in accordance with the decisions of the Russian Government. In practice, it leads to the closure of educational facilities and reduction in the number of employees without changing approaches to the educational system functioning.

National project “Housing” and following programs.

The national project “Housing” (Affordable and Comfortable Housing to Russian citizens) started by President Putin in 2005 and was developed with the Presidential Decree of May 7, 2012 N 600 "About measures on provision Russian citizens with affordable and comfortable housing and improving the quality of housing and communal services", which was changed in 2014. The program sets the target indicators of housing construction, including the annual housing construction (70-100 million square meters of housing floor area) and annual area of the land provided for the new housing construction (7.5 thousand ha). The program promotes inclusion of the land adjacent to the boundaries of the large settlements into their development plans “to improve agglomeration radius around the administrative centres of the Russian”, stimulating urban sprawl.

The housing construction, being currently a priority of the national policy, being seen as a driver of both economic development and improving living conditions, provoked extensive territorial development in many cities, even those depopulating cities experiencing an economic crisis. Policy, oriented to the acceleration and simplification of all bureaucratic procedures for the providing of permissions for housing construction, does not stimulate the development of new tools for monitoring, inventory and use of the existing land plots borders and buildings within cities. Fast housing construction is possible in green fields as it was during the Soviet period. The big difference is in planning: state land ownership and strong planning system allowed Soviet cities to develop new residential areas provided with transport and social infrastructure, while in modern Russia, land owners are interested in land speculation and private interests often force decisions on the cities' territorial development.

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Planning at the municipal level.

The territorial planning at municipal level became mandatory with the adoption of the Urban Planning Code in 2004, while the law about strategic planning was approved in 2014 (The federal law №172 from 28/06/2014 “On the strategic planning in the Russian Federation”) and according to this law the development of socio-economic strategy for municipality is not mandatory and depends on the local policy-makers’ decision. The types of the documents, defined as strategic at a municipal level according to the federal laws are presented in the following table 3.2.6. The territorial planning documents are not defined as “strategic” nor in the federal law №172, nor in the Urban Planning code. However, considering their long-term action of those documents determined by the law (20 years minimum), they are strategic in their character.

*Table 3.2.7.
Planning documents at municipal level in Russian Federation.*

№	Type of the planning document	Regulation law	Definition used in the law	The period for which the document should be developed
1	A general plan of municipality	Federal Law № 190 from 29/12/2004 (Urban Planning Code of Russian Federation)	No definition of general plan. A document of territorial planning for municipalities (urban or rural settlements and urban okrugs), which mainly defines the settlement’s borders, the function zoning of the territory, the location of the planned objects of local significance (Urban Planning Code). Territorial planning aims to determine in the documents of territorial planning functions of territories on the basis of a set of social, economic, environmental, and other factors in order to ensure their sustainable development, the development of engineering, transport and social infrastructure, to ensure consideration of the interests of citizens and their associations, of the Russian Federation, of the subjects of the Russian Federation and of their municipalities (Urban Planning Code).	20 years minimum
2	A strategy of socio-economic development of municipality	Federal Law № 172 from 28/06/2014 “On the strategic planning in the Russian Federation.”	A strategic planning document, which defines the objectives and tasks of municipal management and socio-economic development of the municipality in the long term	More than six years
3	An action plan of implementation of the strategy of socio-economic development of the municipality	Federal Law № 172 from 28/06/2014 “On the strategic planning in the Russian Federation.”	No definition. An action plan is developed for the short term during the implementation period of the Strategy and contains a set of key actions aimed at addressing the challenges and	Three years

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№	Type of the planning document	Regulation law	Definition used in the law	The period for which the document should be developed
			achieving the objectives of social and economic development	
4	A forecast of socio-economic development of the municipality in the medium or long term	Federal Law № 172 from 28/06/2014 “On the strategic planning in the Russian Federation”	A strategic planning document containing the system of science-based ideas about the directions and expected results of socio-economic development of the municipality in the medium or long term	From three to six years and more
5	A budget forecast of the municipality in the long term	Federal Law № 172 from 28/06/2014 “On the strategic planning in the Russian Federation”	A forecast of the main characteristics of the budget (consolidated budget) of the Russian budget system, indicators of financial support of the state (municipal) programs for the period of their actions, and other indicators characterizing budgets (consolidated budget) of the Russian budget system, as well as containing the main approaches to the formation of the budget policy in the long term (a definition is taken from the Federal Law № 145 from 31/07/1998, The Budget Code of Russian Federation)	Six years and more
6	A municipal program	Federal Law № 172 from 28/06/2014 “On the strategic planning in the Russian Federation”	A strategic planning document containing a set of planned activities, interconnected by objective, time frame for implementation, implementing and resources and ensuring the most effective achievement of the goals and the tasks of socio-economic development of the municipality	

Not all of the planning documents are presented in municipalities, which is particularly the case for the small and medium-sized cities. Normally, each municipality has developed a general plan due to the strict requirement of the federal law and a set of municipal programs in the important for the municipality spheres.

More precisely, municipal planning is discussed in the example of municipalities in southern Russia, presented in Chapter 4.

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Chapter 4.
**Specific context of shrinkage and urban
planning in the case studies.**

Chapter 4. Specific context of shrinkage and urban planning in the case studies.

4.1. Introduction

Southern Russia stands out among the other areas of the country for its variety of ethnic, religious and cultural composition, climate conditions, demographic processes and economic development. Such diversity creates a range of combinations of these factors resulting in the current state of development of these cities. Accordingly, within the same region, the perceptions and assumptions on urban shrinkage developed internationally, or at the national and regional levels in Russia, might be tested in order to answer the research questions on **population change drivers, negative effects of demographic change and planning a response to this demographic issue.**

Despite the better performance of Southern Russia as a whole region in terms of the **demographic situation** compared to the other federal districts, most of the cities in the area, especially small and medium-sized ones, have been experiencing demographic problems, such as depopulation or ageing. The processes of larger scales, linked to demographic and economic transitions, have generally provoked these problems in the cities of Southern Russia. Depending on context, a city might be affected by economic crisis or negative natural demographic changes, with many examples testifying to the influence of both these aspects. Consequently, the particularity of Southern Russia allows for the selection of cases with different combinations of influential factors. Obviously, the negative processes of the upper levels have affected the small and medium-sized cities in the area more. Almost all of them have trouble integrating into the new economy and natural population decline has provoked more negative effects than compared to larger cities. Nevertheless, they often perform differently even in similar circumstances, which should be investigated in order to understand how much the cause and effect relationship could be generalised and applied to policy implementation. The complexity of this relationship can be shown through the contrasting case studies, demonstrating a variety of development trajectories. The contrasting cases provides an understanding of how important the local context has been in the rise of the shrinkage phenomenon within the country and the region, but also the role of the local context in constructing an adequate planning response to this new reality. Despite the research focus on **shrinking cities**, the case studies include several **cities with positive demographic changes** as well. The decision to include in the investigation these positive cases has been based on the necessity to understand why some cities perform better than others and which processes are behind the different patterns of population change.

The **negative effects of the demographic change** differ not only in contrast to the national context, but also at the local level within the same region. Moreover, the “demographic change”, is important for the prediction and prevention of negative effects of urban shrinkage. Additionally, population decline includes a transformation of age population structure, which may happen in the background of population growth. The age structure transformation provokes change in housing and social infrastructure needs, which also notably modify the city, especially a small scale one. The contrast in case studies helps to identify similarities and differences in the physical expression of population change in both growing and declining cities. It shifts attention from the generally understood concept of urban shrinkage as a consequence of depopulation to the wider influence of contemporary demographic processes on urban transformations.

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Since the demographic development in Southern Russia is, in general, relatively favourable, policy makers have considered it mainly positive. This thinking is expressed in the regional demographic policies and strategic plans of the Southern Russian regions, which do not alert to the current situation as particular or requiring special attention and approaches. In most cases at the regional level, the demographic crisis is seen as a direct consequence of the USSR collapse and following socioeconomic transition. At the municipal level, local authorities usually are not able to understand the real causes of the demographic changes and develop policies that clearly display a path dependency and perceive the current negative demographic process as a temporary phenomenon. Compared to the **strategic planning policies** of growing and declining city provides better knowledge on how much the perception of the negative processes depends on their gravity and how it subsequently alters planning solutions.

4.2. Case studies selection: why are some cities growing while others decline within the same context?

First, as a unit for the research, a city as an individual settlement has been chosen without considering the other settlements included in the municipalities. Case studies have been selected from those cities with a population that number less than 100,000 residents.

The second step in selection of the case studies was to identify the potential cases according to their population change and their economic performance. The intent was to find cases representing different combinations of economic and demographic development, thanks to which it would be possible to answer the research questions of the thesis. The final choice was made based on statistical data on population change between 1989-2015 and qualitative data on the cities' economic performance.

Relying on the classification presented in Chapter 2 (the definition developed for the current research), the case studies have been selected in four categories: 1) growing during the whole period (growing); 2) shrinking during the whole period (shrinking); 3) growing from 1989 to 2002, but shrinking after 2002 (growing-shrinking) and 4) shrinking from 1989 to 2002, but growing after 2002 (shrinking-growing). For each category, based on the literature investigation, a different number of cases was chosen in accordance with their ability to represent a variety of economic performance (table 4.2.1).

Table 4.2.1.

Case studies characteristic according to their population and demographic development.

Category	City	Region	Characteristic of economic development
Growing	Mikhaylovsk	Stavropol'sky krai	Service and administrative centre, satellite of the regional capital, experiencing increasing investments in housing construction
	Ardon	Republic of Northern Ossetia-Alania	Service and administrative centre experiencing economic decline
Shrinking	Novoanninsky	Volgogradskaya oblast'	Service and administrative centre experiencing economic decline
	Akhtubinsk	Astrakhanskaya oblast'	Military, industrial, service and administrative centre experiencing economic decline
	Gorodovikovsk	The Republic of Kalmykia	Service and administrative centre experiencing economic decline
	Zverevo	Rostovskaya oblast'	Mining city experiencing economic decline
Growing-shrinking	Timashyovsk	Krasnodarsky krai	Industrial, service and administrative centre characterising by stable economic growth
	Alagir	Republic of Northern Ossetia-Alania	Service and administrative centre experiencing economic decline
Shrinking-growing	Kotel'nikovo	Volgogradskaya oblast'	Transformation of the military and administrative centre into a mining city characterised by sharp economic growth

In addition to the population change and economic performance, the factor of the regional context was considered: some cases represent couples, located within the same region and similar circumstances (including such factors as population ethnic structure or distance from the regional capital), but having different trajectories of population development. These couples are Ardon-Alagir in the Republic of Northern Ossetia-Alania and Novoanninsky-Kotel'nikovo in the

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Volgogradskaya oblast'. Such twin cases help to better understand the local drivers of population change excluding regional differences.

Map 4.2.1.
Cases' location in Southern Russia.



The chosen ten cases are located in six regions of southern Russia (map 4.2.1). The characteristic demographic and economic development of these areas is presented below.

The Republic of Kalmykia (the city of Gorodovikovsk).

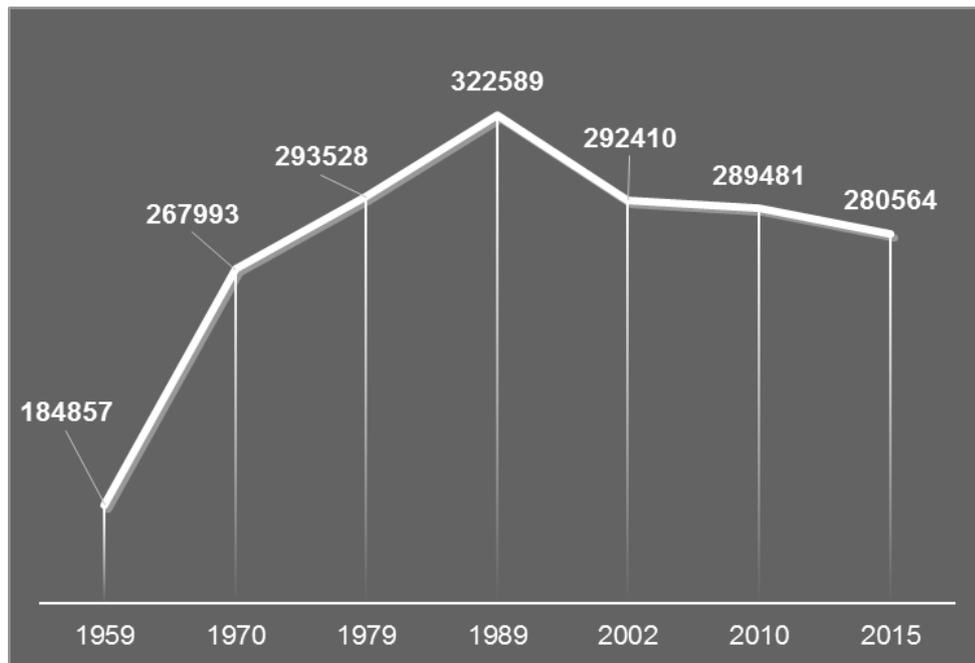
The Republic of Kalmykia is the most depressed region in southern Russia due to both population and economic decline throughout the whole period under review. The region is located in the steppes in a semi-desert climate that lacks water resources and is at the limit of its economic development in both industrial and agricultural sectors. The region has access to the

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Caspian Sea, but, until now, it has not provided any advantages to the Republic's economy. The Kalmyk represent the main ethnic group in the region. The population of the region reached its peak of 329,000 in 1990 and has been in steady decline ever since (figure 4.2.1). By January 1st, 2016, the population dropped to 278,700 residents for a total loss of about 16%. Currently, the region has the same population as it did in 1979.

Figure 4.2.1.
Population change in the Republic of Kalmykia according to the census data from 1959, 1970, 1979, 1989, 2002, 2010 and 2015 population data.

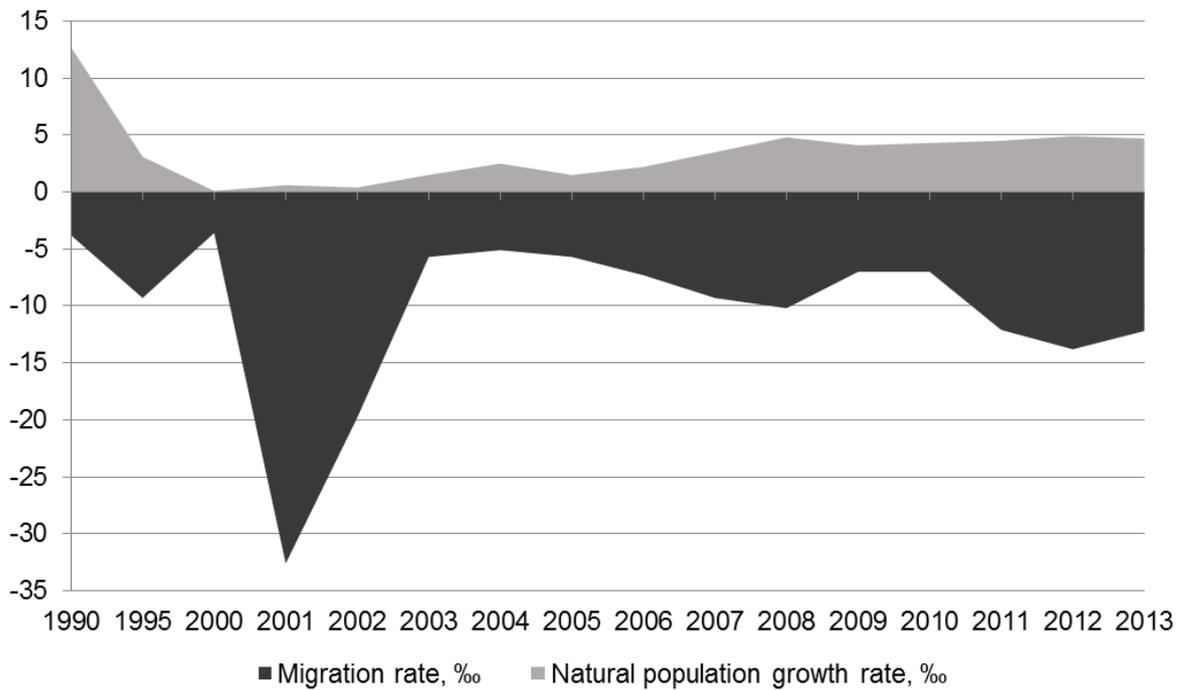


Interestingly, the population decline in the Republic of Kalmykia is based on a negative migration rate (figure 4.2.2). As in many other ethnic regions in Russia, the natality-mortality net is positive, but due to a very weak economic development, the out-migration flows neutralise that positive demographic trend. Low economic development places the region in the last position among Russian regions and has created unfavourable conditions for improving life quality. The regional economy had been growing during the first decade following the collapse of the USSR thanks to an internal offshore zone organised within its borders. Later, this zone was revoked and the region began its economic decline. Simultaneously, the high youth population born in the 80's entered the work force during a time of limited jobs, leading to sharp an increase in the unemployment level, which is the highest among the regions of the southern federal district (in the last 10 years it has fluctuated between 15%-20%). The officially registered level of unemployment is also high, about 3.8%. Thus, by income per capita, the region is ranked in the last position among all Russian regions.

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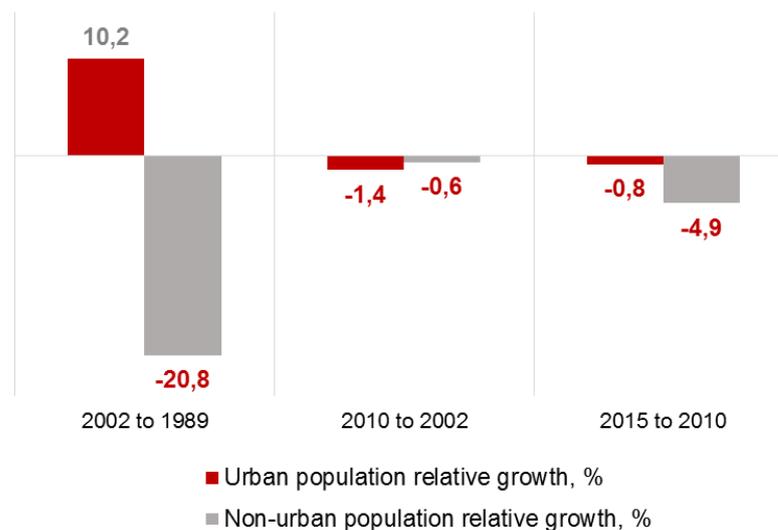
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*Figure 4.2.2.
Components of demographic change in the Republic of Kalmykia in 1990-2013.*



Despite the overall population decline, continuing urbanisation has provoked urban population growth in Kalmykia (figure 4.2.3). While the rural population has decreased by 25%, the urban population has grown about 8% in population. The proportion of the urban and rural population has changed significantly: the share of the urban population has increased from 37% to 46% from 1989-2015. In reality, the urban population has increased on account of Elista, the regional capital. Moreover, Elista had been experiencing population growth since the first decade following the collapse of the USSR, due primarily to in-migration of the rural population. Since the 2000’s the population change has been close to zero or negative.

*Figure 4.2.3.
Relative change in the urban and non-urban population of Kalmykia compared to the previous period.*



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The regional capital Elista is the only growing city in the region among the three. The other two cities, Lagan' and Gorodovikovsk, are located on the periphery, far from the economic centres and important transport communications. They have also been experiencing constant population decline since the collapse of the USSR. Agriculture serves as the main producing economic sector of the region with grazing (sheep and cattle ranching) taking the leading role. Crops are grown in the western, less arid part of Kalmykia. The agricultural sector ranked as second after the service economic sector (where the budget sector prevails).

The Republic of Kalmykia has the lowest population density of 3.8 people per square km and the lowest density of networks of settlements in southern Russia with 0.35 settlements per 100 square kilometres. Occupying 12.6% of its territory (74.7 thousand sq.km), only 1.2% of the area's population lives in Kalmykia. The road density in the region is 43 km per 1,000 square kilometres, below average in Russia (54 km per 1,000 square kilometres) and more than four times less than the average in southern Russia.

The Republic of Northern Ossetia-Alania (the cities of Ardon and Alagir).

The Republic of Northern Ossetia-Alania occupies about 8,000 sq km or 1.4% of the territory of Southern Russia. Its population of 705,300 represents about 3% of the area's total population. The region is located partly at the foothills and partly within the mountains. These two areas differ significantly in terms of economic development, population and infrastructure density, types of economic activity and the size of settlement. Obviously, the mountain area is characterised by the lower level of development and quality of life. There are only six cities in Ossetia and 209 rural settlements, 26 of which are abandoned (all abandoned villages are located in the mountain zone). The population density in the region is quite high with about 88 people per sq km.

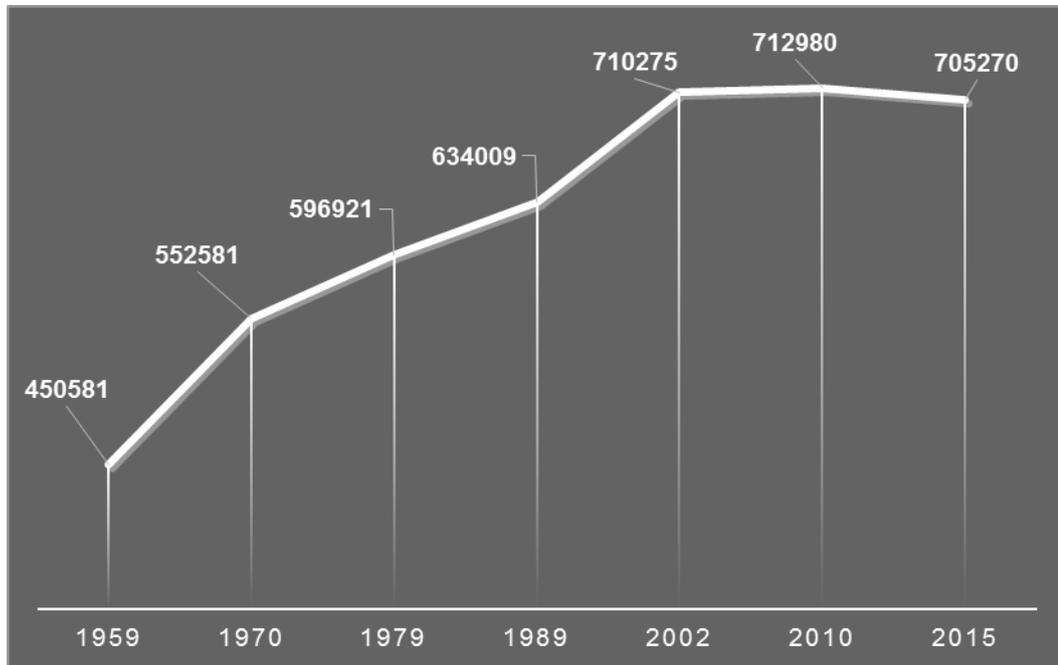
In the regional economy, the tertiary sector has a leading role and makes up about 19% of the GDP, represented mainly by government administration, which clearly shows a low economic development and high level of budget subsidising in the region. The second economic sector is agriculture with 17.8% of the GDP. The regional GDP represents 0.2% of Russian GDP and 2.28% of southern Russia's total GDP. GDP per capita stands at 40% of the average in Russia. By income per capita, the region takes the 65th position among all Russian regions. However, the relation between the income per capita and the living wage is 2.76, which is relatively high for southern Russia.

The region looks to be performing positively from the point of view of demographic development. Compared to 1989, the region has gained 12% in population (figure 4.2.4). However, a closer look reveals the transformation of the current demographic process. The population has been growing up until 2002 when it reached its peak of 710,300 people and then started to fluctuate with a tendency towards decline. In the period 2002-2010, the region gained only 0.4% and lost 1.1% from 2010-2015. It is necessary to note that this population decline has been happening in the background of general improvement of the demographic situation in Russia in recent years.

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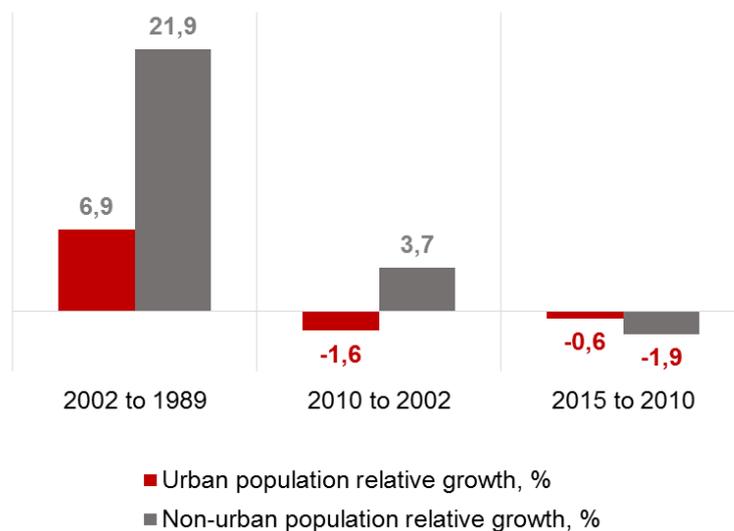
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Figure 4.2.4.
Population change in the Republic of Northern Ossetia-Alania according to the census data from 1959, 1970, 1979, 1989, 2002, 2010 and 2015 population data.



While in most Russian regions the share of the rural population has been declining, in the Republic of Northern Ossetia-Alania it has risen from 34% to 38% (figure 4.2.5). In 1989-2015, the rural population gained 24%, while the urban population grew by 4% only. However, in last 5 years, both urban and rural population demonstrated a slight population decline.

Figure 4.2.5.
Relative change in the urban and non-urban population of Northern Ossetia compared to the previous period.



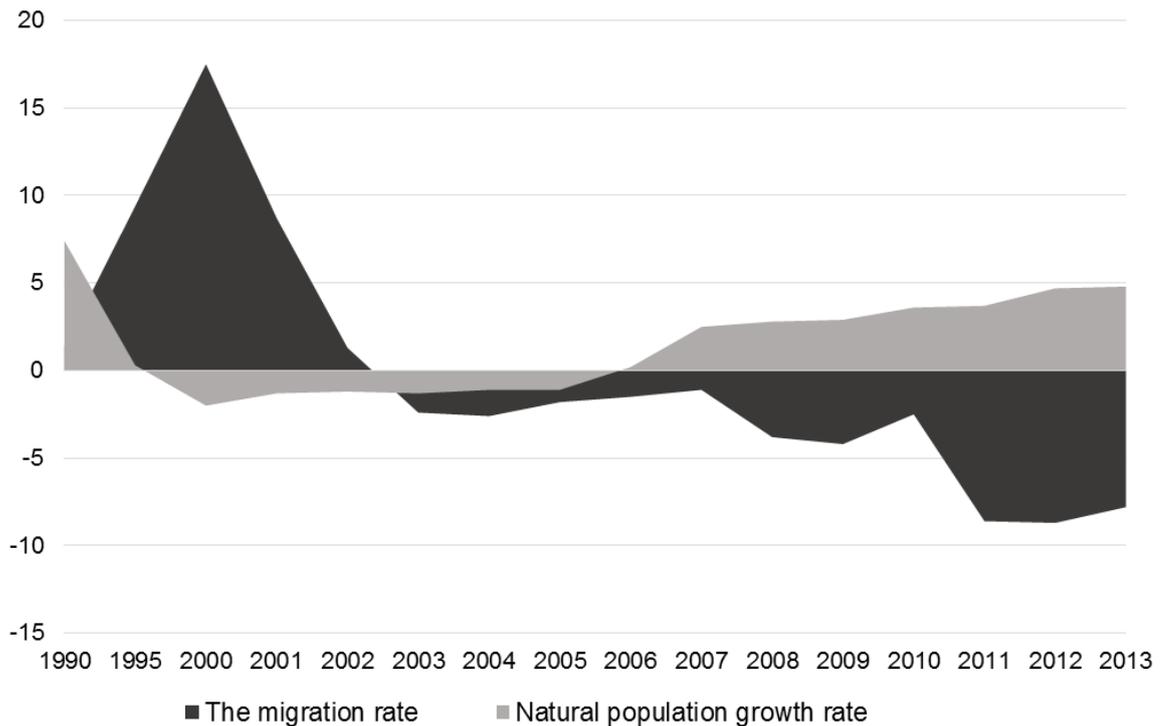
Analysis of the components of demographic change in the Republic of Northern Ossetia-Alania shows clearly that out-migration has been increasing in recent years simultaneously with the natural population growth rate (figure 4.2.6). The population increased during the first years

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after the USSR collapse due to refugees coming from the neighbouring regions experiencing ethnic and religious conflicts. Those flows compensated for a slight natural population decline. Since 2006, a natural population change in the republic reached positive figures and in 2013, it almost reached the level of the 90's. At the same time, the migration rate began to decrease in 2003 and never recovering since. Overall, these trends have resulted in a slight population decline of the region.

Figure 4.2.6.
Components of demographic change in the Northern Ossetia-Alania in 1990-2013.



Two cities of the region were studied in order to demonstrate the different population development set in the background of similar conditions of city size, their location and integration into the regional settlements' system, economic development, demographic structure, ethnic and cultural specifics, etc. Despite these many similarities, the cities demonstrate completely different patterns of demographic development. While Ardon gained 43.7% of the population since 1989, Alagir lost 4.5%.

The Rostovskaya oblast' (the city of Zverevo).

The area of Rostovskaya oblast' is 101,000 sq km or 17.1% of the total area of southern Russia. Its population of 4.24 million people also represents almost 18% of the area's population.

Rostovskaya oblast', together with Volgogradskaya oblast', represent the most industrialised regions in southern Russia. Despite the great importance of agriculture importance to their economy, the industrial sector plays a leading role. During the Soviet period, the Rostov region was the most industrially developed in southern Russia due to its specialisation in mechanical engineering and high demand for production. After the system's destruction, the production level decreased significantly. Later though, the Rostov region started to demonstrate

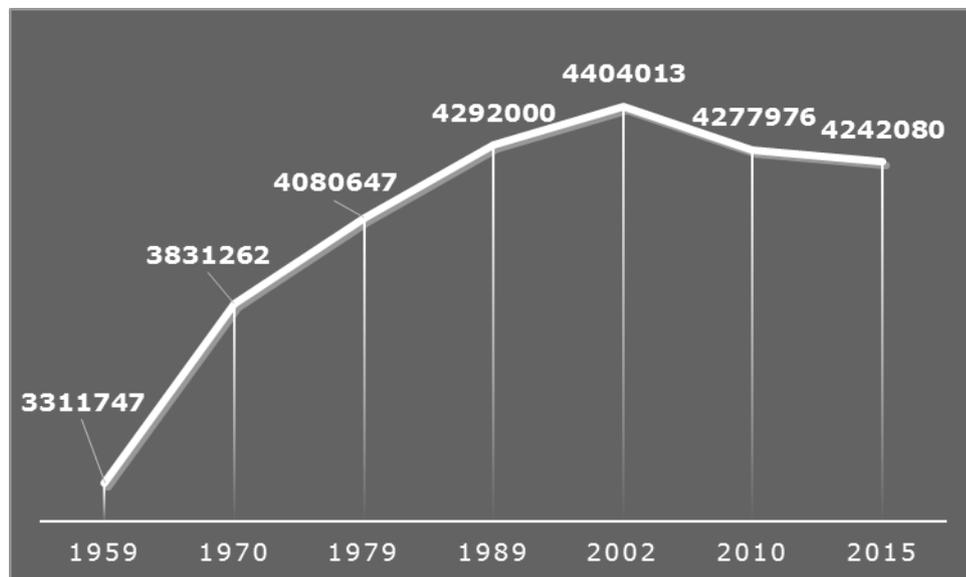
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intensive growth, especially in the food processing industry. Now the Rostov region is one of the leading areas by volume of industrial production. Most of the cities in the region are specialised in the industry as well and, accordingly, a sharp decrease in demand for their production has become a cause for the economic decline and subsequent out-migration.

The population number of the Rostov region reached its peak of 4.5 million people in 1997 and has since been in decline (figure 4.2.7). By the start of 2015, the population of Rostovskaya oblast' was 4.24 million people with the total loss about 6% compared to its population high point. Rostovskaya oblast' is characterised by slight population growth during the first decade after the collapse of the USSR, that later has been replaced by a slight population decline. The population loss was not significant over a 25-year period (only 1.5% of the population), but the current negative trend in population change seems to be stable for the current period.

Figure 4.2.7.
Population change in Rostov region according to the census data from 1959, 1970, 1979, 1989, 2002, 2010 and 2015 population data.



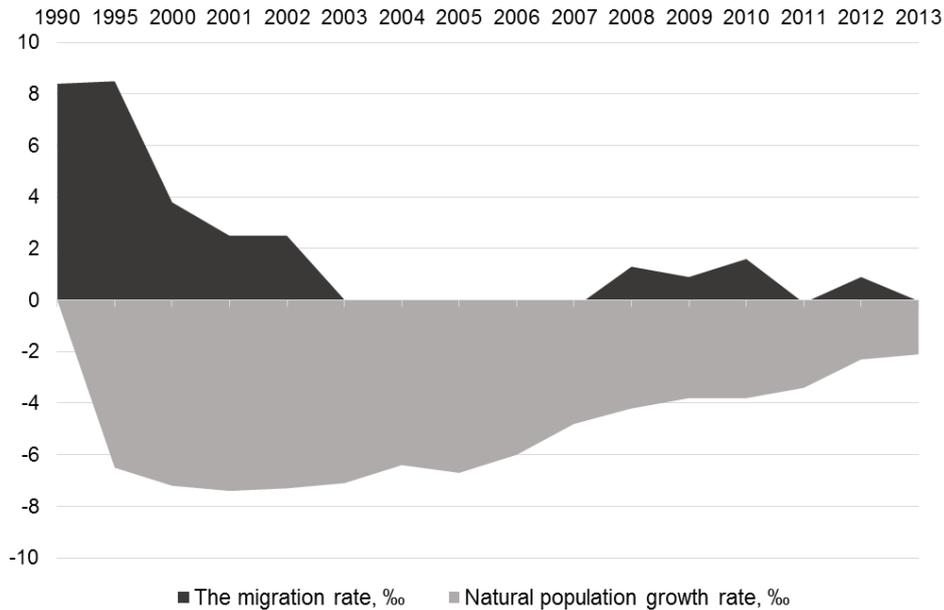
The main cause of the negative population change was the natural population decline. Since 1990, Rostovskaya oblast' has been experiencing constant natural population decline, with the birth rate always much lower than the mortality rate (figure 4.2.8). Accordingly, in-migration was the main factor maintaining the relevant stability in the region's population. The level of in-migration was high enough until 2002, but after it started to decline, becoming negative until 2008. In recent years, the migration balance in Rostov region again became positive, but the excess of in-migrants over out-migrants was very small. The population projections were done in three scenarios by Rosstat until 2030 and assume a population decline from 1% to 14% in the region.

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Figure 4.2.8.

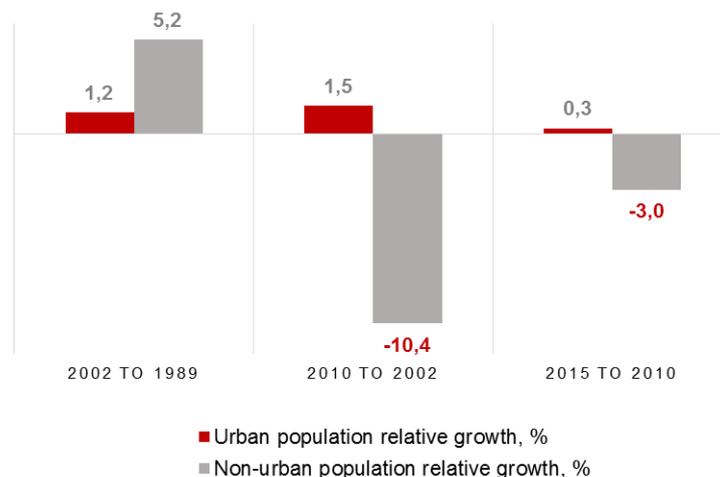
Components of demographic change in Rostovskaya oblast' from 1990-2013.



While the total population of the Rostov region insignificantly shrunk by 1.2% during the period of 1989-2015, its urban population has been growing constantly and gained 3% while the rural population has been reduced by 8.6% during the same period (figure 4.2.9). The percent of urban population grew from 64% in 1989 to 66.8% in 2015. The first decade after the collapse of the USSR was positive for Rostovskaya oblast' in terms of population change: both urban and rural populations grew. In the 2000's, the rural population declined significantly while the urban demonstrated almost the same pattern of growth. After 2010, we observe continuing growth in the urban population and a decline in the rural population. However, urban population growth occurred primarily due to the growth of the regional capital Rostov-on-Don and its two satellites, Aksay and Bataysk. Most of the other cities lost some of their population, were stable or gained some population by absorbing rural settlements due to changes in administrative-territorial divisions.

Figure 4.2.9.

Relative change in urban and non-urban population of Rostov region compared to the previous period.



In Rostovskaya oblast', two cities were chosen for the investigation. The city of Zverevo, is a “classical” shrinking city that started losing its population during the Soviet period and lost 27.5% over 25 years. Zverevo is included on the list of one-company cities in Russia and its economy is based entirely on coal extraction.

Astrakhanskaya oblast' (the city of Akhtubinsk).

Astrakhanskaya oblast' is located on the northern coast of the Caspian Sea and is situated around the river Volga, the longest river in Europe. Astrakhanskaya oblast' borders the Republic of Kazakhstan to the east. The southern border of the region is the Caspian Sea. The climatic zone of the region is represented by steppe and semi-desert. This climate is not favourable for agriculture, which mainly developed in the floodplain of Volga River. The economy of Astrakhanskaya oblast' has been always based on the industrial sector. After the end of the Soviet era, its industrial significance has increased due to the development of new gas and oil fields. Nowadays, the region holds the leading position among all subjects of the federation in southern Russia in terms of industrial development. The share of the mining industry in the regional GDP structure is about 19%. However, other sectors of industrial production, such as shipbuilding, for example, have reduced dramatically. Other important sectors of the economy (in order of decreasing importance) include: construction (12%), transport (12%), government administration (10.4%), trading (9.8%). Agriculture contributes just 7.1% to the regional GDP.

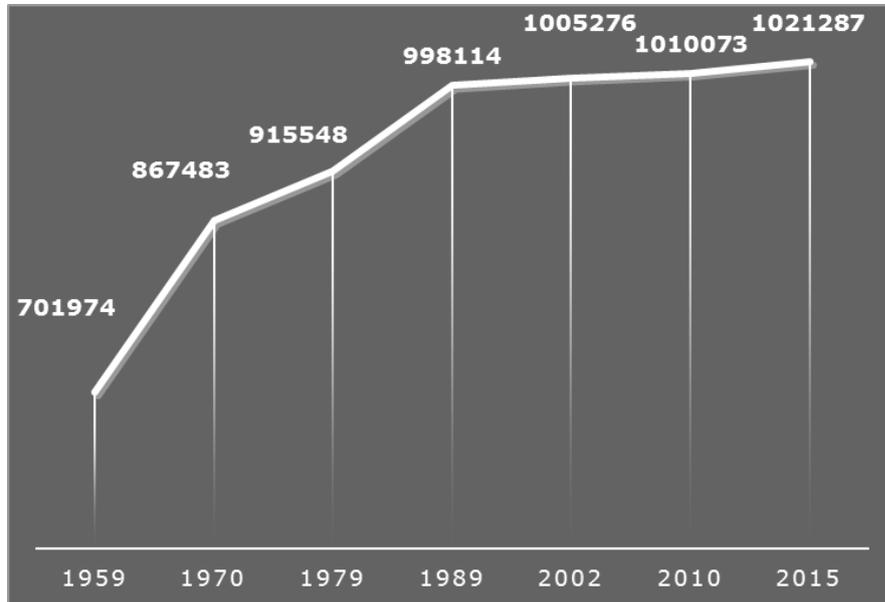
The population density in Astrakhanskaya oblast' is quite low, but much higher than in neighbouring Kalmykia with 20.8 people per square km. However, the population distribution is not equal; it is concentrated primarily in the areas closest to the river while the peripheral territories of the region are not populated. There are 441 settlements in Astrakhanskaya oblast', six of them are cities and 15 are abandoned villages. The settlements' network density is very low with only 0.9 settlements per square km. The road density in the region is 81 km per 1,000 sq km, just slightly above the average in Russia (54 km per 1,000 sq km).

During the Soviet period, Astrakhanskaya oblast' had been a constantly growing region. From 1959-1989 its population increased by 42% (figure 4.2.10). The population change in the region after the collapse of the USSR has fluctuated with periods of slight growth or slight decline. In general, the number of Astrakhan region's population in 2015 was more or less stable. Compared to 1989, the region gained 2.3% of its population.

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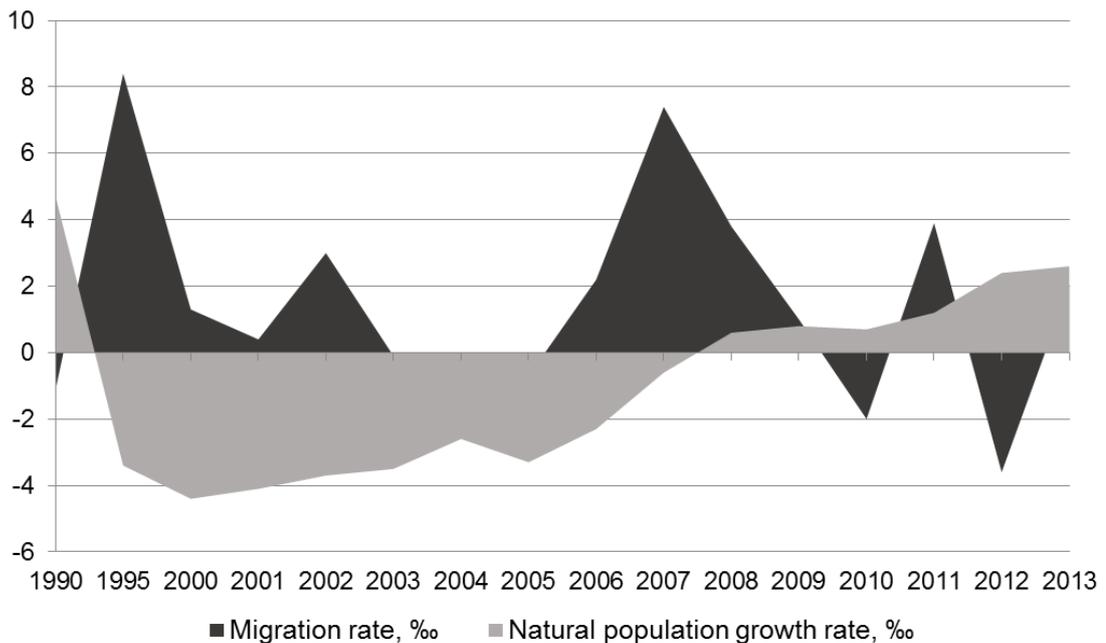
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Figure 4.2.10.
Population change in Astrakhanskaya oblast' according to census data from 1959, 1970, 1979, 1989, 2002, 2010 and 2015 population data.



The regional population has demonstrated a complicated pattern of population change. The region attracts migrants from the Northern-Caucasian republics who are searching for employment. Accordingly, the migration balance has been positive for many years (figure 4.2.11). However, this dynamic is not stable and, together with many years of natural population decline became limitations for the total population number growth.

Figure 4.2.11.
Components of demographic change in the Astrakhanskaya oblast' from 1990-2013.

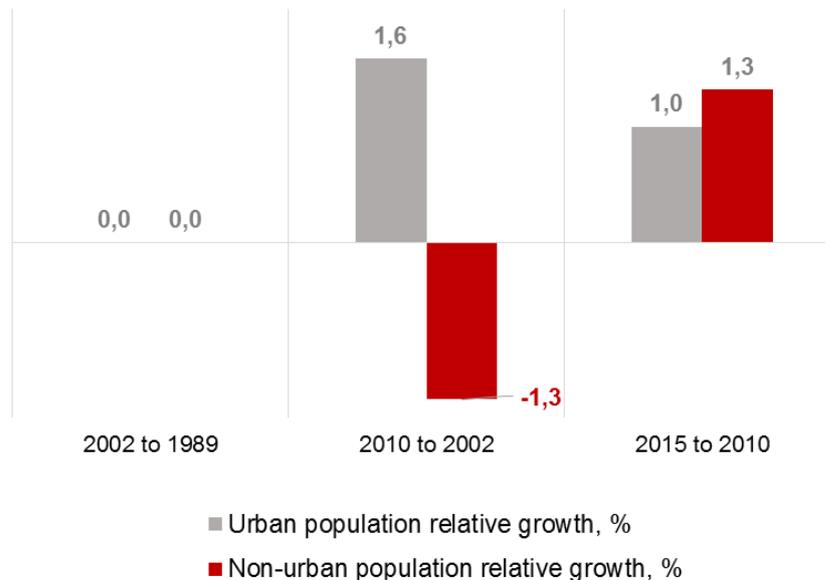


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The stability of the population is surprisingly also expressed in the stability of the proportion of the rural-urban population. The share of the urban population since 1989 has increased from 62% to 63% (figure 4.2.12). This data differs from the official statistic, according to which the share of the urban population has declined. The reason is in the fact that villages of an “urban type” are counted in the statistics as urban settlements, but some of them have been transformed into rural areas in order to reduce taxes.

Figure 4.2.12.
Relative change in urban and non-urban population of Astrakhanskaya oblast' compared to the previous period.



The cities of the region are characterised by different demographic situations altering between slight decline to slight growth. Mainly the southern cities have been growing: the regional capital and those cities located relatively close to Astrakhan characterised by an industrial background. The cities located to the region’s north have been experiencing population decline, among them, Akhtubinsk stands out as the city with the most intensive dynamic of population decline.

Volgogradskaya oblast' (the cities of Kotel'nikov and Novoanninsky).

Volgogradskaya oblast' is one of the most industrially developed regions of southern Russia. The region’s area is 112,900 sq km or 19.1% of the total area of southern Russia, making it the largest region in the south. Its population of 2.6 million residents represents 10.8% of southern Russia’s population. The region is located in the most northern position in the area. It is characterised by a continental climate with hot summers and cold winters. The western areas of Volgogradskaya oblast' are a forest-steppe zone, while its eastern areas are semi-deserts. It is a sparsely wooded region characterised by unfavourable conditions for agriculture. The leading sector of the regional economy is the processing industry, which contributes 27% to the region’s GDP, while the agricultural sector’s share is only about 10%. The tertiary economy represents the second most important sector with its share in the regional GDP about 15%. Other sectors ordered according to decreasing importance include transport and agriculture. The government administration’s share is one of the lowest in southern Russia at only 6.3%.

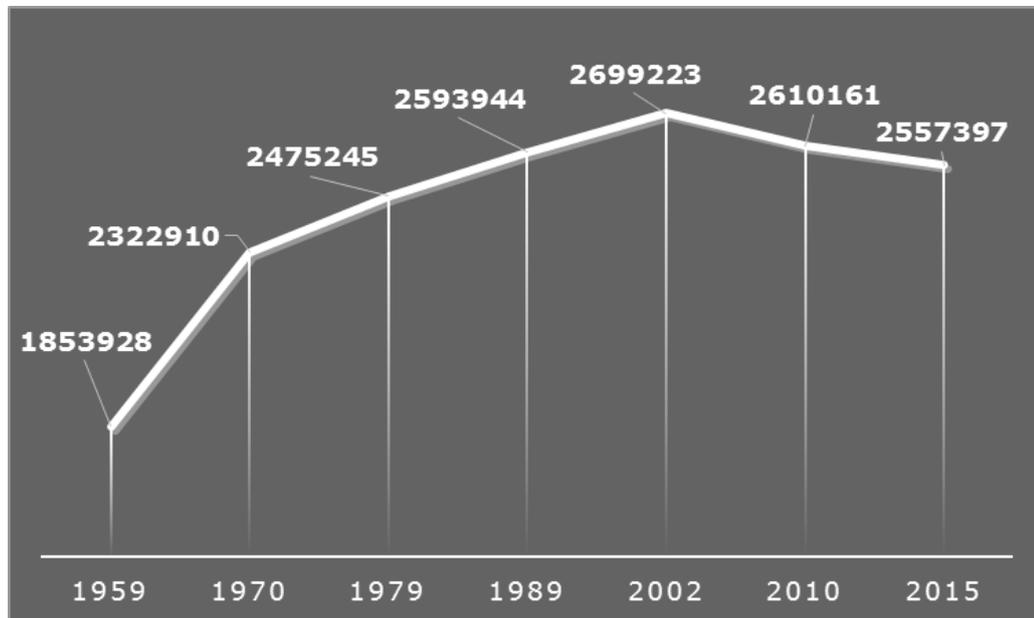
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With a population density of 22 people per square km, Volgogradskaya oblast' is relatively low being twice below the average in Southern Russia. At the same time, it is higher than the average in Russia as a whole. The road network density in the region is 134 km per 1,000 square kilometres. There are 1553 settlements in Volgogradskaya oblast', 19 of which are cities and 56 are abandoned villages. The settlements network density of 1.38 settlements per square km is less than average in southern Russia (1.69).

The population of the region had been growing up until 1998 due to in-migration flows during the first decade after the fall of the Socialist regime (figure 4.2.13). In 1998, the region reached its population peak of 2.75 million people and started to decline. In 2015, the regional population was 7% less compared to its maximum in 1998 and 1.4% less than in 1989.

Figure 4.2.13.
Population change in Volgograd region according to census data from 1959, 1970, 1979, 1989, 2002, 2010 and 2015 population data.

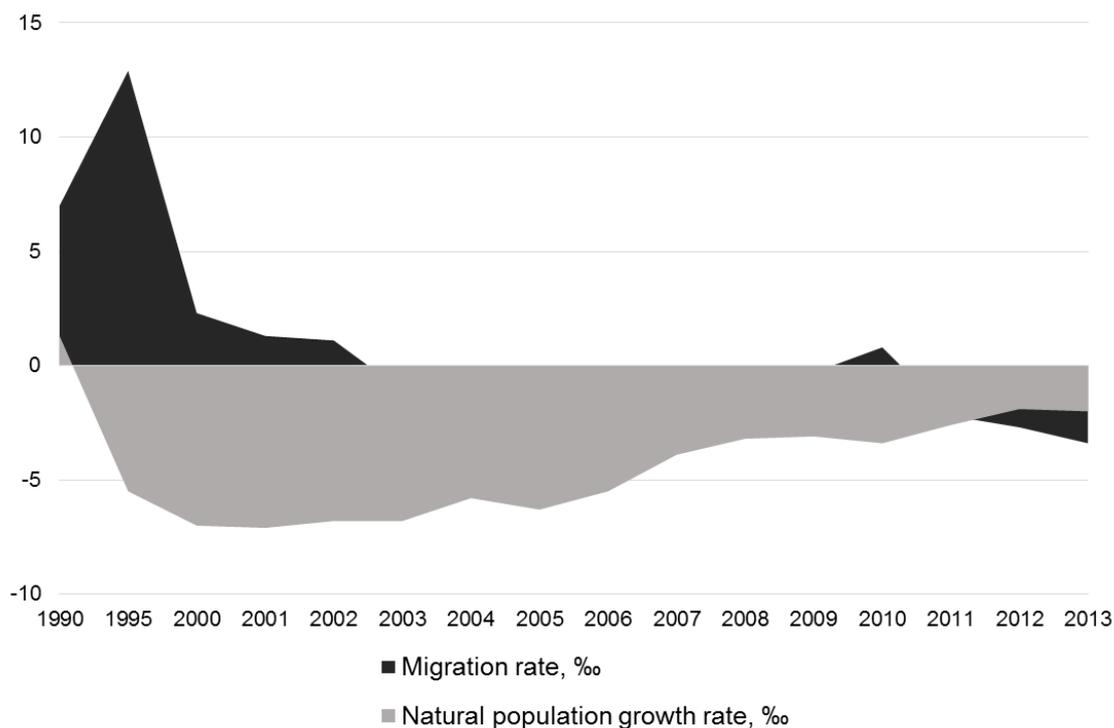


The natural population growth was registered for the last time in 1990 in the Volgograd region (figure 4.2.14). In recent years, the level of natural population decline has reduced, but despite the positive process happening in Russian demographics due to a numerous population of child bearing age and an increase in the birth rate, a natural population growth rate in the region has not occurred.

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*Figure 4.2.14.
Components of demographic change in Volgogradskaya oblast' in 1990-2013.*



While the out-migration level is not high, during the period from 1989-2002, in-migration could compensate for natural population decline, but over the last 15 years it has not met such levels. The region is not attractive for migrants due to its slow economic development. Its economy has been experiencing structural problems such as the leading sector of industry becoming weakened under the new conditions. Obsolete industrial enterprises are not able to compete in new market conditions; their modernization requires significant resources. Accordingly, the region takes a quite low 69th position in the Russian ranking of income per capita. However, the unemployment level of 6% is one of the lowest among the southern regions.

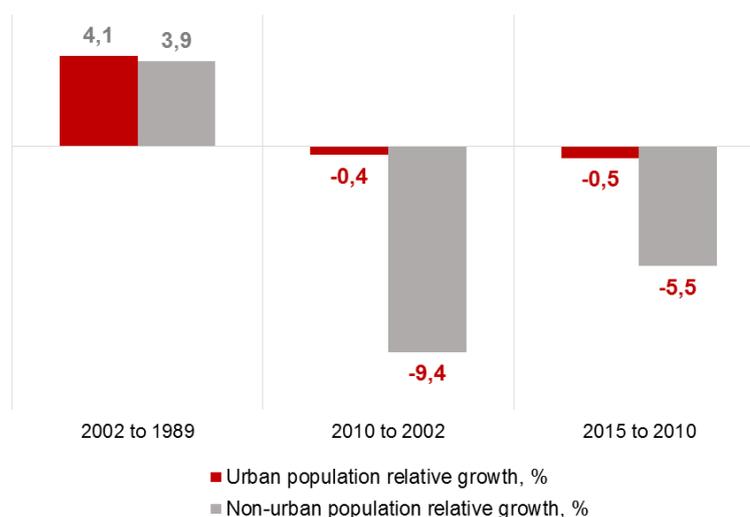
While the total population of Volgograd region insignificantly shrunk by 1.4% during the period from 1989-2015, its urban population has grown by 3.2% (figure 4.2.15). However, the urban population had been growing only during the 1989-2002 period, when it gained 4.1%. Over the same period the rural population had also grown, gaining 3.9%. The following periods were characterised by decline both in rural and urban population, but the rural population decline was much worse. While urban population lost about 1% over the 2002-2015 period, the rural population lost about 9%. Volgogradskaya oblast' is characterised by high levels of urbanisation with the percentage of the population living in cities reaching 71%. This trend means limited regional human resources for the future urban population growth.

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Figure 4.2.15.

Relative change in the urban and non-urban population of Volgogradskaya oblast' compared to the previous period.



Most of the cities in the region are losing their population. For the cases, two cities in the region were chosen: Novoannincky and Kotel'nikovo. The city of Novoanninsky was chosen due to its intense population decline in the region, while Kotel'nikovo was chosen due to its ability to resist negative aspects of population change (remoteness, a small number of population, economic decline) and stable population.

Stavropol'sky krai (the city of Mikhaylovsk).

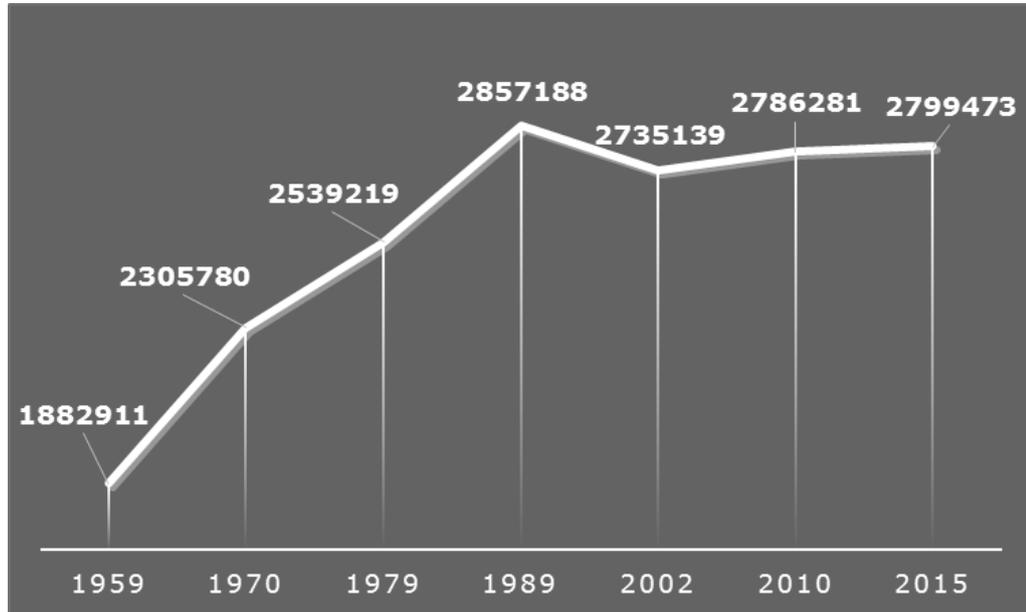
Stavropolsky krai has been an attractive region for internal migrants due to its favourable climate, developed infrastructure, high population and settlements network density and its relatively stable economic development. Stavropolsky krai differs from the norm due to its federal monocentric regional planning structure. In Stavropolsky krai the regional capital is located in its northern steppe zone, while in the southern resort area an agglomeration of the closely located cities has been formed. One of those cities, Pyatigorsk, an important economic centre, became a capital of the Northern-Caucasian Federal District. The economy of Stavropol'sky krai is diversified and performs well in many sectors, among which the tertiary sector has had a leading role and includes tourism and health care, represented in the economy of the resort cities of national significance. Industry and agriculture follow the tertiary sector in this ranking.

The first post-socialist decade was a period of the region's attraction for in-migrants from the Northern and far eastern regions of Russia, while later the main in-migration flows came from the Northern-Caucasian Republics (figure 4.2.16). Those migrants' flows appeared because of the region's better economic and infrastructural development. In total, the population of Stavropol'sky krai has not changed significantly, but reduced by 2% between 1989-2015.

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Figure 4.2.16.
Population change in Stavropol'sky krai according to census data from 1959, 1970, 1979, 1989, 2002, 2010 and 2015 population data.

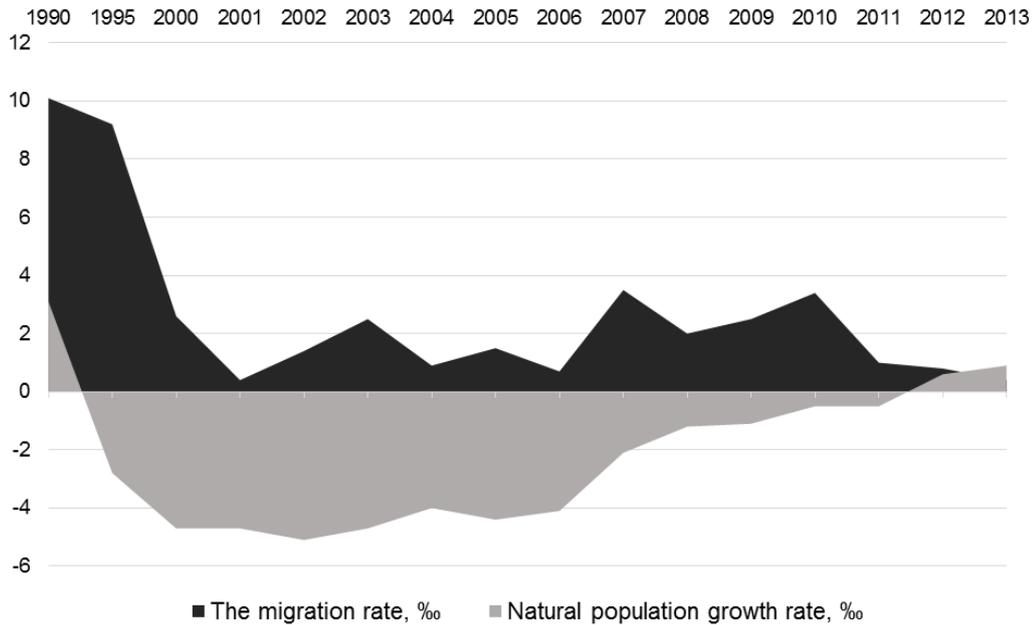


The population decline by 2% in the Stavropol' region is caused by natural decline only (figure 4.2.17). The migration rate net has always remained positive, while the level of natural population decline was quite stable in the 2000s. Since the end of the 2000s, the indicators of natural population growth have notably improved and Stavropol'sky krai demonstrated a slight natural population growth between 2012-2015. Such a positive demographic development gives a possibility to assume favourable conditions for an urban population change in the future. The population projections, completed for the region by Rosstat, includes three scenarios, two of which predict a population decline after a period of growth. However, the population change in reality is developing even better than in the most positive predicted scenario.

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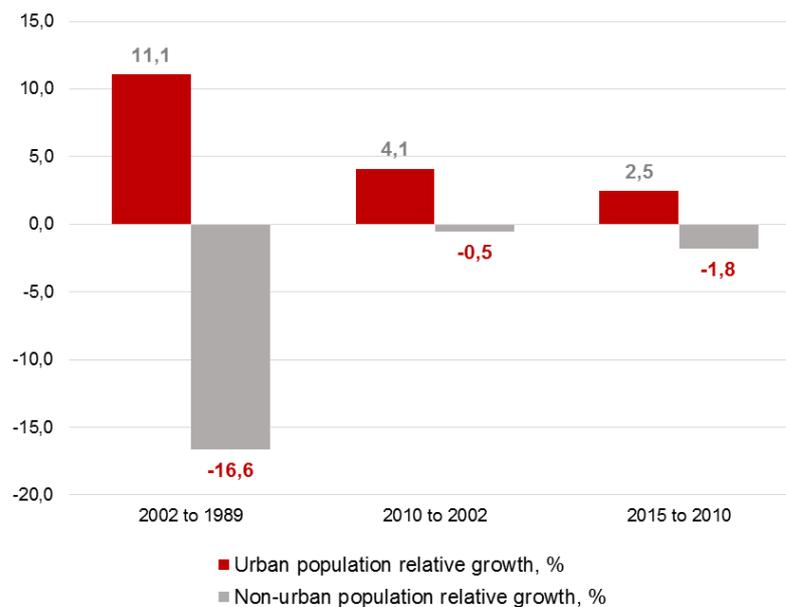
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*Figure 4.2.17.
Components of demographic change in Stavropol'sky krai from 1990-2013.*



Since 1989, the relation between the urban and rural population has changed (figure 4.2.18). The percent of urban population increased from 44.7% to 52.7%, the absolute number of urban population increased by 199,214 people or 15.6%. In Stavropol'sky krai, only three cities experienced population decline after the USSR collapse: lower level of industrialisation in the region and accordingly, the lower level of urbanisation that may explain it. Consequently, the rural population became a source for continuing urbanisation.

*Figure 4.2.18.
Relative change in urban and non-urban population of Stavropol' region compared to the previous period.*



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Notably, the urban population of the region grew during the first decade of the post-socialist development at the expense of the rural. Now, as the level of urbanisation has become higher, the population change in both group has slowed.

Mikhaylovsk, chosen as a case, illustrates an advantage for the small city in its close location to the regional capital and its fast growth together with the large city. This situation is typical for many Russian regions. At the same time, such locations have disadvantages as well, because such city-satellite serves as a residential area for the regional capital, but is not able to compete with it for the investments in other economic sectors apart from housing construction.

Krasnodarsky krai (the city of Timahyovsk).

The Krasnodarsky krai is one of the most successful and attractive regions not only in southern Russia, but the entire country. Favourable climatic and natural conditions, a diversified economy and successful regional policy attract people and investors. The region has been characterised by the constant population growth both in urban and rural areas with some exceptions. Its territory of 75,500 sq km makes up about 13% of southern Russia. The highest number of people in Southern Russia live in Krasnodarsky krai: 5.45 million people or 23% of the area's population.

The Sea of Azov and the Black Sea' coasts, borders, warm climate, variable natural resources, relatively dense settlements' and transport networks create favourable conditions for different economic activities from agricultural, industrial to the service economy. Krasnodarsky krai has managed to attract many in-migrants after the collapse of the USSR and its population has grown. The tertiary economy has played a leading role in contributing to the GDP of Krasnodarsky krai and includes a well-developed touristic sector. Transport, industry and agriculture are the next most important sectors. Due to the favourable climate conditions and fertile soil, Krasnodarsky krai is a leader in agricultural production among Russian regions contributing 7% to the national agricultural production. This share increases in particular types of agricultural crops: 10% of grain, 17% of sugar beets, 15% of sunflowers and 37% of the grapes used for wine. In total, Krasnodarsky krai contributes 2.9% to the national GDP, the highest number among the southern region. Its contribution to the GDP of southern Russia is almost 33%. The following Rostov region and Volgograd region contribute 19.2% and 13.1% respectively. GDP per capita in the region is the highest among the southern regions at 77.7% of the average in Russia. The relation between income and living wage in the region is the highest in southern Russia as well at 3.15. The region is also characterised by the lowest level of unemployment, which currently stands at 5.6% (and 0.7% officially registered).

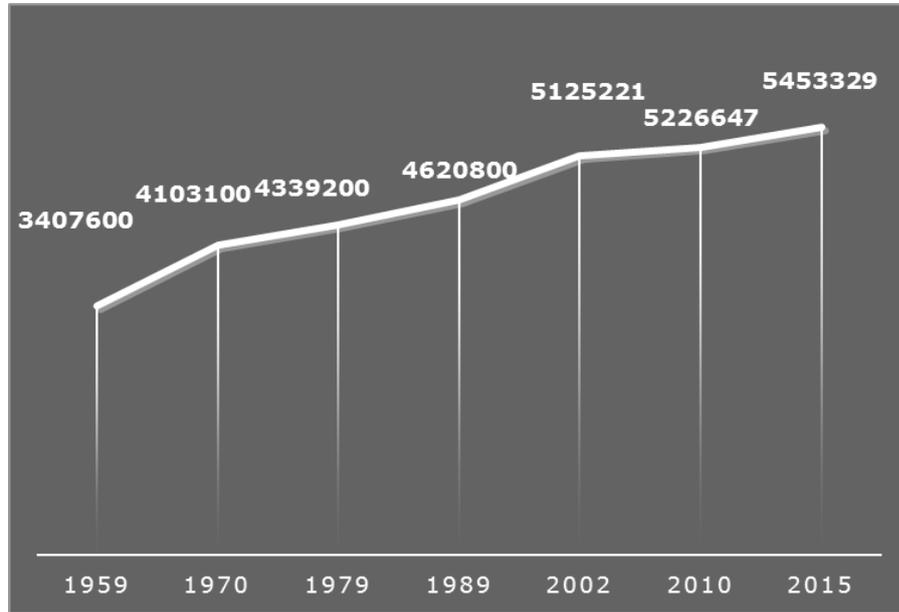
Due to the high development of the agricultural sector, Krasnodarsky krai differs from the other regions with its stable system of rural settlements. There are 1763 settlements in the region, 26 of which are cities and 11 are abandoned villages. The population density is 72 people per square km and the density of the network of settlements is 2.34 settlements per 100 km. The road density is very high compared to the average in Russia: 419 km per 1000 square km compared to 54 km per 1000 square km. Due to its location at the coast of two seas, the region has several sea-ports of international significance.

The region has been characterised by population growth most of the period under review with an exception of the period 2001-2006 when it lost about 0.6% (figure 4.2.19). In total, after the USSR collapse, the region has increased in population by 6.7%.

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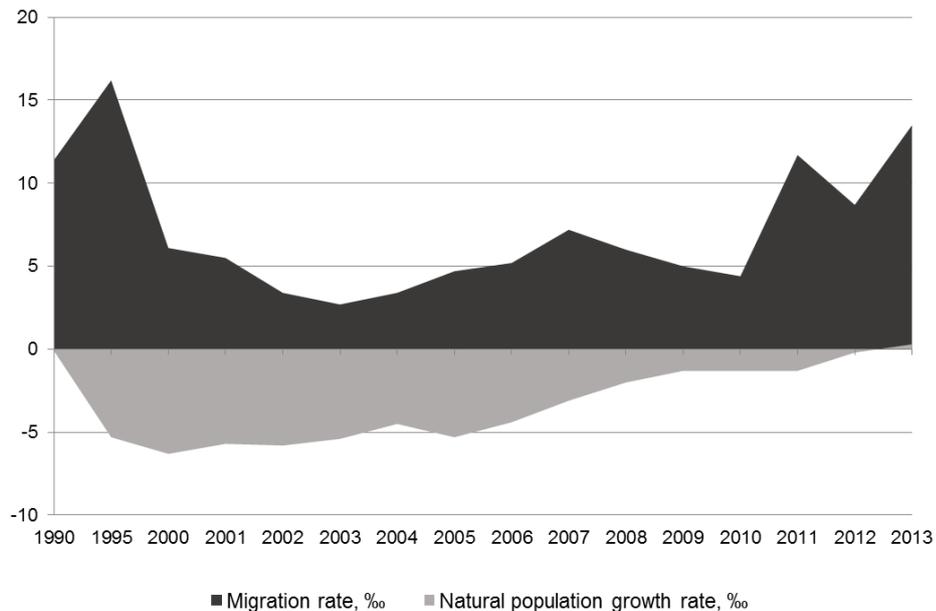
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Figure 4.2.19.
Population change in Krasnodarsky krai according to census data from 1959, 1970, 1979, 1989, 2002, 2010 and 2015 population data.



Obviously, in-migration plays the only role in positive population change in Krasnodarsky krai (figure 4.2.20). The migration balance has been always positive in the region and recently the implementation of such big projects such as the Winter Olympic Games 2014 in Sochi has returned its level to that of 90's. This migration flow, in combination with the numerous generation of the 80's beginning to have children, provoked a small natural population to grow that has not been registered in the region since 1989. In 2013, the natural population growth was 0.3% and in 2014 it was 0.6%.

Figure 4.2.20.
Components of demographic change in Krasnodarsky in 1990-2013.



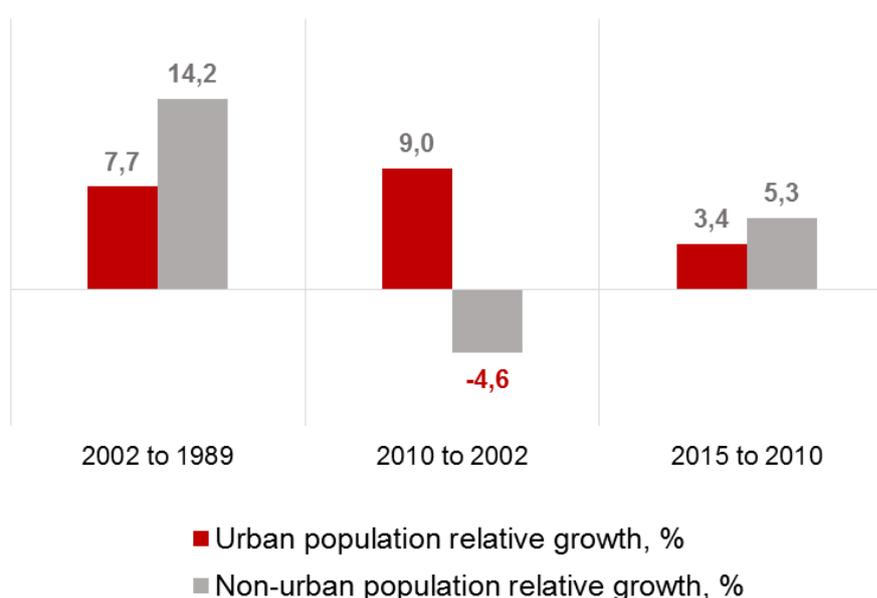
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Despite such positive characteristics of the regional development, its demographic situation has been affected by the demographic transition with the number of births being very low. The share of children in the population structure has declined from 23.5% in 1990 to 16.2% in 2009, meanwhile the older population's share has risen during the same period from 21.9% to 23.3%. Accordingly, the natural demographic process influences population change in those cities, which are not able to provide a stable in-migration.

The proportion of rural and urban population in Krasnodarsky krai has been quite stable. Since 1989, the share of the urban population has risen insignificantly from 49.9% to 51.3% (figure 4.2.21). Notably, the rural population has been rising as well as urban with the exception of the period from 2002-2010.

Figure 4.2.21.
Relative change in urban and non-urban population of Krasnodar region compared to the previous period.



However, in the 2010-2015 period the rural population has grown faster than the urban one. This feature is not typical for regions with the predominantly Russian ethnic group.

The chosen case study, the city of Timashyovsk, represents a case of strong and stable economic development and population growth due to the constant in-migration from before 2002, provoking stable population growth. Diminished in-migration flow, in combination with the natural population decline, caused a change in the trajectory of population development to the negative.

4.3. Research description.

Following the structure of the case study research “a) population change drivers – b) negative effects of population change – c) planning policy” with the supporting knowledge from the literature on these aspects and in accordance with available data, a structure for the case study investigation was developed.

Each of these three directions of investigation have been constructed on the basis of sub-questions and a working hypothesis, helping to create a framework for the comparative case study.

First, investigation of **a) population change drivers**, relies on the following questions:

- 1) Why is one city growing while another in a similar context with similar pre-conditions shrinks?
- 2) Which factors cause population change and how much do they depend on global, national or regional contexts?
- 3) How stable are the current demographic trends in each case study, what should local authorities expect and do they really have to adapt their policy for new conditions?

Those questions have been developed from a working hypothesis that the main cause of population change is due to the demographic transition and migration that can compensate for negative trends. However, for most Russian cities, attracting new citizens becomes more and more complicated due to the overall negative demographic situation in the country and in most regions. Moreover, even in a case of current positive demographic development, the existing population age structure illustrates future unavoidable population decline.

The second area of investigation, **b) negative effects of population change**, aims to answer the following questions:

- 1) Which physically expressed negative effects of population change are observed in the city?
- 2) Which are the perspectives for the future city’s territorial development under conditions of the current and future demographic changes?

The working hypothesis for this step is that even in the cities with a growing population, the current demographic changes lead to the transformation of population age structure and accordingly the use of urban territory and infrastructure both now as well as in the future.

The third area **c) planning policy**, aims to answer the questions:

- 1) Which strategic documents are developed by the municipality and how much do they correlate to each other?
- 2) How is the current and future demographic situation considered in decision-making?
- 3) Which decisions in planning documents are done in order to respond/manage the demographic issue?

The analysis of strategic planning documents is based on the hypothesis that the common perception of shrinkage in Russian planning is still ignored and it is hoped that there will be future population growth, even in cases of long-term decline. Local authorities are unable to understand the nature of current demographic process nor plan in accordance with it.

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The cases are investigated separately using the same structure for the analysis, the same period for data collection and data sources (table 4.3.1). The final part is dedicated to the comparison of the cases according to the structure offered for the research in order to test the working hypotheses.

*Table 4.3.1.
Fields of analysis according to the research questions, available information and indicators.*

Research question	Area of investigation	Available information	Quantitative	Qualitative
Population change drivers	Location	Geographical characteristics (climate, natural resources, closeness to the economic centers, access to infrastructure)		
	Administrative status	Level of subordination, duties and powers, relationship with other level of governance and surroundings		
	Socio-demographic structure	Natural demographic change (natality-mortality, age-sex structure)		
		Migration		
	Economic development	Economy diversification and specialization		
		Investments		
		Employment/unemployment		
		Enterprises/entrepreneurship		
		Salary/income/living wage		
	Urban environment	Housing amount and quality		
		Public/social infrastructure		
		Engineering/transport infrastructure		
	Negative effects of population change	Urban environment	Physical degradation	
Housing				
Public/social infrastructure				
Engineering/transport infrastructure				
Planning policy	Spatial planning	Availability of the local planning documents and their quality		
		Planning comprehensiveness (Correlation of the documents of different types)		
		Considering demographic issue		

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Research question	Area of investigation	Available information	Quantitative	Qualitative
		Planning solutions in terms of addressing demographic issue		

The data used for the analysis refers to the unit of investigation, the city. However, considering the specificity of the Russian statistical data collection, which deals with the municipal level, in evaluation of the particular indicators, that level was used. The municipalities often include rural settlements besides a city. However, in the presented cases, the rural settlements have not significantly influenced the general trend of the municipalities' development due to their small size and their role in this evaluation may be ignored.

The description of the cases is presented in two chapters: growing cities and shrinking cities. This division is done according to the cities' population change from 1989-2015 in order to distinguish them by the main indicator used for the shrinkage diagnosis.

4.4. Growing cities.

4.4.1. Mikhailovsk: one of the fastest growing cities in Russia.

Mikhailovsk's profile and its historical background.

Mikhailovsk is the fastest growing and the youngest city among the case studies, which gained its city status in 1999, eight years after the USSR collapse. Therefore, it is among the new cities grown from the rural settlements in the Russian new history.

The village Mikhailovka was founded in 1784 as one of the settlements created by the Russian Empire in the Northern Caucasus in order to support Russian invasion into the region. In the 1830's, the Russian Empire started to strengthen the protection of the “North Caucasian Line” that involved a system of Russian forts and Cossacks settlements along the Northern side of the Caucasus Mountains. As a part of those actions, the village of Mikhailovka was transformed into the Cossacks military settlement “stanitsa” (станица). In 1870, the stanitsa Mikhailovskaya transformed again into a civilian settlement, a village. In 1895, the railway and the station in the village were constructed. The railway construction provoked new commercial activities and the fast economic development of the village. During the Soviet period, Mikhailovskaya was the economic center of the agricultural sector in the municipal district. Closely located to the important railway node, the airport and the regional capital have made Mikhailovsk attractive for new enterprises and active housing construction. Always being a growing settlement, in last 25 years, Mikhailovsk has almost doubled its population and transformed into a city.

Mikhailovsk's administrative status and location.

The city of Mikhailovsk is one of 19 cities in Stavropol'sky krai and one of 15 municipalities with the status of “urban settlement”. The status of urban settlement signifies Mikhailovsk's subordination to the municipal district “Shpakovsky”.

The municipality “The city of Mikhailovsk”, besides the city itself with the population of 82,743, includes three villages: Podgorny, Balky and Kozhevnikov and their total population of 578 residents. Mikhailovsk is also the administrative center of the Shpakovsky municipal district with a population of 135,633 people that includes 12 municipalities (one urban and 11 rural), one city and 41 villages.

Mikhailovsk is bordered by the regional capital of the Stavropol'sky krai (map 4.4.1), the city of Stavropol' with a population of 429,600 people. Mikhailovsk connects to Stavropol' through the roads and railway network with an important railway station in Mikhailovsk.

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Map 4.4.1.
Location of Mikhailovsk in Stavropol'sky krai.



Mikhailovsk represents the typical case of a city-satellite neighboring the regional capital: located so near to the large cities turns such satellites into one of the city's larger district (map 4.4.2). This close location creates possibilities for commuting, but usually lower prices for housing becomes a stimulus for the housing construction. Accordingly, such settlements, together with the regional capital, form a pole of growth. In the southern Russia context, such a statement is relevant also for Rostovskaya (Rostov-on-Don – Aksay – Bataysk) and Volgogradskaya oblast' (Volgograd – Volzhsky). The distance between Mikhailovsk and Stavropol' is five kilometers.

Map 4.4.2.
Mikhailovsk is a city-satellite of Stavropol', the regional capital.



Stavropol' does not form a developed agglomeration and Mikhailovsk is its single city-satellite.

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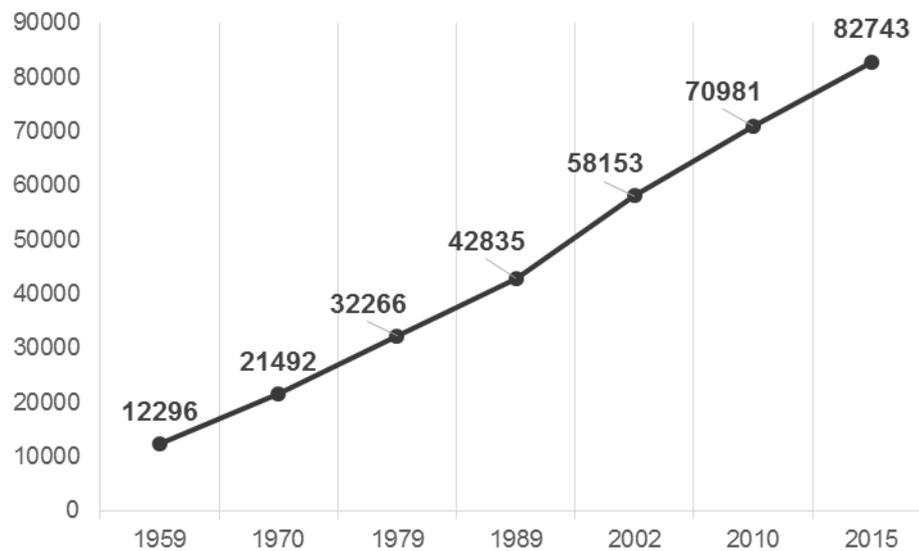
Demographic situation in Mikhaylovsk.

Population change and structure.

The regional capital Stavropol' has never experienced population decline and its population growth from 1989-2015 was 33% (figure 4.4.1). Mikhaylovsk in the same period demonstrated an incredible population growth of 93.2% for the same period. Such a dynamic is exceptional not only for southern Russia (there are several cities demonstrating a similar or even higher dynamic), but for the whole country as well. By the dynamic of the population growth in 1989-2015, Mikhaylovsk is in the 15th position among all Russian cities.

The population of Mikhaylovsk was 82,743 people on 01.01.2015.

Figure 4.4.1.
Population change in Mikhaylovsk according to censuses of 1959, 1970, 1979, 1989, 2002, 2010 and data on population number in 2015.

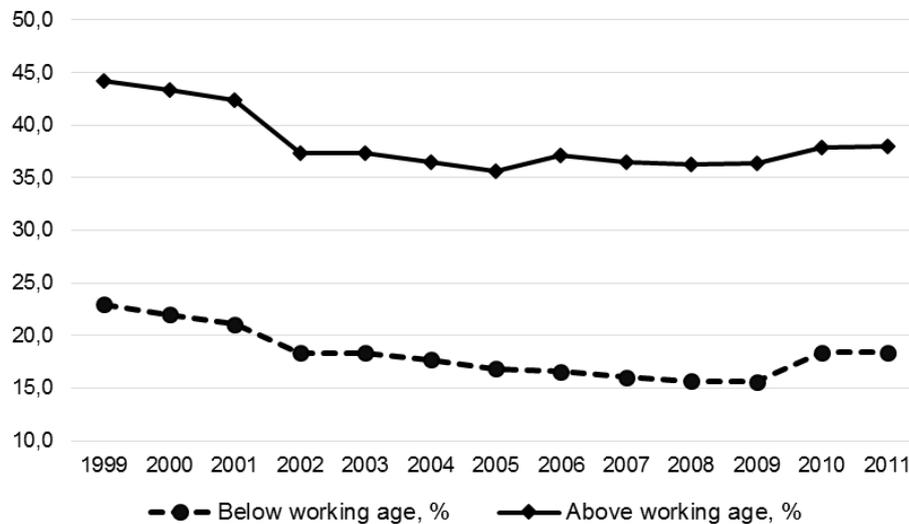


Despite the constant population growth, there are some negative aspects characterizing the current demographic situation. The population structure of Mikhaylovsk demonstrates almost constant growth in a working age group that indicates the city's attractiveness for immigrants (figure 4.4.2). The share of this group increased from 55.8% in 1999 to 62.1% in 2011. Accordingly, the share of the dependent groups decreased for the same period. However, the pattern of this change was similar for both dependent groups with the decrease in the 2000s and following the increase, which indicates a lower birth rate than in the past. The number of people above the working age level started to prevail since 2001.

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*Figure 4.4.2.
Percent of population below and above working age in Mikhaylovsk, 1999-2011.*

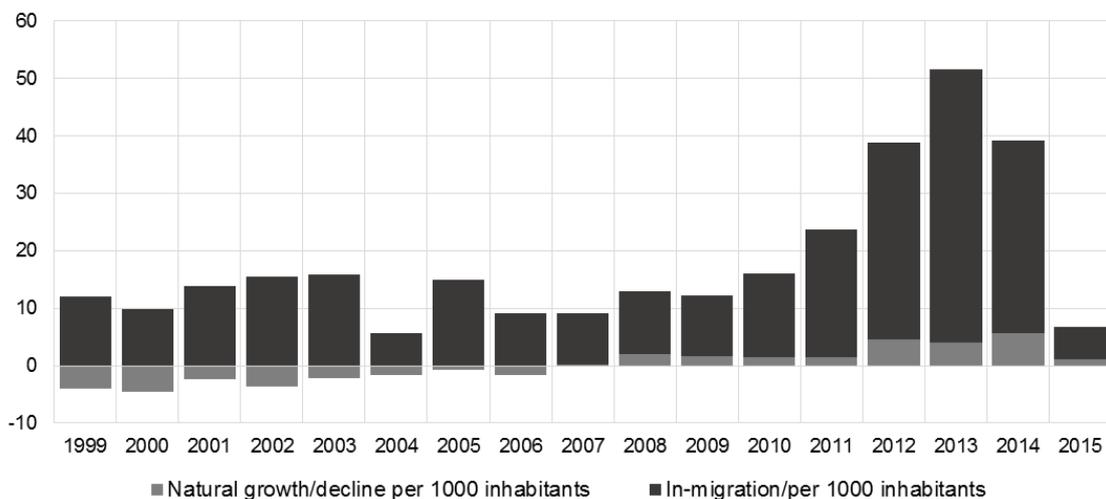


The growing population in the working-age group will move to the above working age group and, likely, its share will grow in the future.

Components of demographic change.

Mikhaylovsk’s population growth has been mainly based on in-migration, although since 2007 we may observe the slight natural population growth as well (figure 4.4.3). However, in-migration has played a crucial role in the city’s population change. Interestingly, the natural population growth is based mainly on the very low mortality rate rather than the high birth rate. The mortality rate of 10-11‰ (even 9‰ in several years) was lower than in the Stavropol’sky region (about 12‰) and in the whole country (13.3‰). The natality rate was also low and fluctuated at the level of 11-12‰, while the regional indicator was at the level of 12.5‰ and the national indicator was at 13.3‰.

*Figure 4.4.3.
Components of population change in Mikhaylovsk in 1998-2011.*



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The migration growth in Mikhaylovsk has been positive during the entire period under review, but the number of in-migrants depended mainly on housing construction. The implementation of large projects caused people's replacement to the city. Accordingly, population growth is not based on the economic development of Mikhaylovsk itself, but on the economic development of the Stavropol'-Mikhaylovsk agglomeration. The origin of in-migrants is from the regional capital Stavropol', rural areas of the region and other regions mainly in southern Russia.

Economic development of Mikhaylovsk.

There is very little quantitative data on the economic development of Mikhaylovsk. Despite its urban status, agriculture is the main sector of the municipal economy of Mikhaylovsk. There are no big industrial enterprises and most of the existing enterprises are involved in food production or construction. There is also a plant, producing spare parts for automobiles, combines and tractors. There is no data on the sectoral contribution to the city's economy and the dynamic of economic development. Some conclusions could be drawn on the basis of these indirect indicators.

Thus, in Mikhaylovsk's official documents, there are notions about the low index of budget sufficiency per capita. This indicator is even lower than in the nearest rural settlements, which demonstrates an actual economic development. The increasing number of jobs does not support the growing population number and, accordingly, the budget sufficiency per capita has been declining. Nevertheless, the city has been demonstrating a positive dynamic of investments in its fixed assets. Moreover, within those investments, a share of the budget money has been declining, while the share of the private investments has been growing significantly. This positive trend obviously is based on the investments in housing construction that will not last for a long period.

Based on the number of business entities and individual entrepreneurs per 1000 people, Mikhaylovsk performs better than other cases, but their number had been rising up until 2009 and then declined. The city went from 60 business entities per 1000 people and 47 individual entrepreneurs per 1000 people to 51 and 40 respectively.

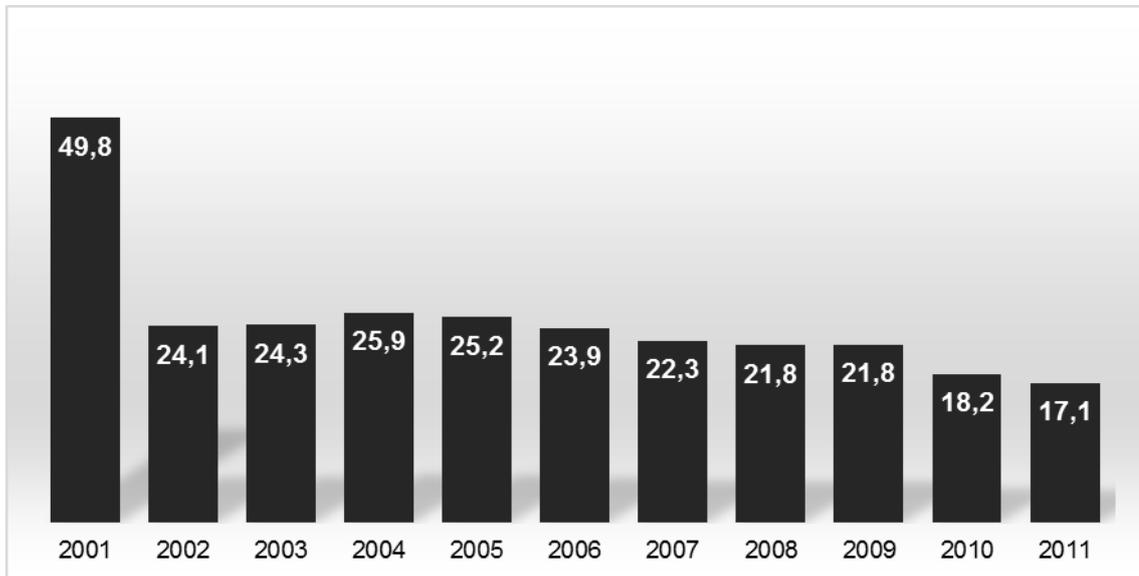
Notably, the number of employed people in Mikhaylovsk decreased from 14,626 people in 2001 to 7,567 in 2011 (figure 4.4.4). The share of the employed population of working age enormously decreased from 49.8% to 17.1%. This fact is explained by the improved job opportunities provided by the regional capital Stavropol' and the convenient commute. In the current Russian legal system, the opportunities for municipal cooperation are very limited and the economies of the closely located cities function separately. In the case of Mikhaylovsk, such conditions create mostly disadvantages for the city's future economic development.

The official level of unemployment is low, but this indicator is not representative.

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Figure 4.4.4.
Percent of population in working age employed in Mikhaylovsk, 2000-2011.



The average salary in Mikhaylovsk during the whole period under review was increasing. However, the amount in 2011 was lower than the average salary in the region by 7% and 25% lower than in its neighbor Stavropol'. A relationship between the average salary and living age from 1998 to 2011 grew insignificantly from 2.14 to 2.48, with the value corresponding to the poorest regions of the country.

Interestingly, the floor area of housing per capita in Mikhaylovsk has been decreasing rapidly from 34.4 square meters per capita in 1999 to 20.7 square meters per capita in 2011, despite the high dynamic of housing construction. However, it was not able to follow the dynamic of population growth. The housing price in Mikhaylovsk is quite high around 28,100 rubles in 2015, which was higher than average in Stavropol'sky krai (25,500), but lower than in Stavropol' itself (33,800 rubles).

Mikhaylovsk's planning structure and urban environment.

As described above, Mikhaylovsk developed into a city mainly due to its very fast growth. However, its planning structure and the character of the urban environment demonstrates very well its recent rural past. Its existing urban environment is quite monotonous and varies insignificantly in some areas. Simultaneously, the new residential areas appearing on the city's periphery, contrast to the existing settlements, but are monotonous and monofunctional as well. Rural character of the settlement is seen also in the prevalence of residential areas formed by one-family houses (map 4.4.3) with their own garden: such territories are characterized by irregular street grid, absence of public spaces and satisfying infrastructure. The built up territory occupies a large area of about 26 square kilometers and the population density within the built up area in Mikhaylovsk is about 32 people per ha. However, there are almost no unused land plots in the city, except for the several abandoned industrial areas. Yet, such areas are small because Mikhaylovsk was not an industrial city in the past.

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Map4.4.3.
Planning structure of Mikhaylovsk.



The city center in Mikhaylovsk is not that different from the other territories and cannot be clearly identified in planning structure or in the nature of buildings. Actually, it is expressed in the presence of public facilities. The city does not have geomorphological limits for its territorial development on its periphery.

Image 4.4.1.
Mikhaylovsk city center.



The residential areas differ significantly in their level of infrastructure development and public facilities distribution. Thus, the “old” residential areas in the city are characterized by very poor quality of streets (pavements, illumination, sidewalks, greenery) and public facilities presented mainly by schools and kindergartens. In the few residential areas formed according to the soviet standards from the apartment buildings, the infrastructural provision is much better: such areas are provided with a sewage system, services, commercial facilities and social infrastructure. The new residential areas in some cases include commercial facilities and offices, but are poorly provided with social infrastructure and public spaces.

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Image 4.4.2.
Residential areas in Mikhaylovsk.



Thus, Mikhaylovsk’s urban environment is characterized by the very low quality and attractiveness along with serious infrastructural problems.

Limits for growth in Mikhaylovsk.

Analysis of the information in the media, but also from official documents shows that the city is experiencing many problems due to the low level of its infrastructural development. The statistical data on the provision of engineering infrastructure is not representative, but some conclusions can be drawn in any case. Thus, a share of housing provided with different types of engineering infrastructure has been declining. The percent presented in the official database does not seem adequate; however, other indicators confirm the trend. For example, the lengths of the water supply and sewage networks, as well as the capacity of the sewage treatment facilities have not changed since the Soviet period. These factors mean that increasing pressure on the existing

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infrastructure with the new housing construction and the decreasing quality of housing and urban environment. New residential areas lack social infrastructure as well.

Figure 4.4.5.

Housing construction in Mikhaylovsk in 1999-2011, thousand square meters of floor area.



Thus, in the period from 1999-2011 about 505,000 square meters of housing floor area were constructed (figure 4.4.5), while the development of social infrastructure has been expanded by the construction of one school and one small polyclinic. The number of kindergartens from 1999-2011 has remained stable with 13 kindergartens. However, the number of places in those kindergartens during the same period has increased from 1767 to 1829. In 2013, the total capacity of all kindergartens was 2,915 children, which meant high levels of deficit in the capacity of kindergartens. From 1999 to 2011 the number of children per 100 places in kindergartens grew from 84 to 122. Most of those facilities have been constructed to hold 70-80 students. They are characterized by bad physical conditions and require reconstruction. Together with the continuing population growth and the increasing demand for kindergartens, it creates a high burden on the local budget. A private individual constructed the only new kindergarten with a capacity of 168 children in 2013. According to the information from the city general plan, the deficit of capacity was 3,042 places in 2015. The number of schools increased from seven to eight due to the construction of one school in 2007. The total capacity of all schools in 2015 was 5,178 places while the demand was 8,206. The schools as well as the kindergartens are characterized by bad physical conditions and most of buildings have more than 50% of physical deterioration. Therefore, the school facilities are not enough and there are no new educational facilities in the new residential areas. Healthcare facilities do not satisfy city's needs either. There is one hospital and one outpatient clinic, the capacities of which have been reduced during the period under review. Thus, the number of hospital beds went from 360 to 280 (or from 6.1 to 3.8 per 1000 people). However, there are two new facilities under construction now thanks to the same charity project that included the kindergarten's construction with a children's medical center, children's fitness and health center. The number of the cultural and sport facilities has been stable with the exception of the construction of the indoor ice rink, but poor funding has resulted in physical degradation of those facilities as well.

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*Image 4.4.3.
New kindergarten, built in Mikhaylovsk in 2013.*



The construction of engineering infrastructure has also been insufficient. In fact, only the gas supply network has been constantly extended. The water supply network in 1999-2011 was increased by 1.4 km while not one km of the sewage system was constructed during the same period. The scheme of the housing construction used in Russia usually presents an agreement between local administration, providing land (green fields) for development, and developing companies, which profit from selling newly constructed houses. New houses become private and, accordingly, the developers are not interested in long-term contracts involving maintenance and exploitation of the constructed housing.

Socio-economic and spatial planning in Mikhaylovsk.

The strategic documents for the city of Mikhaylovsk at a municipal level are presented by the Strategy of socio-economic development for the Shpakovsky municipal district until 2025, the forecasts of socio-economic development for the Shpakovsky municipal district, the scheme of territorial planning for the Shpakovsky municipal district until 2040 and the general plan of Mikhaylovsk until 2027 and the municipal programs (table 4.4.1). Also the regional government has created the Concept of the Stavropol' agglomeration development, which includes four cities and five municipal districts.

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Table 4.4.1.

Municipal strategic documents acting within the territory of Mikhaylovsk.

	Strategy of socio-economic development	An action plan of implementation of the strategy of socio-economic development	A forecast of socio-economic development of the municipality in the medium or long term	A budget forecast of the municipality in the long term	Municipal programs	Documents of territorial planning
Shpakovsky municipal district	Until 2025	no	Every 3 years	no	+	Scheme of territorial planning of Shpakovsky municipal district until 2040
Mikhaylovsk	no	no	no	no	+	General plan of Mikhaylovsk until 2027

The regional government in 2013 created **the Concept of the Stavropol’ agglomeration development**. This document does not have an obligatory character and does not have any legal tools to be implemented. Nevertheless, it was an attempt to have a wider view on the regional capital possible development.

This document is created within a forming by the Russian government discourse on agglomerations. The document started with the citation of the President Putin, who says:

The development of the Russian territory must begin with the lands around the major economic centers. Expansion of the “agglomeration radius” of our cities will increase the available territory by 1.5-2 times.

This citation illustrates well the current national spatial policy, oriented to the satisfaction of the construction sector with the land resources and including green fields surrounding the largest cities into the active development process.

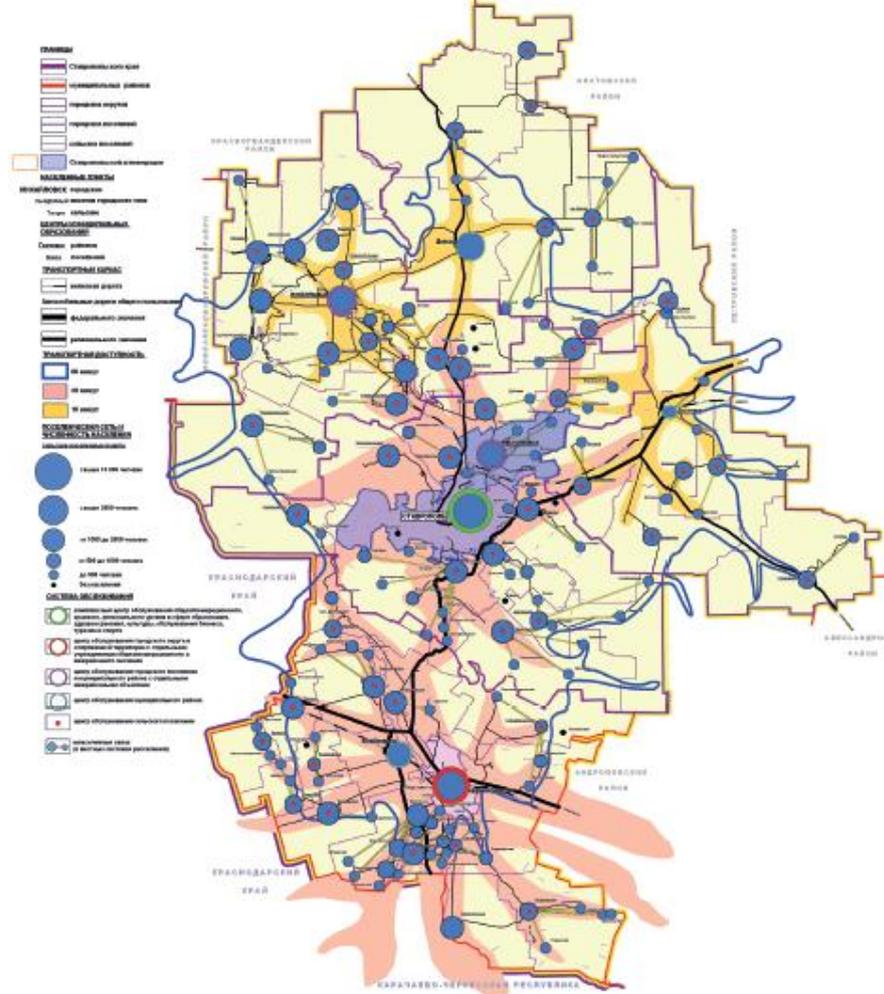
The term “agglomeration” does not exist in the contemporary Russian legal system. Accordingly, it is defined differently by different authors. In Stavropol’ the regional government refers to the most frequently used determination of the agglomeration boundaries on the basis of isochronous of the agglomeration center’s transport accessibility. The document emphasizes existing difficulties for the presentation of the governance model for the agglomeration within the current Russian legislative system. It proposes using agreements between the municipalities in order to resolve the common problems. However, the document claims this model has a lot of disadvantages in terms of its legal status.

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Image 4.4.4.

The boundaries of the Stavropol' agglomeration defined by the Concept of the Stavropol' agglomeration development on the basis of isochronous of agglomeration center's transport accessibility.



The attempt to develop a strategic view has resulted in the document, which is quite similar to the regional spatial plan (image 4.4.4). It does not include a specific deep analysis of the relationship between the municipalities within the agglomeration. For example, the problem of Mikhaylovsk losing its economic base due to its weaker attraction compared to the regional capital and, accordingly, declining number of jobs and budget revenue is not mentioned at all. The specificity of the demographic development is not investigated as well. The demographic situation is described in a general way, with attention to the low birth rate and high mortality rates, but with the hope at the same time that:

“within the territory of the agglomeration, playing now and in the future an important role in socio-economic development of the region, the demographic situation will be close to stable or somewhat improved, primarily due to the central zone of agglomeration”.

At the end, the document did not form a strategic vision based on the real opportunities and problems of the Stavropol' agglomeration, but likely created a kind of official basis for the land consumption in the area.

The Strategy of socio-economic development for the Shpakovsky municipal district until 2025.

A very short chapter in this document is dedicated to the municipal district's demographic development. Actually, the document describes the demographic situation as “relatively good, clearly showing tendency to the improvement” based on several indicators provided for the 3-year period (2005-2008). At the same time, the authors are worried about employment in the municipality based on the background of the growing population, a number of jobs will not increase, but in contrast, decline. The Strategy characterizes the employment situation in the municipality as extremely hard. Accordingly, the authors assume it is worsening due to the expected entering of the younger generation into the work force. According to the increase in the population number in this group and the reduction of jobs in Shpakovsky municipal district and the city of Stavropol' due to the current economic crisis. Consequently, another serious problem appears: the weakness of the municipality's own tax base. In the local budget, about two thirds constitute transfers from the other levels of the budgetary system and this share continues to grow. The main source of the budget revenues is the income tax on individuals, many of whom work in the regional capital and, accordingly, contribute to Stavropol's tax base.

The document mentions also the existing problems in housing provision. Despite the high dynamic of housing construction, the housing provision per capita remains relatively low, because the population change dynamic is much higher. The housing quality is also not satisfactory, the document claims about 30% of housing are not connected to sewage systems and about 25% do not have water supply.

In the evaluation of the strengths and weaknesses, the Strategy refers frequently to the municipality's geographic location and, more precisely, its territorial relationship with the regional capital. The cities' neighborhood is considered simultaneously as an advantage and a disadvantage: on one hand, Stavropol' offers a better developed jobs' market, higher quality of services and leisure facilities. On the other hand, it limits Shpakovsky municipal district's economic development by reducing its investment attraction and complicating the local labor market's development. Notably, the sociological survey of the district's residents, conducted by the Strategy's authors, has shown the low income to be the most worrying aspect of the municipality's development. The low quality and low level of the technical infrastructure provision became the second most important aspect.

A demographic projection for Shpakovsky municipal district was not designed in the document. Moreover, a population number is not included in the target indicators of its future development, while some demographic characteristics, mainly concerning social aspects (such as mortality rate or life expectancy) are mentioned. However, the document provides target indicators for every urban and rural settlement within the municipal district and a population number, without explanation, is included into target indicators.

Thus, the population projection for the city of Mikhaylovsk (table 4.4.2) assumes population growth from 61,800 people in 2007 to 82,800 people in 2025 (or an increase of 34%). In reality, the city reached a population of 85,400 residents in 2016, 3% higher than predicted for 2025 and 14% higher than projected for 2015.

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Table 4.4.2.
Population projection for Mikhaylovsk presented in the Strategy of socio-economic development for Shpakovsky municipal district and its comparison with the current population number.

2007	2010 (forecast)	2015 (forecast)	2020 (forecast)	2025 (forecast)	2016 (statistic)
61751	71,562	75,000	78,100	82,750	85,387

Population growth is predicted for all the settlements within the municipal district, without exclusions. However, nothing is said about the territorial aspect of population distribution, mobility and the relationship within the settlements' network.

The scheme of territorial planning for Shpakovsky municipal district developed in 2010.

Despite the positive population change in Shpakovsky municipal district from 1989-2010, in the scheme, the demographic situation is called “relatively favorable”. The chapter on demography in the municipal district includes quite a detailed long-term demographic analysis for the period 1970-2009. The document concluded that the positive population dynamic is based on in-migration, while the natural population change remains negative. Thus, the municipal district, as many other areas in the southern Russia with a prevailing Russian ethnos, is characterized by the low fertility rate, high level of mortality, ageing and imbalanced gender ratio. The trend of natural population growth is described as “unsustainable”. An important feature of the municipal district, according to the document, is a significant commuting of population in the city of Stavropol. Analysis of the labor characteristics shows a constant decline in the number of economically active population, a number of employed people and unemployment increase. That fact confirms a successful demographic development of the municipal district due to its location around the regional capital and the city of Stavropol, which concentrates recourses and economic activities. Yet in the municipal district itself, the economic development is not so positive and is based mainly on housing construction. Consequently, the Scheme of territorial planning states the necessity of more balanced distribution of economic activities in Stavropol' agglomeration.

In addition, the presence in the municipal district of small villages with the population of 100 people and less has attracted the attention of planners. Supporting all of the settlements in the rural network is seen as an important task and authors offer to improve transport and engineering infrastructure, accessibility and quality of life in those settlements.

The demographic projection developed in the scheme includes two scenarios (table 4.4.3), but there is no explanation which method of projection was used. It is described that the second variant considered planned investments and the creation of new economic enterprises. Strangely, both scenarios, different in population in 2025, predict the same population for 2040.

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*Table 4.4.3.
The results of population projections in the Scheme of territorial planning for Shpakovsky municipal district
according to two scenarios, thousand people.*

	2009	2015 (forecast)	2025 (forecast)	2040 (forecast)	2015 (statistic)
I scenario					
Shpakovsky municipal district	112.5	115.6	122	141	135.6
The city of Mikhaylovsk	62.5	66.0	73	91	82.7
II scenario					
Shpakovsky municipal district	112.5	115.6	130	141	135.6
The city of Mikhaylovsk	62.5	66.0	80	91	82.7

In reality, both proposed scenarios were less optimistic than the actual demographic development. In both the city of Mikhaylovsk and Shpakovsky municipal district the real population number exceeded the predicted number in 2015.

The demographic projection is used for the calculation of housing construction needed. Actually, the document notes existing declining trends of housing provision (housing floor area per capita) due to population growth. However, the scheme of territorial planning sets it as an indicator that should be achieved by the 2040 housing provision with 45 square meters of housing floor area per capita in Mikhaylovsk; the existing amount is 21 square meters per capita. Such a high level combined with the predicted population growth means significant land sources for housing construction. The municipal social and technical infrastructure should be significantly developed according to population growth as well.

The general plan of the city of Mikhaylovsk until 2035 (approved in 2015).

In the document, demographic development is seen from positive and negative perspectives for future development, but the analysis of the current demographic situation is not presented. However, the general plan of Mikhaylovsk includes three scenarios of the future development with the different changes in population being pessimistic, optimistic and innovative.

According to the demographic projections presented in the general plan (table 4.4.4), the population will increase in any scenario. Within the innovative scenario, which is taken as a base for the following design, the population will grow to 146,700 people in 2035 (or by 76%). The projection itself is not presented in the document, but it is mentioned that in its mathematics model the Malthus method has been used.

*Table.4.4.4.
Demographic projection for Mikhaylovsk according to three scenarios.*

Scenario	2015	2020	2025	2030	2035
Optimistic	83,321	102,286	121,299	140,371	159,500
Innovative	83,321	99,157	114,999	130,846	146,698
Pessimistic	83,321	96,156	108,996	121,841	134,691

Importantly, the document also includes variants of the possible future demographic development without in-migration, based on the natural population change only. In those scenarios, the only optimistic variant demonstrates population growth by 10%, the medium scenario assumes stabilization of the population number and the pessimistic one shows a population decline by 3%. The authors of the general plan see the positive population

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development in the successful implementation of the housing development projects. It is not clear how the city will support in-migration after the implementation of development projects. The issue of the city's economic base and presence of jobs are not taken into account.

Map 4.4.4.

The territories of new extensive development designed in Mikhailovsk general plan, 2015.



The existing trend of population growth and intensive housing construction in Mikhailovsk is taken more as a probable direction of the future development and results in the design of an extensive territorial development based on housing construction (map 4.4.4). The general plan increases the built up areas by 70% (from 26 sq km to 45 sq km). The residential areas should increase from 1,914 ha to 3,192 ha (or by 67%). Notably, the priority in housing typology is done to the apartment buildings in contrast to the existing situation, where the main type of house is a single-family house with 0.06-0.12 ha of individual gardens. The area of the territories occupied by public spaces and public facilities should increase from 121 ha to 468 ha (or by 3.8 times), which should improve the quality of Mikhailovsk's urban environment.

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Mikhaylovsk: results.

At first sight in the depopulating country, Mikhaylovsk seems to be one of the most positive examples of successful development, especially considering it being a small city. A closer investigation lets us understand that the positive demographic development is based on the intensive in-migration and that the real economic target is not Mikhaylovsk itself, but the nearby regional capital. Accordingly, Mikhaylovsk is a case of constant and significant economic decline on the background of the sharp population growth.

Unfortunately, the deeper analysis demonstrates the unhealthy situation in the city's socio-economic development. One-sided orientation has utilized the advantages of the city's location in the previous years and also results in a strategic view for the future. It seems to be an attempt to use a well-known instrument that has worked well without adapting it to changing conditions. Despite preoccupation about the jobs market and declining quality of urban environment, as expressed by the authors of most documents, the solutions for the trajectory's change were not offered. At the same time, the strategy to attract investments in one sector of housing construction will not succeed in the long term because it does not create new economic activities, but merely transforms Mikhaylovsk into the sleeping area for the regional capital Stavropol'. The chosen strategy worsens the budget burden by requiring the maintenance of new housing areas and provision of required infrastructures. Another important point is that new residential areas are characterized by the very low quality urban environment and cannot be competitive in the long term. Moreover, the developers' focus on short-term profit pushes them to save costs through the minimization of expenses in the construction of housing. Accordingly, the quality of housing itself is not high and will lead to fast physical deterioration. Lack of the financial resources forces the local municipality to pay less attention to the needs of the existing residential areas, which means terminating investments into infrastructure development.

All in all, the strategic planning in Mikhaylovsk demonstrates the inability of the local authorities to manage population growth as well as in other cases of population decline. The development of the documents at a higher, regional level illustrates all the limitations for the municipal cooperation and common planning that exists in the current legislative system in Russia. Even in such an obvious case, when two settlements function as a single system, the administrative boundaries become a visible barrier in their management.

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4.4.2. Ardon: population growth and weak economic development.

Ardon's profile and its historical background.

Ardon gained its city status in 1964, but the settlement itself was formed as part of a unification of an Ossetian village (founded in 1823) and a Cossack stanitsa (founded in 1838). Ardon held a strategic position at the entrance to the gorge and, accordingly, played an important role as a military settlement during the Russian invasion into the northern Caucasus region. During the Soviet period Ardon had served as the local administrative, cultural and economic center, which enterprises used for local sources (food and construction industry mainly). In 1921, the railway connected Ardon with the main railway network of Russia in order to transport the regional resources to the central part of Russia.

Ardon's administrative status and location.

The city of Ardon is one of six cities in the Northern Ossetia-Alania. The municipality of Ardon held a status as an urban settlement and is one of five municipalities with the same status. Ardon is the center of the municipality “Urban settlement Ardonskoye” and also the administrative center of municipal district “Ardonsky”. The municipality includes the city Ardon. At the beginning of 2015 the population of the Ardonsky municipal district was 31,588 residents. Ardon's population was 19,453 people or 61.2% of the municipal district's population.

Ardon is located 35 km from the regional capital, Vladikavkaz, to the north-west and connected by the roads and the railway (map 4.4.5). The railway serves the transportation of goods only and does not include passengers' services. The federal road passing through Ardon connects Russia with the partly recognized Republic of Southern Ossetia and Georgia.

The other closely located cities are Digora (12 km to the West), Alagir (18 km to the South) and Beslan where an international airport is located (30 km to the East).

*Map 4.4.5.
Location of Ardon in Republic of Northern Ossetia-Alania.*



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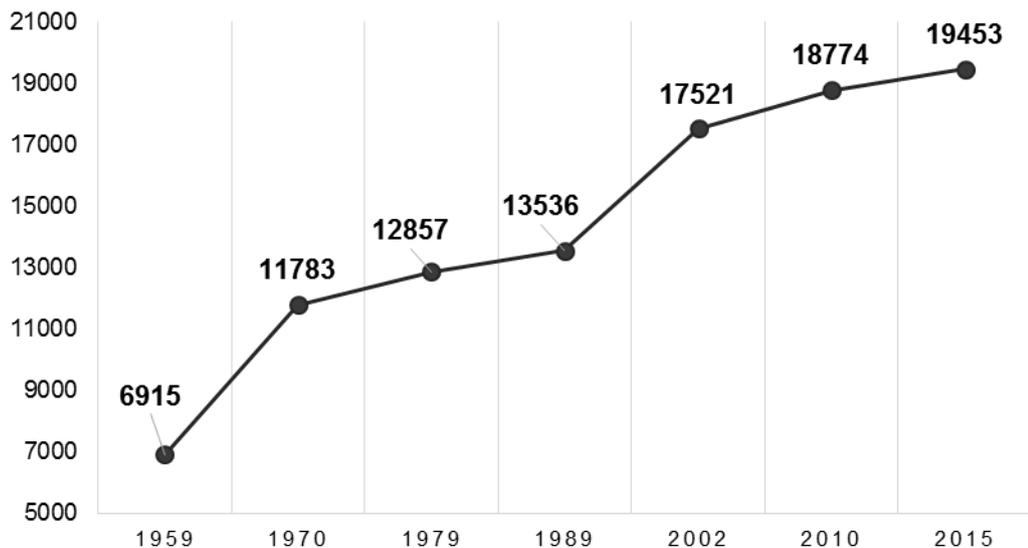
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Demographic situation in Ardon.

Population change and population structure.

The population of Ardon was 19,453 people at the start of 2015. During 2015, Ardon gained 43.7% of its population compared to 1989 (figure 4.4.6). During almost the whole period since the city's founding, Ardon has been growing. However, several years during the 21st century demonstrated population decline.

Figure 4.4.6.
Population change in Ardon according to the census data of 1959, 1970, 1979, 1989, 2002, 2010 and data on population number in 2015.



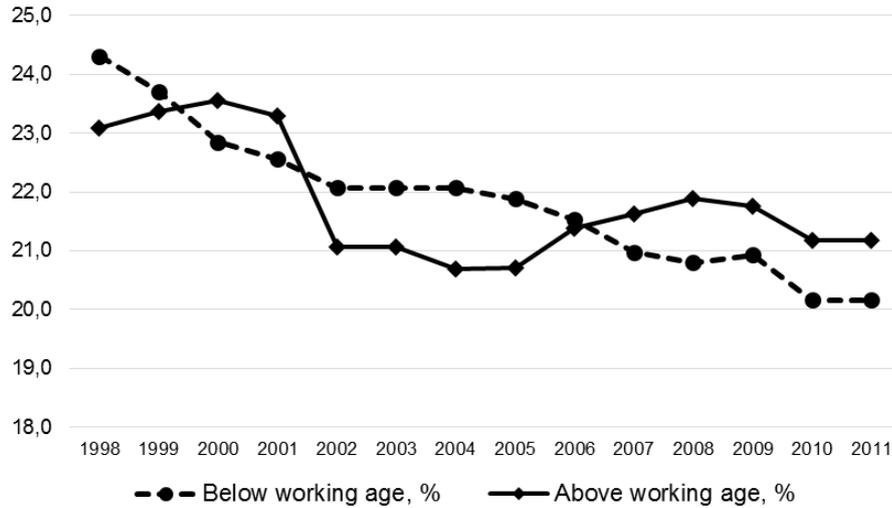
Despite a positive population dynamic, the demographic situation in Ardon did not avoid some negative features. Ardon's population is characterized by imbalance in sex proportions. Currently the disproportion between male and females corresponds to the average percentage for the whole of Russia: 47% male to 53% female. However, in the 90's this disproportion reached 42% to 58% respectively. As in the whole country, the prevalence of women increases in older age groups. Thus, in the age group up to 25 years old the number of men is higher. In 65-69 years old group there are 37% of men and 63% of women and in the age group older than 80 years, the proportion is 20% male to 80% female.

The age structure of the city's population is relatively stable. Notably, the share of both dependent population groups have been declining since the end of 90's which has resulted in an increasing percentage of the working age population group (figure 4.4.7). This group is now still a little bit lower the average in the region (about 59% compared to 60%), but corresponds to average Russian indicators. The relatively high proportion of the population below working age in Ardon is a positive factor; however, it has been slightly decreasing from 24% to 20%.

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*Figure 4.4.7.
Percent of population below and above working age in Ardon, 1998-2011.*

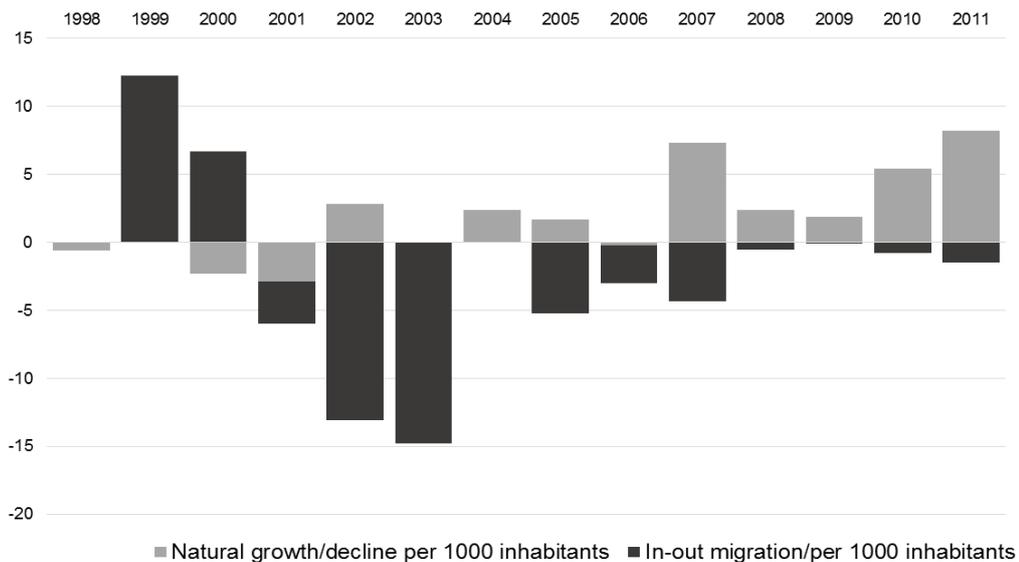


Considering the character of migrations in Ardon, the increased share of the working age group is based on the entering into this group in 2000's of the younger population born in the 80's.

Components of demographic change.

Natural population growth and migrations since the end of the 90's demonstrates the opposite trend directions. At the beginning of the 2000's, in-migration was replaced by out-migration, while the natural population decline has turned into growth (figure 4.4.8). However, the level of out-migration decreased significantly in recent years, simultaneously with the increasing natural population growth, which resulted in a positive dynamic of the city's population change.

*Figure 4.4.8.
Components of population change in Ardon in 1998-2011.*



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Actually, Ardon increased its population mainly during the first years after the collapse of the USSR. Unfortunately, there is no statistical data that could explain this phenomenon, but, likely, it is linked to the migration process in the northern Caucasus in the 90's caused by ethnic conflicts. There is a notion in the official document of territorial planning of Ardonsky municipal district about its population increase. It is described that over the past 15 years the population of the area increased by nearly 6,000 people, mostly at the expense of the refugees from Georgia, the South Ossetia and the Central Asian Republics along with internally displaced persons. Probably, those in-migrants helped to improve the demographic structure of the local population that provoked the natural population growth.

The natural population growth is based mainly on the high birth rate fluctuating in recent years between 18-20‰, which is higher than the regional average (about 15‰) or average national birth rate (13.3‰). On the contrary, the mortality rate with its fluctuation at the level of 12-15‰ was higher than the regional and even the national rates. Improving the mortality rate gives the city resource for the greater natural population growth.

Economic development of Ardon.

Ardon has never had a specific orientation of its economy to a particular production. Being a service center for the surrounding area, it performs mainly in the budget sector (such as governance and social services) and in food and construction material production.

Analysis of the investments into the city economy shows that in the first half of the 2000's, Ardon was characterized by the small amount of investment in fixed assets, placing the city in one of the last places among the cities of the Northern Ossetia-Alania. The situation had been improved in this respect since 2009, although the scale of the investment into the city's economy is still not significant. An important feature of investments in the urban economy is the absolute dominance of the budget by a source of funding (about 94% in 2010) and public funds by forms of ownership (about 90%). Ardon attracts the least amount of private investments among the cases. By the total amount of investments in the period under review, Ardon is at the lowest position among the case studies.

Among the important indicators of the city's economy development are the dynamics of the total number of those operating in enterprises and organizations. Their number in Ardon varies quite markedly in individual years, without a distinct upward trend that is one of the signs of a lack of stability and sustainability of the city's economy as a whole. Therefore, in 2002 the total number of enterprises and organizations was 710 units, in 2004 it was 944 units, but by 2005 it had decreased to only 594 units. Later, there was a process of constant increase and in 2011, the number of enterprises rose to 827 units, almost 83% of which were represented by private property.

The unhealthy economic situation can be seen from the fluctuation in the number of employees. It had been in constant decline since 2001 and dropped from 5,800 people to 2,700 in 2011, or by 53.4%. The share of the employees in the population of working age consequently fell from 65% to 24%. In Ardon, as in other cities, a monitoring of labor market did not exist and neither did special surveys aiming to respond to the question of where people actually work. For the explanation of the worsening of the employment situation in Ardon, several factors might serve. These include growing population numbers based on the background of the limited number of jobs which creates labor surplus; a part of the enterprises shifting to the grey market

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due to the developing economic crisis; closeness to the regional capital Vladikavkaz and growing polarization in regional economic developments that drive commuting activities (in Ardon the situation might be similar to Mikhaylovsk). However, those assumptions cannot be confirmed under the conditions of the existing data sources and absence of any monitoring system.

The number of enterprises and organizations operating in Ardon had not changed significantly and had been fluctuating without expressing a positive or negative trend. The number of individual entrepreneurs per 1000 people was 21 in 2011, which is one of the lowest numbers among the case studies. It might be explained by the state sector as the main employer in the area and the low business activity of population.

The average salary in Ardon during the whole period under review was growing, but its size in 2011 was the lowest (as well as in Alagir) among the cities in the region: just 85% of average in the republic. A relationship between the average salary and living wage from 1998 to 2011 went from a very low rate of 0.5 in 1998 to 2.13, which is one of the lowest among the investigated cases.

Ardon's planning structure and urban environment.

The city of Ardon is located on the left bank of the mountain river Ardon. The smaller river Targaidon divides the city in two parts, eastern and western. The eastern residential part is older, where the historic center is located, which contains the concentration of the main public buildings. The western part began to be developed after the construction of the railway, which has become, in turn, the basis for the development of many industrial enterprises.

Ardon occupies an area of about 1195 ha (built up area) and the population density within the city's borders is very low at 16 people per ha. Its urban fabric is formed mainly by the residential areas of the single-family houses with private gardens, which occupy 97% of the city's territory (map 4.4.6). The industrial areas are localized in the western part of the city and territorially tend towards the train railway station. The railroad itself delineates the western border of the city. The agricultural areas and some parts of the agricultural enterprises are located within the residential areas as well. A distinctive feature of the city planning structure is the presence of extensive floodplain spaces and large pastures, directly adjacent to residential areas. Such a rural character is represented especially in the southern part of the city, where there are no large enterprises and the density of the streets is lower. There are not any "microrraions" in the city, the apartment buildings do not form specific residential areas and are included into the main city fabric.

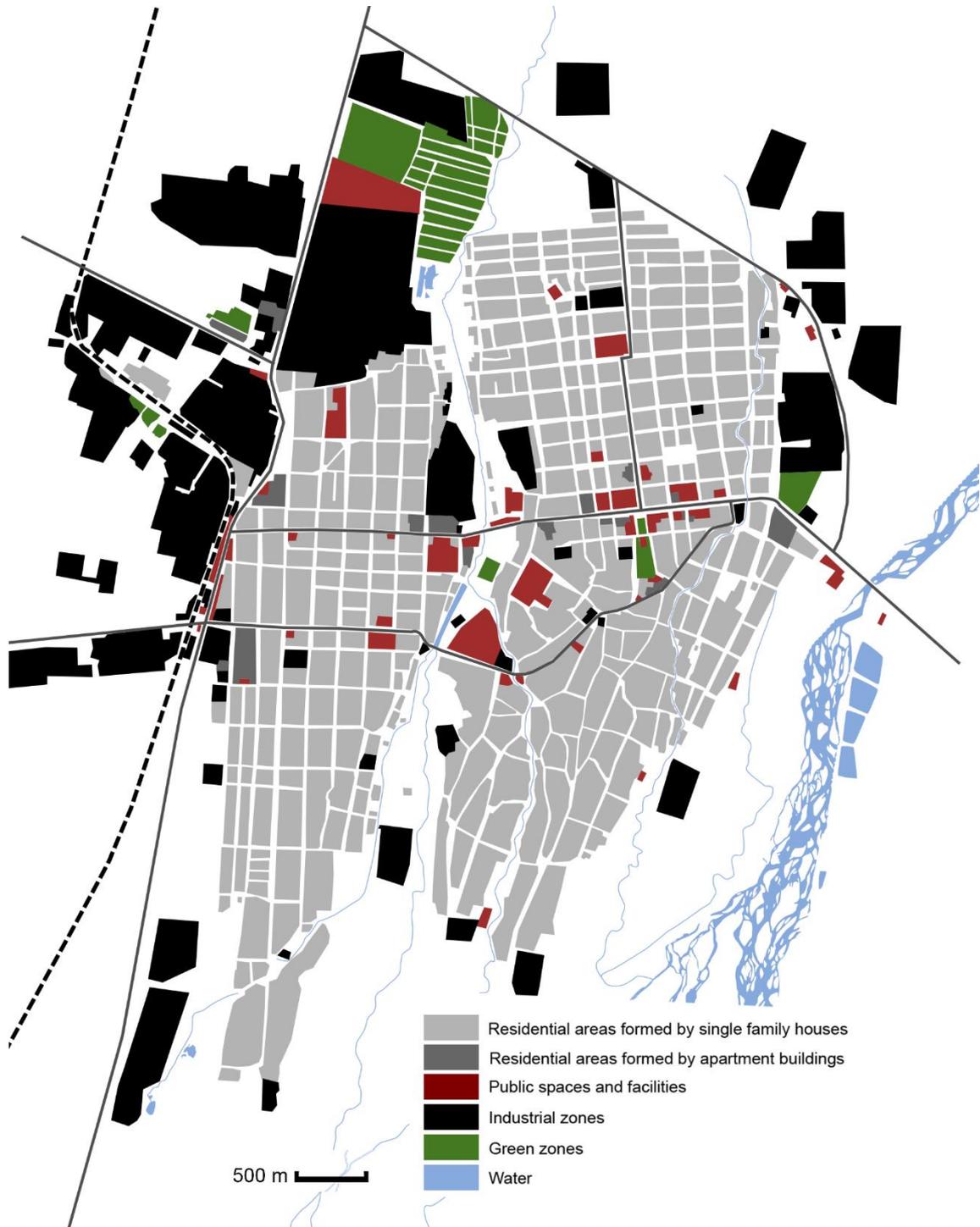
The river does not play a role in the re-creation of the territory for the city. It is explained by its "mountain character", where there are difficulties and high costs of an embankment construction.

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Map 4.4.6.

Ardon's planning structure: the residential areas, the industrial areas and the city center.



The fact that Ardon was formed from the Ossetian village and the Cossack stanitsa is clearly seen in its planning structure. A part of the city, which is the ex-stanitsa, is characterized by a regular grid of blocks and clearly identified planning center with a cathedral located at the village's heart. The city part, which was an Ossetian village, is characterized by irregular plan, large size blocks and the presence of vast areas for subsistence farming (image 4.4.5).

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Image 4.4.5.

Difference between planning structure of ex-Cossack stanitsa and ex-Ossetian village.

Cossack stanitsa

Ossetian village



The urban environment is characterized by a low quality with only 17% of streets having hard pavement and most of the streets are not provided with access to the sewage system.

Limits for growth in Ardon.

The weak economic development and the low investment attractiveness were the reasons for out-migration observed in the previous years in Ardon. However, the level of out-migration was not high. Moreover, compared to the other case studies, Ardon represents an atypical situation, where a natural population growth in the last decade has compensated the negative net migration rate. Nevertheless, without a special investigation, it is not possible to say how stable.

The quality of life in Ardon is also very low. Thus, the housing provision is the lowest among the cities in the region. In 2011, it reached 16.5 square meters per capita. In the period from 1996 to 2011, 58,400 square meters have been constructed, 78% of which the citizens have realized with their own money. The dynamic of housing construction was higher than in shrinking cities-case studies, but the significant share of self-construction indicates low city attractiveness for the developers. The development of engineering infrastructure has been characterized by the lack of its provision. Thus, since 1994 the only 2.8 km of the water supply system and 1.4 km of sewage system have been constructed.

Despite the growing population, the number of social facilities has been reduced significantly, although one new school and one kindergarten have been constructed. Thus, the number of kindergartens declined from 14 in 1994 to 7 in 2011, a total capacity reduced from 1020 to 645 places. All the kindergartens are characterized by a deficit of capacity. The number of children attending educational programs in all pre-school facilities is higher than the designed capacity. The number of schools reduced from 12 to 3 during the same period. However, despite the significant reduction of total schools and their capacity, existing facilities satisfy the city's needs, because of the transformation of population structure and decline in the number of children. Thus, the number of school-age children declined from 4,669 in 1994 to 2,130 in 2012 (or by 54%). Physical condition of the existing educational facilities is poor due to the long-term lack of funding. In 2013, a new boarding school for 500 children was opened, with construction starting in 2008.

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Image 4.4.6.

New boarding school for 500 children, built in Ardon in 2013.



The municipal healthcare system is presented by one hospital and one outpatient clinic. The capacity of those facilities has not changed since the Soviet period despite a growing population. The number of cultural and sport facilities has been stable with typical lack of funding for their maintenance.

Socio-economic and spatial planning in Ardon.

The strategic documents for the city of Ardon at the municipal level are presented by the forecasts of socio-economic development for the Ardonsky municipal district, the scheme of territorial planning for the Ardonsky municipal district until 2025, the general plan of Ardon until 2030 and the municipal programs (table 4.4.5). A Strategy of socio-economic development has not been created for the Ardonsky municipal district nor for the city of Ardon itself. Consequently, the only documents including long-term strategic vision are the documents of territorial planning.

Table 4.4.5.

Municipal strategic documents acting within the territory of Ardon.

	Strategy of socio-economic development	An action plan of implementation of the strategy of socio-economic development	A forecast of socio-economic development of the municipality in the medium or long term	A budget forecast of the municipality in the long term	Municipal programs	Documents of territorial planning
Ardonsky municipal district	no	no	Every 3 years	no	+	Scheme of territorial planning of Ardonsky municipal district until 2025
Ardon	no	no	no	no	+	General plan of Ardon until 2030

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The scheme of territorial planning for Ardonsky municipal district until 2025, developed in 2008.

The quality of the document is very low and it cannot be considered as a real tool for municipal planning. The part dedicated to the demographic development of the municipal district is very poor and describes the population change in the municipality over several years, its age-sex structure and occupation. Thereby, the authors claim, that the analysis of indicators collected from the different sources allow them to make an assumption that the demographic situation in the municipal district will develop in line with the projected indicators calculated for the region, Republic of Northern Ossetia-Alania. The authors also declare that there are many different factors providing “multidirectional impact” on the municipal demographic development. That statement, possibly, had to explain the absence of any demographic projections in the Scheme of territorial planning. Actually, the population number is not used in the calculation of housing or infrastructure needs. The document does not mention any of those issues and simply focuses the intention of the local authorities on building or reconstructing facilities, roads or pipelines.

The general plan of the city of Ardon approved in 2014 and it is developed for the period until 2033.

In Ardon’s general plan a significant part of the analysis and projections is dedicated to the demographic issue. The analysis presented is based on the data since 2001 and considers many aspects of the city’s demographic development: the birth and death rate, the age-sex structure, demographic burden and migration.

The projection of Ardon’s future development starts from the determination of the baseline scenario of the territorial development, which includes the demographic projection, the socioeconomic projection and the description of the baseline scenario, defined on the basis of the conclusions completed before. For the demographic projection (table 4.4.6), the cohort-component method is used, which can predict the number, sex and age composition of the population with the least errors. Two scenarios of population projection are presented: inertial (low) and optimistic (high).

*Table 4.4.6.
The results of the population projections in the general plan for the city of Alagir municipal district according to three scenarios.*

	2012	2015	2020	2025	2030	2030 in % to 2012
Inertial	17521	18091	18044	17964	17936	102,4
Optimistic	17521	18120	18145	18301	18604	106,2

According to the optimistic projection, the city will continue to grow, while the inertial predicts a slight decline in the future. Since the general plan was developed on the basis of data for 2012, it is already possible to evaluate the correspondence of both scenarios and the current trend. The statistic data on population development demonstrates continuing population growth, which exceeded the predicted in the optimistic scenario. It seems as though Ardon municipality is protected from possible population decline. However, there are important factors that should be taken into consideration. First, the future change in population age structure: the population projection predicts a sharp decrease in the population number in working age group (by 8.3% or 11.5% depending on the scenario until 2030). In addition, a significant growth is predicted for the younger age group. On the one hand, it is a positive factor, meaning no danger of population

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ageing; on the other hand, it means an increasing burden on the shrinking working population and increasing need of social infrastructure. Another significant factor predicted is the decline in schoolchildren number during the first decade that will obviously change the use of educational facilities.

The prognosis of the socioeconomic development is based on the analysis of existing trends and is passive in its character. This includes a description of possible successful directions in economic development for the city (mainly in food production with a high importance on agricultural activity). The city's function is defined as a service center for the vast surrounding rural areas. The demographic projection is used for the calculation of city's future needs in housing and social infrastructure: educational, health care, sport and cultural facilities.

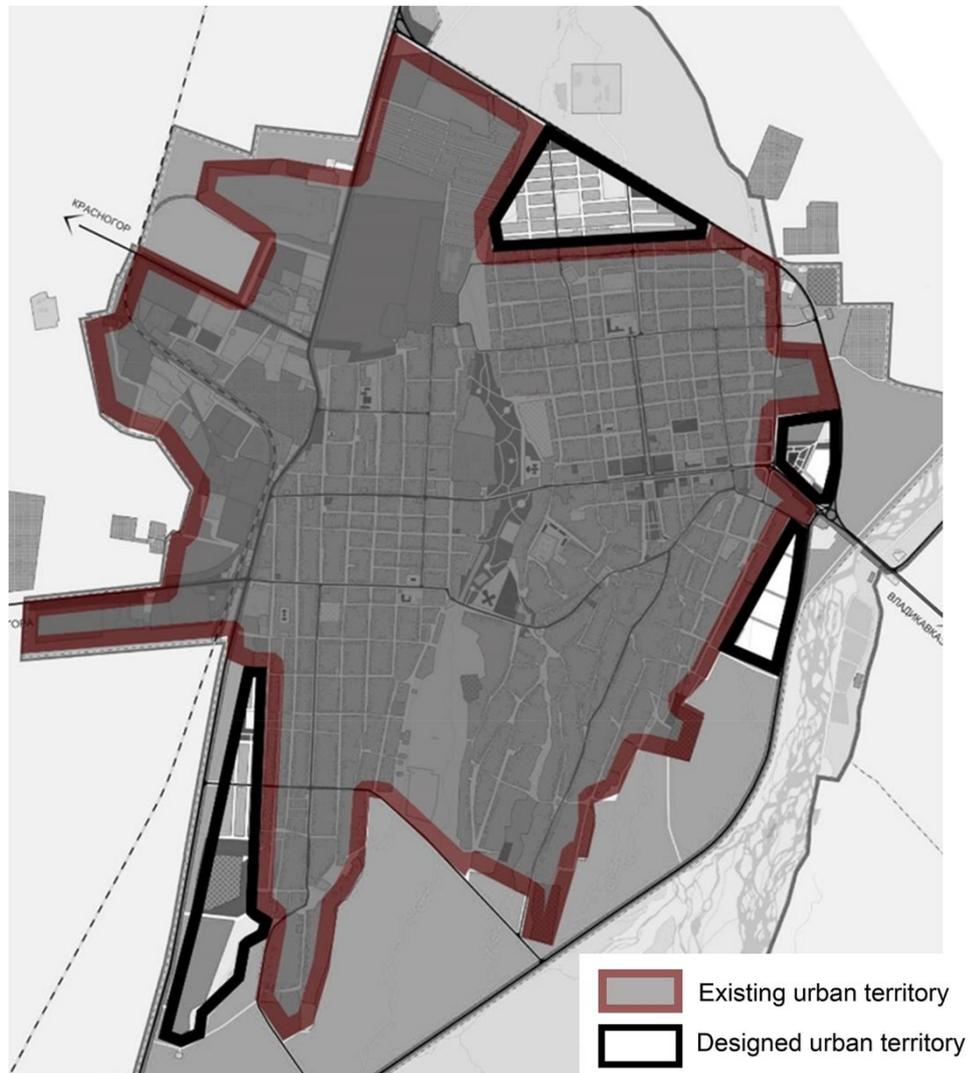
The general plan decides to increase the housing floor areas from 312,000 square meters to 632,500 square meters, or to double it. Accordingly, the residential areas should experience growth as well. However, the city is designed as a compact settlement and there is no significant urban sprawl in the project (map 4.4.7). The general plan offers intensive development of the residential territories with densification of built up areas. Thus, the residential area is designed to be increased by 10% and the total built up area by 17%. It is explained by the geomorphological conditions in which Ardon is located. Not having the land resources for the extensive development, the city had to search for an intensified solution. This was also accompanied by the more realistic view of the planners, which understood the absence of the financial capacity of the local municipality.

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Map 4.4.7.

The territories of new extensive development designed in Ardon general plan, 2013.



Importantly, the design of new social facilities is based on the demographic projection and considers the changing population age structure. Thus, four kindergartens, one school and four new sport facilities are planned, but the general plan also proposes using the existing underused schools as the neighborhoods' leisure centers. It also considers transforming an existing unused cultural facility into a sports centre.

Ardon: results.

In general, Ardon may be considered a positive example of demographic development, because its future population growth is based on the existing favorable demographic structure. However, the number of births will slightly decline and, in the distant future, the city may face population decline because all the surroundings areas in the region are characterized by demographic problems and high levels of out-migration. Ardon, as well as Mikhaylovsk, represents a case in which population growth happens in the background of the structural economic crisis. The small amount of investments into the city economy, declining number of

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jobs, low level of entrepreneurship, low income, lack of housing and infrastructure and poor quality of urban environment all potentially provoke out-migration, which can change significantly the existing favorable situation. However, the positive preconditions for the demographic change are the obvious advantages for the city's future development. Accordingly, the target of the municipal policy should diminish the negative effects of factors provoking out-migration.

The analysis of the existing planning documents demonstrates absence of the strategic vision and also attempts to develop the strategic documents at both the city level and the level of the municipal district. The documents of territorial planning illustrate the dependence of their quality from the qualification of randomly defined planning organization. At the level of the municipal district, the document is formal and does not include significant analysis or solutions, while at the city level, territorial planning fills many gaps caused by the absence of any strategic document. It also provides important notes about the necessity to adapt existing underused infrastructure for the new required proposes and to use the city's territory more intensively. Most likely, such a position of the general plan's authors and the city administration is caused by the lack of territorial resources for the city's extensive development due to geomorphological characteristic and administrative borders of the surrounding areas.

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4.4.3. *Timashyovsk: economic success is not enough.*

Timashyovsk’s profile and its historical background.

Timashyovsk appeared as a rural settlement, a Cossack stanitsa, in 1794, whose history has been always linked to agricultural activities. Even after gaining the status of urban settlement in 1966, the city’s industrial development has been based on food production using local agricultural resources. Currently, Timashyovsk is an important industrial center not only for the region, but also for the whole of southern Russia. The second significant function of the city is its role as a transport node including a large railway station, that transports goods, and important roads. As many other small and medium-sized cities, Timashyovsk plays an important role of the service center for the vast rural areas.

Timashyovsk’s administrative status and location.

The city of Timashyovsk is one of 26 cities of Krasnodarsky krai and one of 30 municipalities with the status of urban settlement.

The urban settlement “Timashyovskoye” includes the city of Timashyovsk with a population of 52,641 people and the village Kirpichny with just 77 residents. Timashyovsk is also an administrative center of the Timashyovsky rural municipal district with the population of 110,262 people, which means that the urban population of the area is 48%. The municipal district includes one urban and nine rural municipalities, one city and 39 villages.

Timashyovsk is located 72 km to the north from the regional capital of Krasnodar (map 4.4.8) and is connected by roads and the railway with a very high volume of passengers. The passengers and the flow of goods both play a significant role in the economic development of Timashyovsk.

Map 4.4.8.
Location of Timashyovsk in Krasnodarsky krai.



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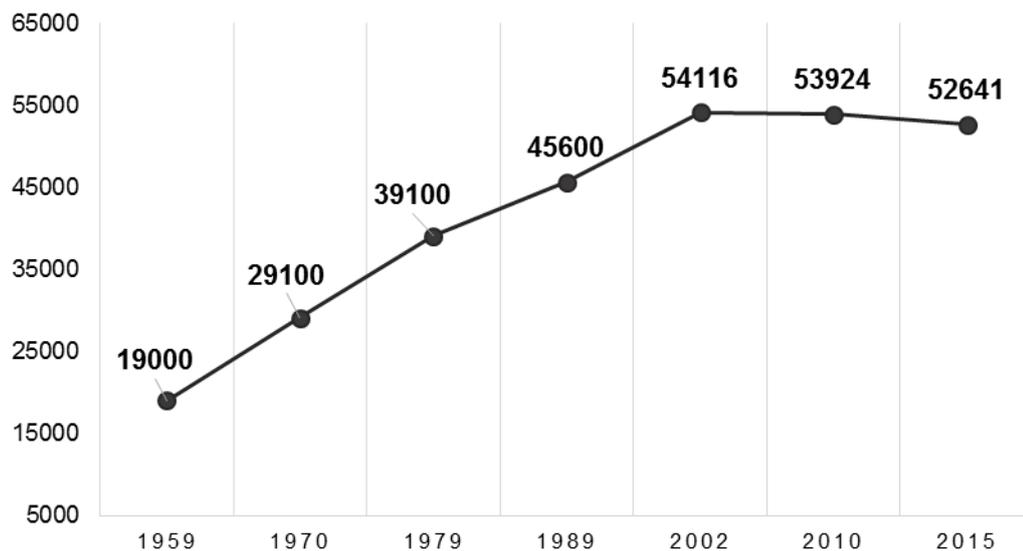
The relatively close location to the regional capital and the good transport infrastructure creates opportunities for the intensive commute between two cities.

Demographic situation in Timashyovsk.

Population change and population structure.

The population of Timashyovsk was 52,641 people at the start of 2015. In 2015, Timashyovsk gained 15.6% of its population compared to 1989 (figure 4.4.9). Up through the 2000's, Timashyovsk had been a dynamically growing city in the 30 years from 1959 to 1989 increasing its population by 2.4 times. Yet, this positive process then slowed down and recently turned to the slight population decline.

Figure 4.4.9.
Population change in Timashyovsk according to the census data of 1959, 1970, 1979, 1989, 2002, 2010 and data on population number in 2015.



In addition to the negative trends in its population dynamic, Timashyovsk's demographic situation has other negative aspects as well. Thus, the population's gender structure is not different from the Russian national proportion: it was 53.7% of women and 46.3% of men in 2011. Notably, this proportion is quite stable and has been slightly fluctuating from 53% to 54.1% in the female population with an increasing disproportion in older groups.

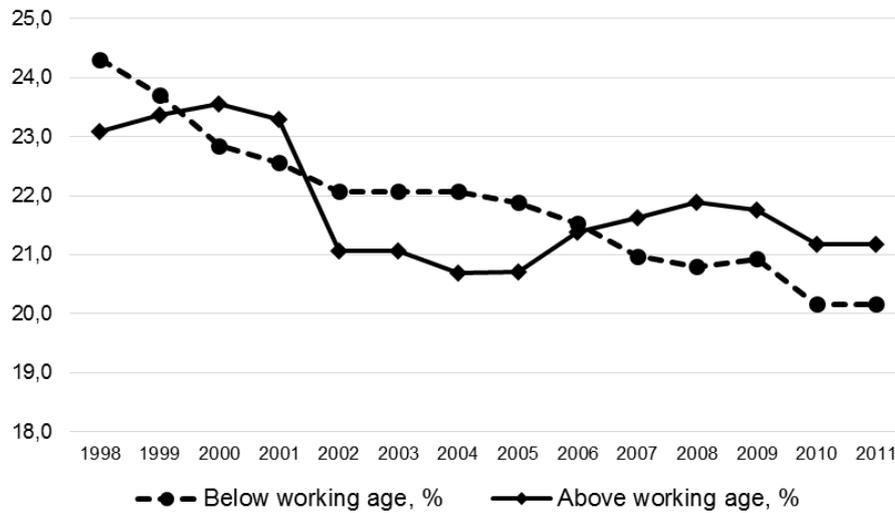
The age structure of the city has been altered notably. An increase in the working age group in the first decade of 21st century can be seen (figure 4.4.10), which is explained by the active economic development and the consequent in-migration, but also by the entry of many from the younger generation in this age category. The share of the working age population reached 62% in 2005, which was higher than average in Russia, before it started to decline. The share of the population above working age has been relatively stable, while the share of the younger population is characterized by clear trend in decreasing.

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Figure 4.4.10.

Percent of population below and above working age in Timashyovsk, 1998-2011.



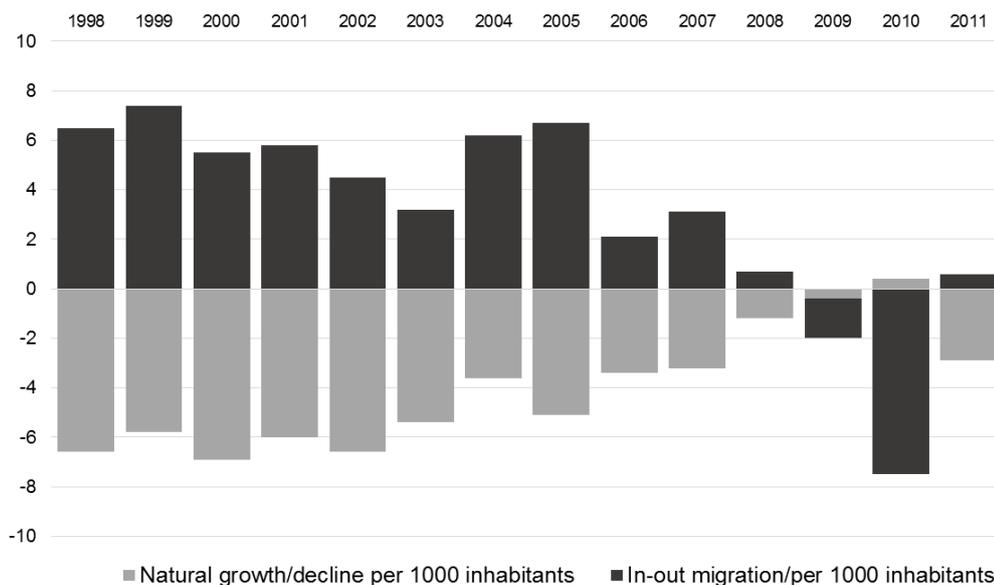
In absolute number, the population in the working age group was stable from 2002-2011, while the amount of children decreased by 11% and the elderly group increased by 10%.

Components of demographic change.

The natural population change and the migrations in Timashyovsk have been demonstrating since the end of 90's the opposing trends (figure 4.4.11). The change of in-migration has been decreasing and turned into out-migration in recent years. In contrast, the natural population decline became much slower and the city even demonstrated a small natural population growth in 2010. However, this positive trend in natural population growth was temporal and based on the fertile age of the large generation born in the 90's.

Figure 4.4.11.

Components of population change in Timashyovsk in 1998-2011.



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The graph of population change shows that the relative stability in the population number of Timashyovsk was based on the compensating role of in-migration under conditions of natural population decline. Yet, in the following period without a positive migration rate the city will not be able to avoid shrinkage.

Economic development of Timashyovsk.

Timashyovsk could be labeled as an economically successful city due to many reasons. It has managed to attract such large companies as Nestle, Tetrapak, Bonduelle and others. This factor in combination with the well-established transport network, the closeness to the regional capital and high quality of the urban environment has become attractive for in-migrants that led to a positive population change in Timashyovsk. The leading sector of the city's economy is industry. The industrial sector of the economy provides jobs for 36-39% of the labor market in the settlement, with 92-95% of the personnel employed in large industrial enterprises of the city. The sectoral structure of the city's industry is diverse, and at the same time, the food complex clearly dominates and produces up to 80% of all industrial output. The food industry is based on the local agricultural production as well as on imported products. The food industry has a complex structure: it brings together dairy, butter-cheese, canning, baking, confectionery, sugar, fat, the alcoholic beverage industry and production of food concentrates. In addition, flour, cereal and the mixed feed industry may be included on this list. Timashyovsk is a major center of the production of various kinds of paper and cardboard packaging and light metal packaging. There are seven enterprises in this sector, five of which belong to the category of big enterprises. By the production volumes, they take the leading positions in the Krasnodar region. In the structure of the city's industrial production, those enterprises produce 20% of its cost value.

Agricultural production is also an important sector for the local economy. It includes six enterprises in the category of big enterprises with more than 2,000 people employed in the agricultural sector. The main specializations are growing fruits and berries, vegetables, grain production, combined with the cultivation of sunflower and sugar beets, livestock and dairy, with a high level of concentration in pork, which provides a significant portion of meat production.

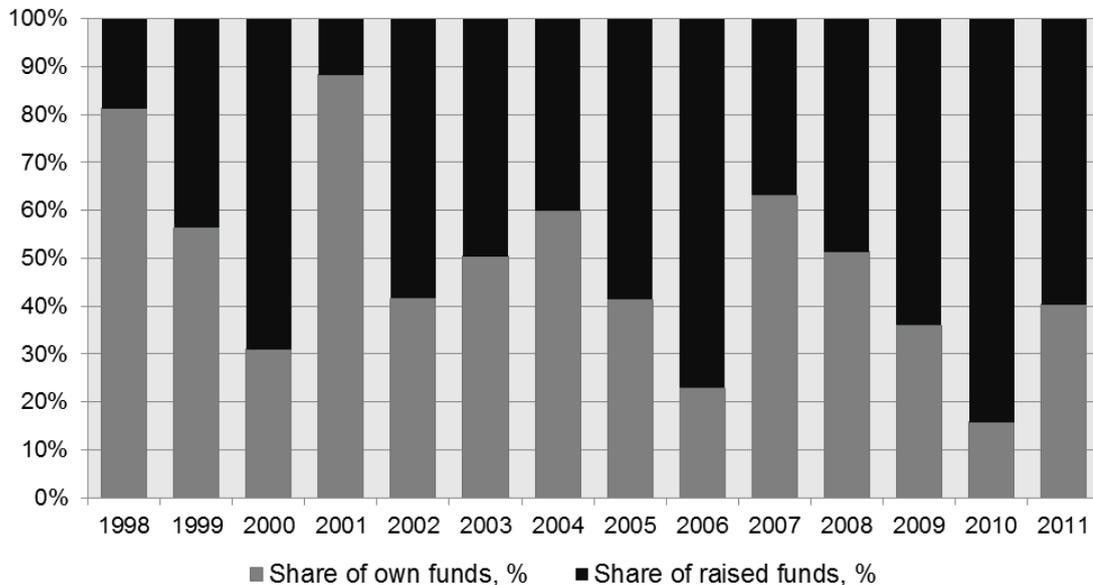
During the period under review, Timashyovsk attracted the most significant amount of investments. Analysis of the investments into the city's economy shows its relatively positive dynamic despite instability. The main characteristic of the investments is a small share of budget money: the highest portion of 38% was granted in 2001 (figure 4.4.12). The share of the city's own funds and raised funds has fluctuated during the period under review, but in total there were more shared funds raised than city funds (almost 63% of raised funds in the whole period). The amount of investments per capita has increased from 1,970 rubles in 1998 to 56,500 rubles in 2011 and it was the most stable and healthiest dynamic amongst the cases (by the total investments amount per capita for the period, whereas the first positions were taken by Kotel'nikovo and Alagir, where the largest projects implemented). In 2010, the investments per capita reached its maximum of 101,800 rubles per capita.

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Figure 4.4.12.

The share of own and raised funds in the investments into Timashyovsk's economy in 1998-2011.



The number of enterprises in Timashyovsk were constantly rising until 2009, when they then declined by 3%, likely due to the economic crisis of 2008. However, the number of enterprises per 1000 people was quite high: almost 95 in 2009 and 86 in 2011. The number of individual entrepreneurs demonstrated a similar trend. Their number had been growing since 2001, when only one individual entrepreneur was registered and reached its peak of 4,138 in 2009. In the following two years, this number reduced by 4%. The number of individual entrepreneurs per 1000 people is the highest among the city case studies with 76.7 in 2009 and 68.6 in 2011, which demonstrates the high level of the population's business activity.

The number employed from 2000-2004 had been relatively stable, but then began to decline from 20,000 people in 2004 to 14,700 in 2008. Until 2011, the number of employed was rising and reached 17,600 people or almost 55% of city's population of working age. By this indicator, Timashyovsk is an absolute leader among the city case studies. The number of the registered unemployed had been always stably low at 0.7-1.8% of the population of working age.

The average salary in Timashyovsk has always been quite high. Compared to the other case studies, Timashyovsk demonstrated in 2011 the highest relationship between the average salary and the living wage, which was 3.46. By the average salary in 2011, Timashyovsk took the fifth position in Krasnodarsky krai with an amount higher than the regional average by 20%. Timashyovsk was one of eight cities among 26 in the region, in which the average salary was higher than the regional average salary.

Timashyovsk's planning structure and urban environment.

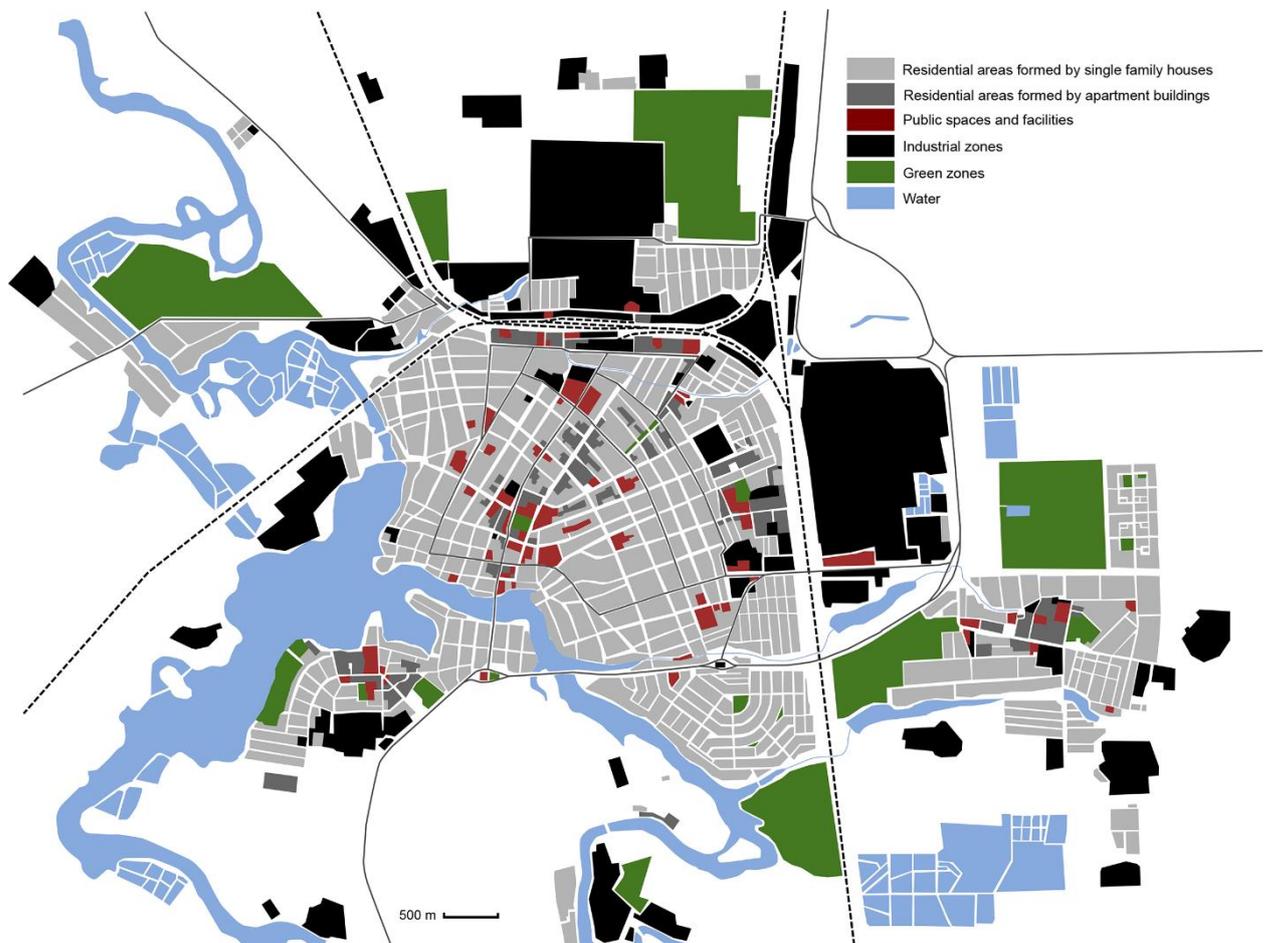
Timashyovsk is located on the river Kirpili, which divides the city in two parts: Northern and Southern. The river is not used as a recreational area: there is no any parks or embankments. Accordingly, the city's division by the river is resulted in forming of two separate settlements, each of which has its own centers and public facilities.

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Timashyovsk occupies quite a large area of 24.7 square kilometers. The population density within the residential areas is about 35 people per ha, which is higher than in the other city case studies (with the exception of Zverevo). In general, Timashyovsk is characterized by a more complicated planning structure and land use due to its multi-functionality (map 4.4.9). Being a large industrial center and an important transport node, Timashyovsk is characterized by a significant share of the industrial and infrastructural territories in the total area, representing 40% of the urban fabric. The railway separates residential and industrial areas where the industrial territories form two large zones to the east and to the north of the residential zones. Timashyovsk has a clearly identified and well-developed city center.

Map 4.4.9.
Planning structure of the city of Timashyovsk.



The residential areas are mainly formed by the single-family houses with the gardens. The apartment buildings are included into those residential areas of a “rural type”. The apartment buildings are concentrated in the city center and several areas close to the main industrial zones, usually having 2-5 stories. The construction of the apartment buildings along the central streets during the Soviet period was an attempt to give an urban character to the rural settlement, stanitsa. The construction of the new residential apartment building was implemented as well within the existing territories through their reconstruction and the increasing of their population density.

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Image 4.4.7.
The residential areas in Timashyovsk.



The industrial territories are not effectively used and have the potentiality to be reorganized and modernized. Being an important transport node, Timashyovsk attracts an intensive transport flow and transit as well.

Image 4.4.8.
The industrial areas in Timashyovsk.



In general, Timashyovsk is characterized by a more varied urban environment with the presence of many different functions, facilities, public spaces, relatively high quality of streets and greenery. However, the residential areas formed by single-family houses often are not provided with sewage systems nor hard pavements for the streets.

Limits for growth in Timashyovsk.

Despite positive economic development Timashyovsk experiences infrastructural problems, similar to the problems of the other cities.

Thus, housing construction did not demonstrate a very positive dynamic: the highest amount of housing construction was reached in 2011 with 0.73 square meters per capita. In 1994-2011 about 264,000 square meters of housing floor space had been realized, more than 85% of

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which had been constructed by citizens with their own financial resources. The official statistic data shows a quite high level of engineering infrastructure provision, however, this information is far from reality. Thus, the official data demonstrates 76% of housing with sewage access, while the general plan's materials shows only 14%. Actually, no residential areas formed by the single-family houses are provided with access to sewage systems. The infrastructure construction has a very low dynamic. In the period of 1994-2011, only 14.9 km of water supply system had been constructed (10% in addition to the existing amount), but not one meter of sewage system.

As in the other cities, the number of educational facilities in the city has declined due to a sharp change in demographic structure. Thus, the number of kindergartens dropped from 24 in 1994 to 16 in 2006 and then increased to 18 in 2011. The latest increase in the number of kindergartens results from the growing demand for these kinds of facilities due to the growing number of children of pre-school age. The number of children attending pre-school educational facilities declined from 2,300 in 1994 to 2,042 in 2002 (by 11%), then it started to increase and reached 3,088 kids in 2011 (an increase of 51%). The total capacity of all kindergartens in Timashyovsk in 2011 was 2,104 places and, accordingly, the deficit was 984 places or almost 32% of actual need. The number of schools in the 2000's increased from eight to ten due to the construction of two new schools (one school for 200 children was constructed in 1999, another one for 664 children was constructed in 2001) and then declined to eight again because of the reform of the educational system in Russia. The number of school age children in Timashyovsk, as in other cities as well, reduced from 7,991 to 5,696 during 1994-2011 or by 29%. However, the designed capacity of the existing schools is 4,600 pupils, which is lower than the required positions by 20%. Considering the growing number of students, the increase in the deficit of the schools capacity is expected. The city healthcare system is provided by two hospitals (one serves the needs of the city itself and of Timashyovsky municipal district, another one is the departmental hospital of "Russian Railways" state company) and four outpatient clinics. The total number of hospital beds has reduced from 510 in 1994 to 422 in 2011 (or from 99 per 10,000 people to 78.8 per 10,000 people). The number of clinics in 1994 was five and then increased to 11 in 2009, but declined to four in 2011. However, the total capacity of outpatient clinics has increased from 600 to 760 visits per day (or from 116 to 141.9 visits per day per 10,000 people). A number of sport facilities has been constantly rising. In 1994, there were 13 sport facilities and their number reached 51 in 2011. These facilities include two stadiums, 13 gyms, 21 open-air sport fields, a swimming pool and a children's and youth sports school.

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Image 4.4.9.

The building of the children's and youth sports school in Timashyovsk and its reconstructed swimming pool.



The cultural facilities are presented by six institutions of culture and leisure, two libraries, one museum, one park of culture and a cinema. The number of libraries has reduced from five to two as a consequence of optimization, but a number of other cultural facilities has been stable. The last categories are presented by seven cultural and leisure facilities, such as a house of culture, museum, five libraries, two cinemas, four stadiums, eleven gyms, a swimming pool and a sport center. The physical conditions of both sport and cultural facilities are good.

Socio-economic and spatial planning in Timashyovsk.

The strategic documents for the city of Timashyovsk at the municipal level (table 4.4.7) are presented by the forecasts of socio-economic development for the Timashyovsky municipal district, the Strategy of socio-economic development for the Timashyovsky municipal district until 2020, the scheme of territorial planning for the Timashyovsky municipal district until 2047, the general plan of Timashyovsk until 2029 and the municipal programs.

Table 4.4.7.

Municipal strategic documents acting within the territory of Timashyovsk.

	Strategy of socio-economic development	An action plan of implementation of the strategy of socio-economic development	A forecast of socio-economic development of the municipality in the medium or long term	A budget forecast of the municipality in the long term	Municipal programs	Documents of territorial planning
Timashyovsky municipal district	Until 2020	no	Every 3 years	no	+	Scheme of territorial planning of Timashyovsky municipal district until 2025
Timashyovsk	no	no	no	no	+	General plan of Timashyovsk until 2030

The Strategy of socio-economic development for the Timashyovsky municipal district until 2020, developed in 2012.

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The strategic document is oriented mainly to the economic development and all other aspects are addressed through the prism of economic issues. Thus, the population is considered first as a labor force. The demographic situation is described through the employment perspective. The main two threats for the development from the point of view of demography are out-migration of population from the rural settlements to the regional capital and the other regions along with the population ageing with the consequent demographic burden increase. There is no demographic analysis or forecast in the strategy. Nevertheless, in the attachment that includes target indicators, there are indicators characterizing population number and number of employed people. According to this data, the strategy was oriented to the slight increase in population number of the municipal district from 106,000 people in 2010 to 107,000 people in 2027. In reality, the population change was characterized by the higher dynamic that increased in 2016 to 111,100 people.

All the measures in the strategy are too general and there is no connection between the real resources, opportunities, strengths or weaknesses. The strategy describes the “development of medical services market”, “efficient use of health care resources”, “accessibility and equal opportunities for the full-quality education” or “growth in the real wages”, but no detailed steps, guidelines or resources for the achievement of these targets are provided.

The scheme of territorial planning for the Timashyovsky municipal district until 2047, developed in 2011.

A chapter with analysis of the existing demographic situation is missing, but the demographic projection is presented for every municipality and every urban and rural settlement included in Timashyovsky municipal district. There is now an explanation on how these calculations had been completed, with the exception of the city of Timashyovsk itself, for which the projected population number is taken directly from the city’s general plan. Importantly, the demographic projection is developed within the chapter dedicated future territorial development of the settlements’ territories and included into the table titled “The demand of the new residential areas for growing population”. Population growth is seen as the only possible way for future development. There is not one small village in that table, for which population decline is predicted. For the city of Timashyovsk itself, the increase in the population number is predicted up to 69,900 people in 2027 and up to 85,500 people in 2047. In reality, the city reached its highest population number of 54,100 people in 2002 and since that year, the population number has been continuously declining. For the municipal district, the population number should increase up to 130,800 thousand residents by 2017 and up to 153,400 in 2047 according to the scheme. Actually, the population of the municipality has been growing since 2012 and reached a number of 111,200 people in 2016.

The general plan for the city of Timashyovsk until 2029, approved in 2011.

In the document there is a section dedicated to demographics. However, the analysis of the demographic situation presented in the general plan is not satisfactory and does not consider all the important aspect of the demographic development in Timashyovsk. The information on population change and its age structure is presented for the previous seven years.

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The population forecast is not based on scientific methods, but assumes the optimistic development of the city’s demographic situation (table 4.4.8). Actually, the document uses the target population number defined in the previous version developed in 2005 with a simple prolongation of the forecast period (the population number was calculated for 2020 and now is used as an indicator for 2029). The population growth by 5.4% until 2019 and by 11.9% until 2029 was predicted.

*Table.4.4.8.
Demographic projection for Timashyovsk until 2029.*

2009	2019 (forecast)	Population change 2009- 2019, people	Population change 2009- 2019, %	2029 (forecast)	Population change 2009- 2029, people	Population change 2009- 2029, %
54,169	57,262	3,093	5.40	60,630	6,461	11.93

In reality, the Timashyovsk population started to decline in 2009 (the year of the general plan creation) and by 2016, it reached a number of 52,581 people (or 3% less than in 2009). That fact does not necessarily mean that Timashyovsk is moving towards the category of a shrinking city, but a hope for growth is useless without a detailed demographic analysis and projection.

The document predicts decline in the number of the working-age population and the consequent increase of the demographic burden. However, there is no calculation on which age groups will prevail, but the authors assume that growth in numbers of elderly people is unavoidable, while an increase in the number of youth seems unlikely.

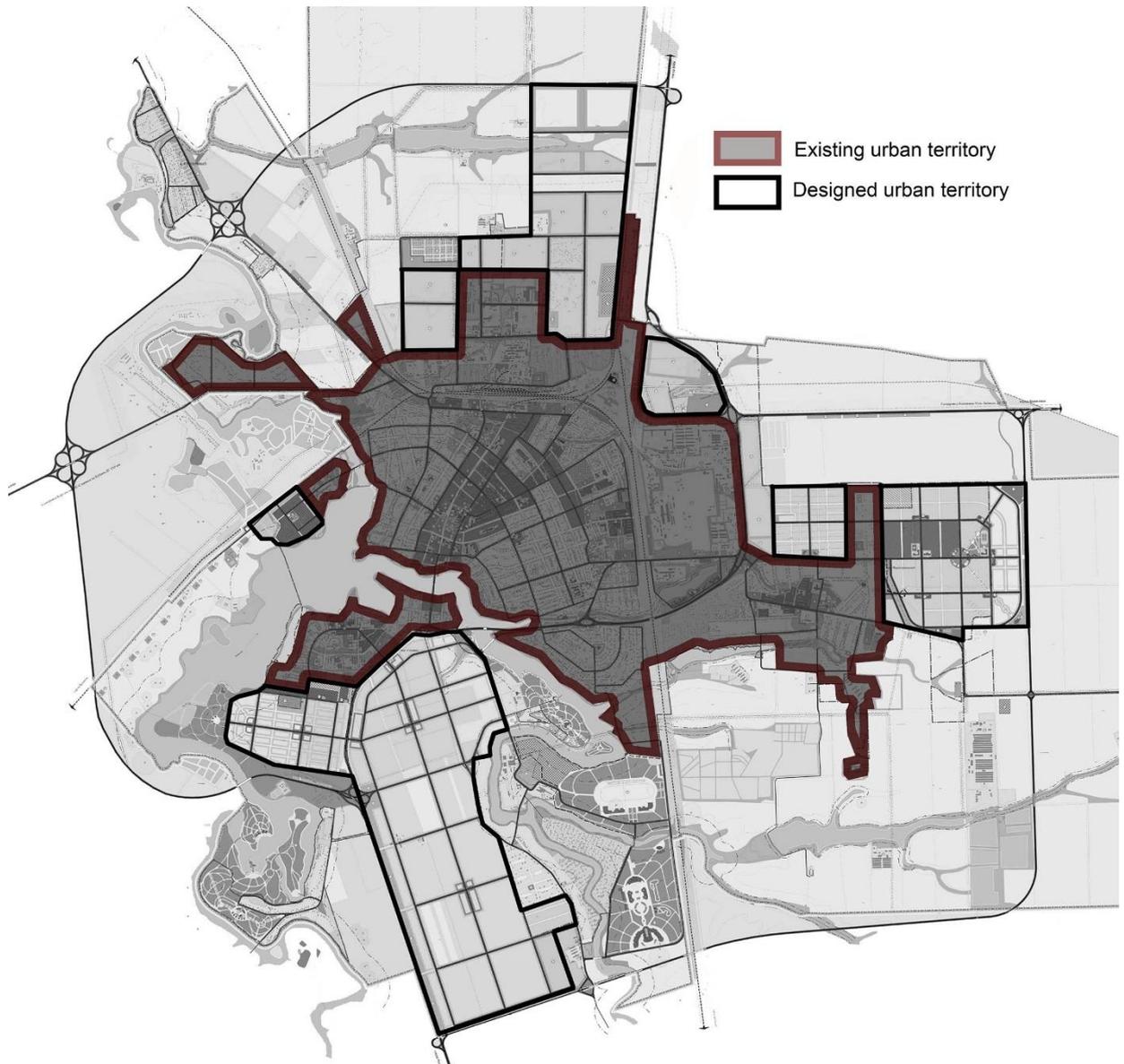
The calculation of the floor area of housing needed for the future population is not presented as well, but the authors justify the need of new territories for housing construction by “continuing population growth and an increase in the scale of housing construction”. Accordingly, the general plan (map 4.4.10) designs an additional 329 ha of green fields for new housing construction, among which 225 ha (or 68%) are dedicated for single-family houses with gardens.

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Map 4.4.10.

The territories of new extensive development designed in Timashyovsk general plan, 2009.



The general plan's text and graphic materials do not correspond to each other. According to the calculation in the text materials, the city's territory will increase by 13% as the maps demonstrate a much larger extension. The general plan also designs a significant increase in the capacity of social facilities.

Timashyovsk: results.

Timashyovsk represents a case of a successful economic development and relatively high living conditions due to variable functions, climate, geographic location and infrastructure development. However, a constant natural population decline caused by the second demographic transition should be compensated by the stable in-migration. Recent years have been characterized by zero or negative migration balance demonstrating a strong dependence of the demographic situation on in-migration. The city has many more advantages than other cities with similar demographic structures and it should use those advantages in forming a migration

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policy. At the same time, the ageing of its population is inevitable and, accordingly, the city should be prepared for the transformation of its social infrastructure and services.

The analysis of the local planning documents demonstrates their weak correspondence with each other, poor presence of a strategic view and realistic perception of the current situation. Not one of the documents investigated well presents the current demographic situation in order to find the adequate response to the coming changes in the future. In the solutions of the general plan, as well as of the scheme of territorial planning for the municipal district an intention to justify a decision of the extensive territorial development is the major outcome of most of the calculations, analyses and projections. All the territorial plans start from the position that a settlement should have enough territory for its future development. In such cases as Timashyovsk, where there is no physical or administrative limits for the territorial growth, the decision about the territorial extension designs urban sprawl in all available directions around the city.

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4.4.4. *Kotel'nikovo: a “lottery winner”.*

Kotel'nikovo's profile and historical background.

Kotel'nikovo's foundation is linked to the railway network developed in southern Russia like many settlements of that period. It was founded in 1897 as a working village with Nikolayevsky serving the railway station. During the Soviet period, the city became a local center with administrative, cultural, transport and economic functions. Another important function of Kotel'nikovo was that it hosted military air base, which was placed in the city 70 years ago in 1945. Kotel'nikovo gained its city status in 1955.

Thanks to its military function, Kotel'nikovo was able to maintain a stable population. Its new story started with the discovery of the potash deposit leading to new industrial development.

Kotel'nikovo's administrative status and location.

The city of Kotel'nikovo is one of 19 cities of Volgogradskaya oblast' and one of 29 municipalities having the status of urban settlement.

Kotel'nikovo is a center of the municipality “Urban settlement Kotel'nikovskoye” and also an administrative center of the municipal district “Kotel'nikovsky”. The municipality urban settlement includes only one city. The municipal district's population was 37,018 people in 2015 and the district includes 16 municipalities (one urban and 15 rural), 1 city and 33 villages. The urban population (concentrated in Kotel'nikovo only) represents 55% of the total number of citizens in the municipal district.

Kotel'nikovo is located 190 km from the regional capital city of Volgograd to its south-west. Kotel'nikovsky municipal district is a border municipality of the Volgogradskaya oblast' and borders Rostovskaya oblast' and the Republic of Kalmykia. Kotel'nikovo itself is located 21 km from the regional border with Rostovskaya oblast' (map 4.4.11). The city's location is peripheral, it is remote from the largest cities and important centers. The closest big city Volgodonsk is located 140 km to the West from Kotel'nikovo.

Map 4.4.11.
Location of Kotel'nikovo in Volgogradskaya oblast'.



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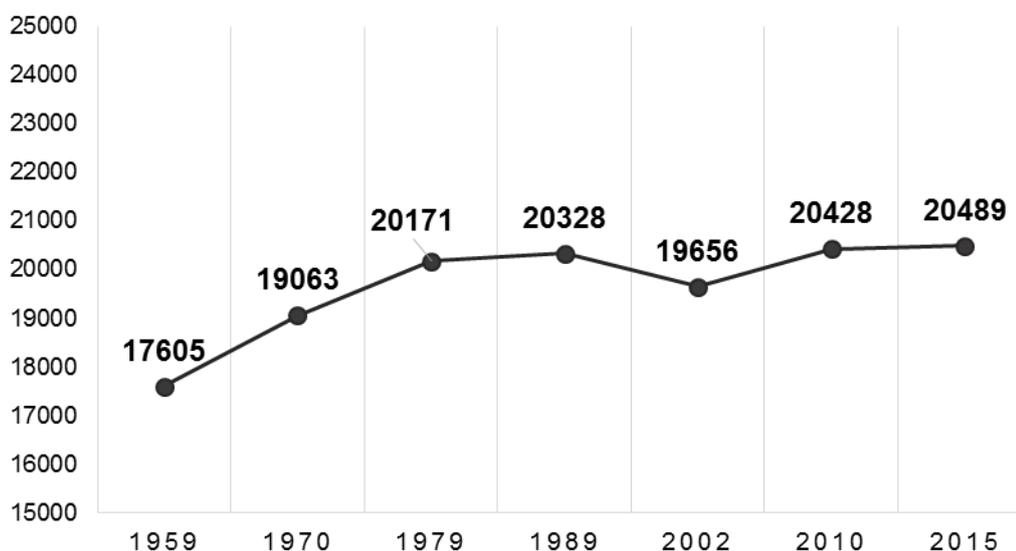
The population density in the area is quite low, just 10.7 people per sq. km. The settlements' network is also low and is about one settlement per 100 sq. km. The city of Kotel'nikov is connected with the regional capital by the roads and the railway.

Demographic situation in Kotel'nikov.

Population change and population structure.

The population of Kotel'nikov was 20,489 people at the start of 2015. The city is characterized by an atypical stability in population number (figure 4.4.13). Since 1959, the population growth was just 16% and since 1989, the city gained less than 1% of its population. Even during the Soviet period, Kotel'nikov was not characterized by a fast population growth as its population increased by about 5% every decade.

Figure 4.4.13.
Population change in Kotel'nikov according to censuses of 1959, 1970, 1979, 1989, 2002, 2010 and data on population number in 2015.



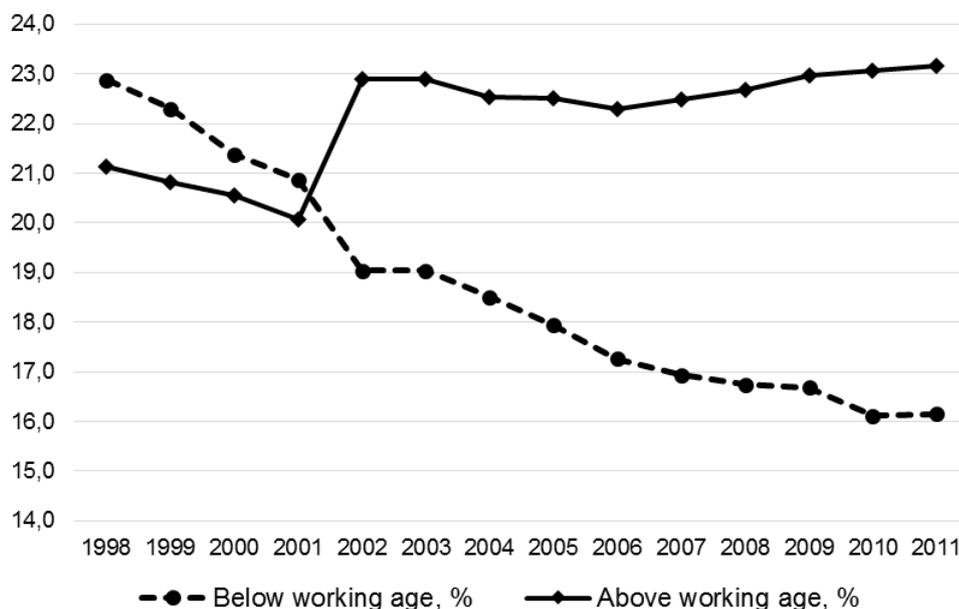
However, a deeper investigation demonstrates some negative aspects of the demographic development. The city's gender structure is typical for Russia: 53% female to 47% male. The disproportion reached its maximum in 2009, when the share of the female population was 54.8%.

Relatively stable in terms of number, Kotel'nikov's population has structurally changed significantly (figure 4.4.14). While the city's population has remained almost the same in 2015 as compared to 1989, the number of children has decreased from 4,738 in 1998 to 3,297 in 2011 (or by 30.4%). The share below the working age population has fallen from 23% to 16%. The share of population in the above working age group has slightly increased from 21% to 23%, while the growth of the share of the working age group has been the most notable (from 56% to 61%). In absolute numbers, the population of the working age group remains almost the same and the growth of its share resulted from the declining number of children.

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Figure 4.4.14.
Percent of population below and above working age in Kotel'nikovo, 1998-2011.



The increasing share of working population, on the one hand, is a positive factor, because it reduces the demographic burden. However, in the case of Kotel'nikovo, when this burden decreased due to the decline in the number of children, it will become a negative aspect in the future.

Components of demographic change.

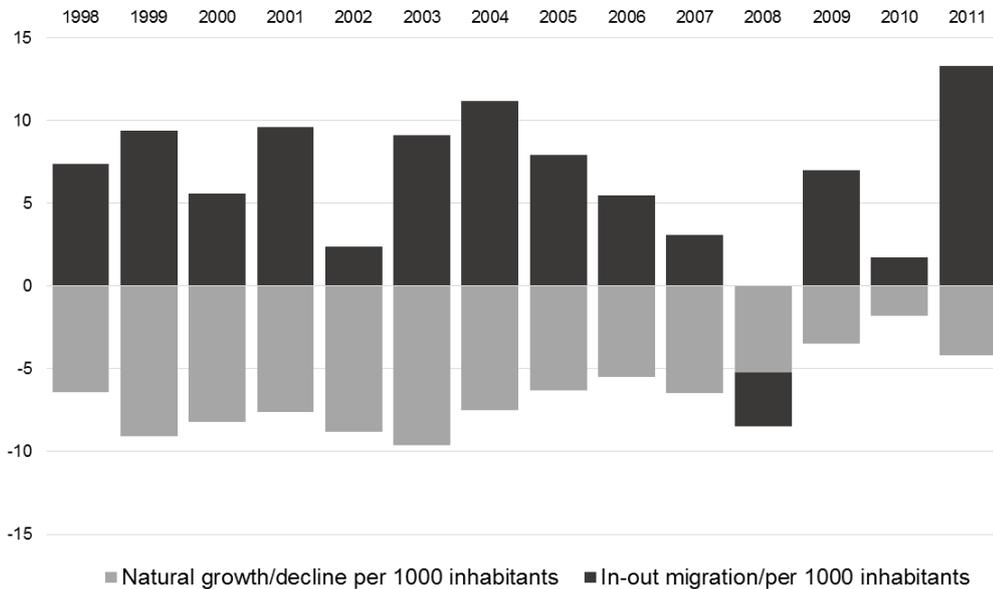
The composition of population change components in Kotel'nikovo reminds of the changes in Timashyovsk: in-migration has compensated the natural population decline in Kotel'nikovo during the whole period under review (figure 4.4.15). The difference was in the increased in-migration flow in recent years in Kotel'nikovo, which provoked a slight population growth, while appeared recently in Timashyovsk, out-migration caused population decline. Decreased in recent years, the level of natural population decline also positively influenced the population change. In-migration could compensate for a slight natural decline and cause population growth.

The birth rate has been quite stable and even has increased a little in the last years. Still, the mortality rate is twice as high than the birth rate and with the absence of or even a slight decrease of in-migrants to the city will cause a decline.

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Figure 4.4.15.
Components of population change in Kotel'nikovo in 1998-2011.



As it will be shown below, the in-migration in Kotel'nikovo is caused by the positive economic development and implementation of large investment projects.

Economic development of Kotel'nikovo.

Economic development of Kotel'nikovo after the collapse of the USSR has not been successful. The city represents a typical case of being a local center serving the surrounding rural areas. The city's economy had been based primarily on the sale of agricultural products and various clothes, manufacturing and the production of building materials and their subsequent sale, as well as household appliances. However, with the discovery in 2004 near the city of a large potash deposit, the city's development changed its trajectory. Potash is any of various mined and manufactured salts that contain potassium in water-soluble form. Potash is produced worldwide in amounts exceeding 30 million tons per year, mostly for use in fertilizers.

In 2004, the company EuroChem won the tender for the development of the deposit. EuroChem (ЕвроХим in Russian) is a Russian nitrogen and phosphate fertilizer company headquartered in Zug, Switzerland. EuroChem produces primarily nitrogen and phosphate fertilizers, as well as certain organic synthesis products and iron ore. It moved its headquarters to Zug, Switzerland, in 2014 and operates production facilities in Russia and Western Europe and employs more than 20,000 employees globally.

Thus, in 2004 the company started to construct a mining and processing plant and the required infrastructure in Kotel'nikovo. It is planned that the new production capacity will produce 2.3 million tons of fertilizer per year and will launch in 2017. Total investment in the project will amount to 143.5 billion rubles. The gremyachinskoye potash deposit is the largest in the European part of Russia. "EuroChem-VolgaKaliy" should grow from year to year, and by 2021, the plant will produce approximately 4.6 million tons per year, which is about 15% of total global production. Together with the construction of industrial facilities, the company invested

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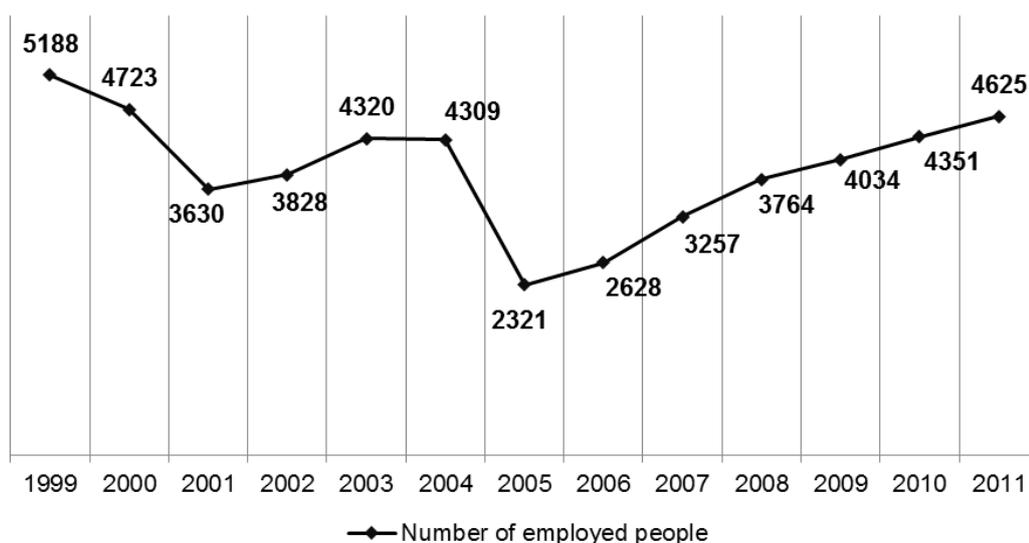
in the construction of housing and engineering infrastructure. Therefore, the main dream of many municipal administrators in Kotel'nikovo is currently being implemented with an unexpected industrial development and the huge investments amount into the city's economy. However, in 2013, Kotel'nikovo was included on the list of “mono-cities” or one-company cities. In 2013, “EuroChem” employed 1820 workers, or 25% of the economically active population, which had already been working.

The investments into the city's economy has been raised significantly since 2009. For example, in 2009 the amount of investments was more than 50 greater than in comparison to 2008. Accordingly, investments per capita increased from 573 rubles per capita in 2005 to 312,800 rubles per capita in 2011. However, Timashyovsk performed better in terms of the amount of total investments during the investigated period, their stability, share of the private investments and positive dynamic. The data on the share of budget money in the investments is not really correct. However, considering the implementation of the large industrial project is based on the public-private partnership, the share of the state money in particular years was high.

Interestingly, the number of enterprises and individual entrepreneurs in Kotel'nikovo was rising until 2005 and then had remained relatively stable: about 790-820 enterprises and about 600 individual entrepreneurs, which comprises about 40-42 enterprises per 1000 people and about 30 individual entrepreneurs per 1000 people. The share of unprofitable enterprises have not been stable, fluctuating from 16% to 71%, but in most years its share was less than 50%, which is quite positive compared to the other case studies.

The number of employed people was decreasing until 2005 (figure 4.4.16), but since then has been constantly growing. In 2011, the share of employed people reached 37% of the population of working age. It is still lower than the indicator of 44% in 1999, but compared to 19.8% in 2005 the growth has been significant. Unfortunately, there is no data on unemployment in Kotel'nikovo.

Figure 4.4.16.
The number of employed people in Kotel'nikovo in 1999-2011.



The average salary in Kotel'nikovo was quite high in 2011. Compared to the other case studies, Kotel'nikovo, together with Timashyovsk, demonstrated in 2011 the highest relationship

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between average salary and living wage, which was 3.46. However, the starting position by this indicator in Kotel'nikovo in 1998 was much weaker than in Timashyovsk (1.13 compared to 1.94). Accordingly, the dynamic of its change had been significantly higher. In 2011, based on the average salary, Kotel'nikovo took the second position in Volgogradskaya oblast' following the regional capital, the city of Volgograd. The average salary in Kotel'nikovo in 2011 was higher than the average in the region by 38%.

Kotel'nikovo's planning structure and urban environment.

The city of Kotel'nikovo is located on the river Aksay Kurmoyarsky with the major part of the built up area on its left bank. Kotel'nikovo has a very simple planning structure (map 4.2.12) that often characterizes cities located in the steppe zone where its development is not limited by the complicated morphology or the finite land resources. It has an orthogonal plan with a regular street grid that forms rectangular blocks. Kotel'nikovo is located around the river and the railway, which together divides the city into three parts. The railway takes the central meridional position within the city territory and the city center is formed along the railway. From the west, the city development is limited by the presence of the military aerodrome. Accordingly, urban development has recently begun expanding to the east. The river does not play any role in organizing the urban structure and is not used for recreational functions. Mainly the backyards of residential areas face onto the river front.

Kotel'nikovo's built up area is about 11 sq km and the population density is about 19 people per ha, which is a typical indicator for cities located in the steppe zone.

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Map 4.4.12.
Planning structure of Kotel'nikovo.

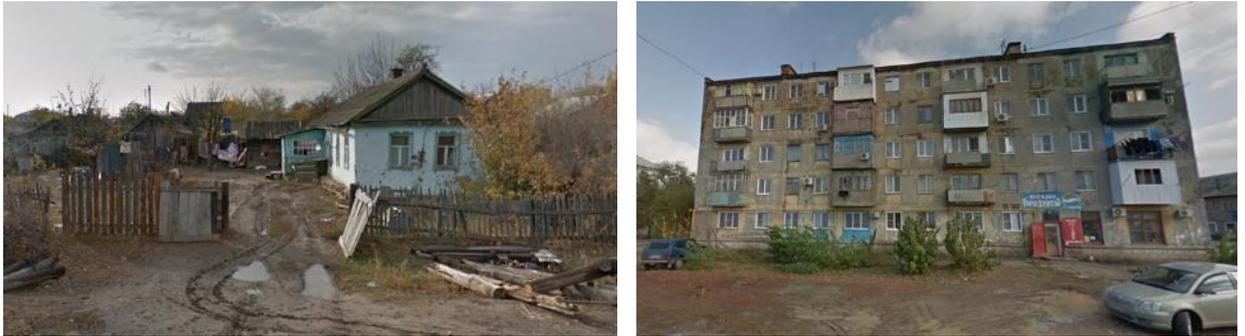


The urban environment of Kotel'nikovo perfectly illustrates its long-term economic stagnation as most of the city's territories demonstrate signs of degradation and poor maintenance. They are monotonous, lacking public spaces and facilities and have poor infrastructure. The residential areas of a rural type, which are formed by single-family houses, represent 40% of built up areas and 86% of all residential areas. The city center is well articulated in urban fabric due to the concentration of most apartment residential buildings, public facilities and public spaces within its borders. However, even in the city center, many streets do not have hard pavement, pedestrian ways nor lighting. In the peripheral areas, the situation is even worse.

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*Image 4.4.10.
The residential buildings in “old” Kotel’nikovo.*



The industrial areas occupy the northern part of the city and are also fragmentally presented in the closeness to the railway. As in other case studies, the industrial areas include a lot of wasteland, are chaotically planned and partly or totally abandoned.

*Image 4.4.11.
Industrial areas of Kotel’nikovo.*



With the appearance of a new large economic actor, the city started its new territorial expansion. The current development of new residential areas in Kotel’nikovo is based on the private investments of the company EuroChem, which is constructing new housing for their workers. Since new people should be attracted into the city, the company’s approach is in developing new residential areas isolated from the rest of the city and different from the existing urban environment. Accordingly, these new structures, settlements within settlements, are not integrated into the city and have their own new infrastructure. The new microrraions are positioned as a “new city” and clearly demonstrate popular planning strategies used in modern Russia. It attempts to create independent new settlements, isolated from the existing “bad” cities that are continuing to degrade. Actually, they are classical “gated communities” formed outside of the old city.

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Image 4.4.12.

New residential areas in Kotel'nikovo constructed for the workers of EuroChem company.



Since Kotel'nikovo does not have any limits for its expansive development (at least to its south-east), the new microrraions are freely planned in the green fields and do not consider issues of infrastructure use optimization or transformation of the existing residential areas by these new interventions.

Limits for growth in Kotel'nikovo.

The story of Kotel'nikovo seems a positive one. However, from the point of view of infrastructure development and life quality, the city has similar problems as many others.

Thus, housing provision is still very low. It rose between 1994-2011 from 15 square meters of housing floor area per capita to 18 square meters per capita. In this period, about 46,000 square meters have been constructed, 76% of which have been constructed by the citizens with their own funds. Accordingly, despite being an important private investor, its contribution to housing provision is not significant until 2011.

The construction of infrastructure in the period under review has been characterized by a very small quantity. Thus, in the whole period, the length of the water supply network was almost doubled (from 28 km to 52 km), while the length of the sewage system has remained the same. There was no construction of any social facilities in the period under review. Moreover, their number has reduced despite the stable population number. Thus, the number of kindergartens dropped from 11 in 1994 to 4 in 2004. It then started to increase and reached a total of 7 in 2011. Their capacity declined from 984 in 1994 to 400 in 2002 (or by 60%) and then increased to 725 in 2011. However, the number of children has been declining during the whole period under review leading to the current situation where the demand for this kind of facility is almost satisfied as 88% of children of pre-school age have the possibility to attend a kindergarten. This indicator in Kotel'nikovo is higher than the Russian average (63.7%). The number of schools has remained stable at 5 schools, with the total number of pupils reduced from 3,104 in 1994 to 1,998 in 2011 (or by 35%). Thereby, the decline in the number of children reduced a burden on educational facilities. The city healthcare system was presented by one hospital and two outpatient clinics. The total capacity of all healthcare facilities increased in the 2000's and then declined to the level of 1994 due to the reform of the healthcare system in Russia. The number of cultural and sport facilities has been stable, but their maintenance has been characterized by lack of funding.

Socio-economic and spatial planning in Kotel'nikovo.

The strategic documents for the city of Kotel'nikovo at the municipal level (table 4.4.9) are presented by the scheme of territorial planning for the Kotel'nikovsky municipal district until

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2025 and the general plan of Kotel’nikovo until 2036, the forecast of socio-economic development of the municipality and the municipal programs.

Table 4.4.9.

Municipal strategic documents acting within the territory of Kotel’nikovo.

	Strategy of socio-economic development	An action plan of implementation of the strategy of socio-economic development	A forecast of socio-economic development of the municipality in the medium or long term	A budget forecast of the municipality in the long term	Municipal programs	Documents of territorial planning
Kotel’nikovsky municipal district	no	no	Every 3 years	no	+	Scheme of territorial planning of Kotel’nikovsky municipal district until 2025
Kotel’nikovo	no	no	no	no	+	General plan of Kotel’nikovo until 2036

The local authorities have not developed a Strategy of socio-economic development for the Kotel’nikovsky municipal district nor for the city of Kotel’nikovo, despite the significant transformation of the municipal economy.

The scheme of territorial planning for Kotel’nikovsky municipal district until 2025 developed in 2008.

Since the Kotel’nikovsky municipal district and the city of Kotel’nikovo itself are characterized by a quite stable population, they seem to be in a quite positive situation considering the depopulation of the region of Volgogradskaya oblast’. Consequently, demographic development is seen in an optimistic way and there are no doubts of future population growth in the document of territorial planning. The potash deposit, discovered not far from the city of Kotel’nikovo, works as a guarantee for continued future in-migration flows. In the document, the analysis of the current demographic situation is not presented, but the demographic projection is. The projection from the beginning is seen as the “projection of population growth”:

The projection of population growth is necessary for the implementation of the main Strategic objective, defined by the Scheme of territorial planning as the achieving a high level of socio-economic development.

However, the presented forecast was overoptimistic and predicted an increase in population by 6,300 people or by 17% in 2025 for the municipal district (table 4.4.10). In 2015, it had to reach a number of 41,000 people, while in reality it reached 36,700 residents only. The same situation is true also for the city’s population: it increase until 2015 just by 4% compared to 2007 instead of predicted 20%.

Table 4.4.10.

Population projection developed in the Scheme of territorial planning for Kotel’nikovsky municipal district and the city of Kotel’nikovo.

	Population in 2007, people	Population projection for 2015, people	Population projection for 2025, people	Population in 2015 (real)
Kotel’nikovsky municipal district	36,417	41,000	42,767	36,708
The city of Kotel’nikovo	19,656	23,656	26,006	20,489

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Thus, the evaluation of the existing demographic situation and the developed demographic forecast are not realistic. However, based on the demographic projection, the necessary construction of the social and technical infrastructure has been calculated.

The General plan of Kotel’nikovo until 2036 was approved in 2016. This new document was the correction of the old one that satisfied the territorial needs of the new developers’ intentions. Actually, its preparation legalized the urban sprawl in the southern and eastern parts of the municipality that had already started (map 4.4.13). The document itself does not provide any specific solutions, but mainly includes territorial plans at other levels such as the municipal district and the detailed plan prepared by the investors for the development of the city’s southern area. Actually, the implementation of the new project has started before the general plan’s creation.

Map 4.4.13.

Areas of the current development in Southern part of Kotel’nikovo: it clearly seen the construction of the new roads and houses at different stages of construction.



Accordingly, a very small section of the document is dedicated to the demographic issue. Actually, it just fixes the population number and its growth in recent years due to the in-migration in the context of the natural population decline. There is no detailed analysis of the current trends, but the population projection is presented (table 4.4.11) although without explanations (it is described through the territory’s ability to accommodate the population).

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*Table 4.4.11.
Population projection in Kotel'nikovo general plan.*

2016 (according to statistic)	2026	2036
20,489	20,489	25,599

Strangely, the projection does not predict any population changes until 2026 and in the period from 2026-2036 it expects an increase in population by 25%. This period of designed population growth is likely linked to the construction of new residential areas.

There are many contradictions in the document's text. Thus, in the chapter on territorial development, both positions can be found on the orientation to the compact territorial development, which stimulates optimal use of infrastructure, and on the necessity to change the municipal borders in order to provide land resources for future development. However, the expansive development receives priority. The total built up area is designed to increase by 45%, 27% being growth of the residential area of single-family houses and 47% for residential areas formed by apartment buildings. The document describes the current inefficiency of the industrial areas where there is a significant share of vacancy and abandonment and it offers to notably extend industrial zones for the future possible implementation of new productions.

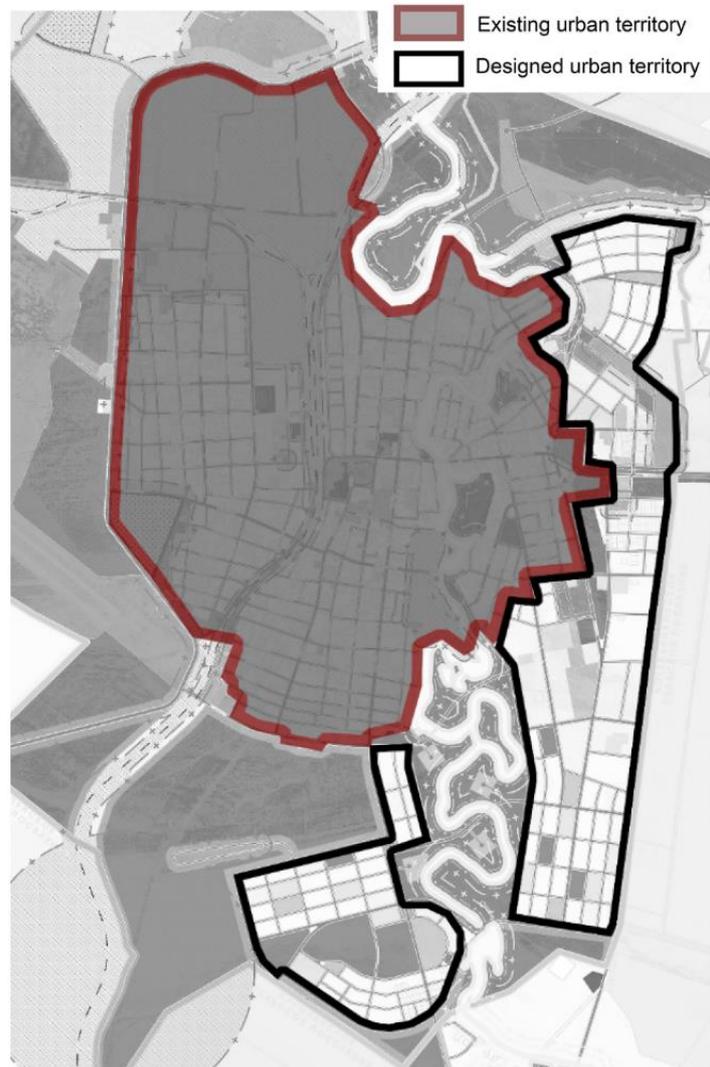
The very questionable justification for the priority of the development of new residential areas as presented by the authors mentions a comparable cost of the new housing construction and the reconstruction of the existing dwellings, characterized by the long-term lack of financing. Accordingly, the authors conclude that new construction has more advantages, while the regeneration of the existing areas would not make sense. The general plan does not offer any solutions for the improvement of the existing urban environment. Importantly, the construction itself is seen by the author as the main driver for the future economic development of the city.

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Map 4.4.14.

The territories of new extensive development designed in Kotel'nikovo general plan, 2016.



The general plan also describes an agreement between the private investors and the local authority about the construction of much needed social infrastructure within the new residential area, such as two kindergartens, a hospital with a polyclinic, apartments for orphans, engineering and street network in the new residential district. However, the calculated need for the infrastructure is much higher (for example, according to the general plan, Kotel'nikovo will need 12 new kindergartens and six new schools), which means an increasing burden on the municipal budget. In the current Russian budget system, where municipalities usually gain profit from income and land taxes, it will be a complicated issue for the future development of Kotel'nikovo.

Kotel'nikovo: results.

Being for many years a very stable city in its demographic development, Kotel'nikovo does not represent a case of successful economic performance as it could only maintain its population number due to its military functions. Most indicators, directly or indirectly

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characterizing the city's economic development, confirm this observation, from the amount of investments, income, entrepreneurship, employment, housing provision and housing constructions. All of these areas were on a negative trajectory before the finding of the large natural resources.

Now Kotel'nikovo seems to be a city which has won the lottery with the discovery of the large potash deposit nearby. It represents a typical dream of any Russian municipality, when a major investor becomes interested in the local economic development. However, the city has moved immediately into a category of a one-company city due to the dominance of this new economic actor and it risks to remain a one company city with a high dependence on its business success. The city has many disadvantages, such as climate conditions, remoteness, poor quality of the urban environment and infrastructure development. Moreover, the current strategy of the development of a “new” town close to the old one will cause a continued degradation of the existing settlement and risks jeopardizing consistent development. New ghettos in the future may repeat the story of the old city.

The local planning documents are an excellent illustration of how the local authorities serve the needs of a major investor without being able to adequately use opportunities to meet a city's needs. Moreover, the inability to develop a long-term strategic view leads to a worsening of the existing situation. The municipal planning documents do not represent a serious analysis of the city's problems nor provide a strategic vision. Instead, they are just a weak attempt to justify a need for the extensive advantageous development for private investors, which prefer green field development. Actually, the documents of territorial planning are called to legalize the urban sprawl that is already happening. The municipal strategic documents do not exist and the municipality has made itself fully dependent on the new economic actor.

4.5. Shrinking cities.

4.5.1. Alagir: a flowing city.

Alagir's profile and its historical background.

A lot of cities and villages in the Caucasus Mountains were founded for the purpose of exploiting the natural resources (mainly metal mining). The region became a strategic area with the industrialization of the Russian Empire, continuing during the Soviet period with its resources serving the growing economy of the USSR. The city of Alagir was founded in 1850 as a working village of the silver-lead plant that was operational until 1897. Alagir's plant was the first and, for many years, the only major non-ferrous metallurgy of tsarist Russia. Later, Alagir played a role in the local service center for the producers operating in this area, but also a production center, whose economy was based on local resources (mining, woodworking plant, agricultural products processing, balneological resort, etc.). Alagir earned its city status in 1938.

Alagir's administrative status and location.

The city of Alagir is one of six cities in the northern region of Ossetia-Alania. The municipality of Alagir has a status of urban settlement and is one of five such municipalities.

Alagir is a center of the municipality “Urban settlement Alagirskiye” and an administrative center of the municipal district “Alagirsky”. The municipality includes the city Alagir with a population of 20,270 people and the village Bekan with a population of 432 people. At the start of 2015, the population of Alagirsky municipal district was 37,260 people and Alagir's population was 54.4% of the municipal district's population.

Alagir is located in 54 km from the regional capital (map 4.5.1), Vladikavkaz, to its west and connected with by roads and the railway. The railway serves the goods transportation only and does not include a passenger service. The federal road passing through Alagir connects Russia with the partly recognized Republic of Southern Ossetia and Georgia.

Map 4.5.1.
Location of Alagir in Republic of Northern Ossetia-Alania.



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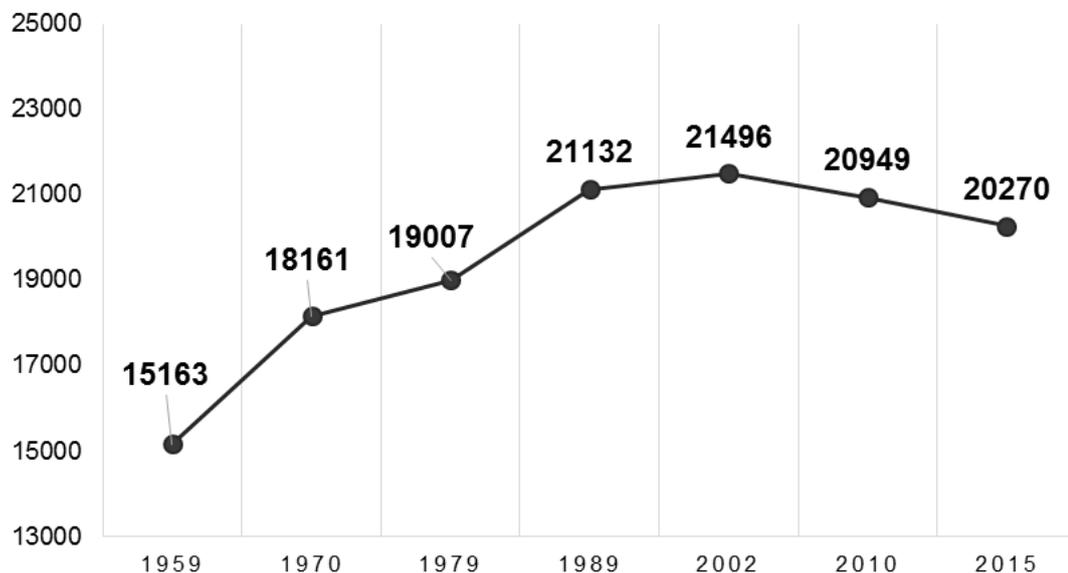
The other closely located cities are Digora (26 km to the North-West) and Ardon (18 km to the North). The distance to the city of Beslan where an international airport is located is 50 km to the North-East.

Demographic situation in Alagir.

Population change and population structure.

The population of Alagir was 20,270 people at the beginning of 2015. In the Soviet period the population of Alagir had been growing and continued to grow until 1998 (figure 4.5.1). In 1998, Alagir reached its population peak of 23,700 residents. Then, with a few exceptional years, the population has been in decline with Alagir losing 4.1% of its population compared to 1989 or 8.8% compared to its maximum number (with the annual population decline more than 1%).

Figure 4.5.1.
Population change in Alagir according to the census data of 1959, 1970, 1979, 1989, 2002, 2010 and data on population number in 2015.

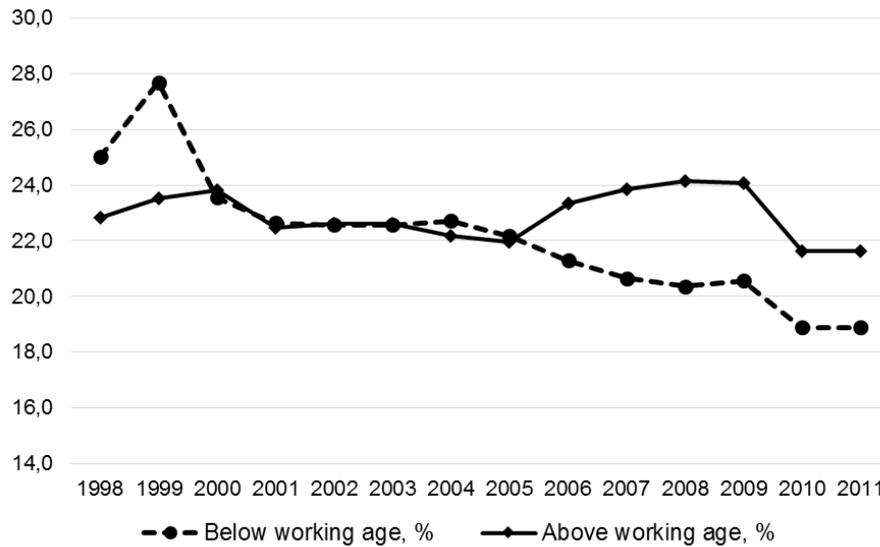


The investigation of the other negative aspects of the current demographic situation demonstrates that the disproportion in the sex structure in Alagir is higher than average in Russia and in recent years reached 54-57% in its female population compared to 46-43% of male population. The transformation of the age structure is characterized by a declining share of both dependent groups and a decreasing share of the population of working age. However, the actual number of people of working age almost did not change from 1998-2011. At the same time, the number of people above the working age group has reduced by 16% and the number of the younger population has lost 33% (figure 4.5.2). The significant decrease in absolute number of children and in their share in the total population from 25% to 19% clearly demonstrates the worsening of the birth rate and threats for the future population development of Alagir.

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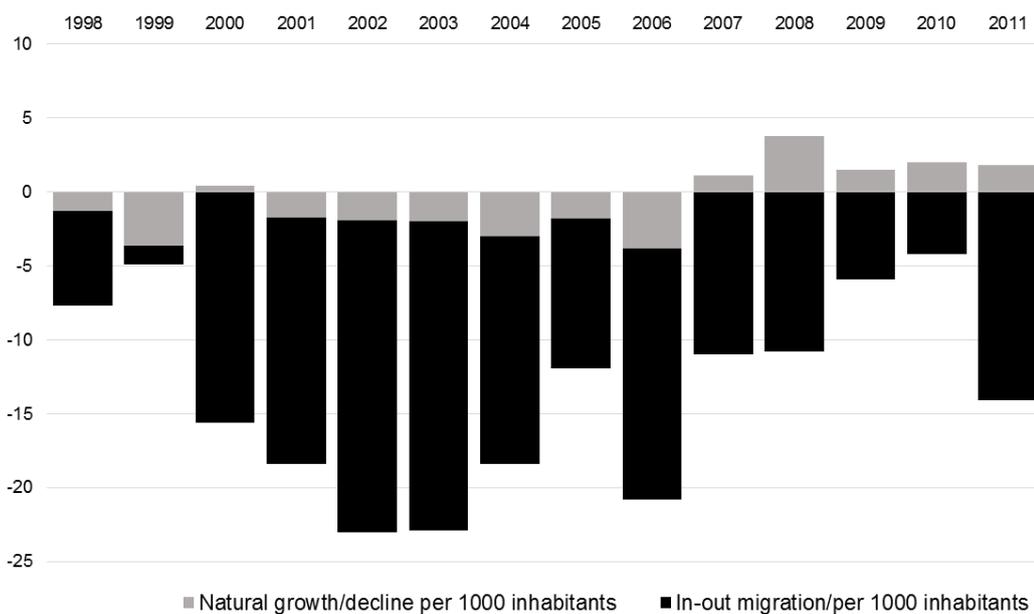
Figure 4.5.2.
Percent of population below and above working age in Alagir, 1998-2011.



Components of demographic change.

During the Soviet period, Alagir’s population growth was sustained by both in-migration and natural population growth. After the end of the USSR, the main component of the population growth in Alagir became in-migration due to the replacement of population from the conflict regions. Since 1998, Alagir was characterized by both natural population decline and out-migration (figure 4.5.3). Despite the improvement in the natality-mortality balance and positive natural population change since 2007, a dynamic of depopulation remains high, because the migration rate is much more negative than natural population growth rate. In several years its level reached a minimum of -21‰ with the average indicator of -12‰.

Figure 4.5.3.
Components of population change in Alagir in 1998-2011.



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Based on the analysis of the population age structure, it is possible to conclude that more likely, the positive trend in the natural demographic development will soon change with a reduced birth rate resulting from the less numerous population of the 90's and, accordingly, reduction of the population of reproductive age. At any rate, this positive factor does not change the general situation: a natural population growth does not compensate for a negative net migration rate. The factors provoking out-migration are linked to the economic transformation and the quality of life.

Economic development of Alagir.

Alagir, being a small city, is characterized by a relatively complex functional structure. It performs administrative, educational, health, cultural, transport, commercial, recreational and other functions, mainly of local importance. However, the leading position in the economic structure belongs to the sphere of material production, especially industry. An important role is also played by agriculture and construction.

Data analysis shows that in the first half of the 2000's, Alagir's economy attracted insignificant amounts of investment in fixed assets, taking by this indicator one of the last places among the cities of the republic. The situation in this regard changed in 2007-2009, when the scale of investment increased sharply and their volume in Alagir took the second place in the region following the regional capital Vladikavkaz. In comparison to the other cases, the amount of the investments per capita in Alagir was enormous and was comparable with Kotel'nikovo (where the new mining and processing was implemented). At the same time, there was no clear trend towards further growth: after 2008, there has been a sharp decline in the amount of investments. Actually, such a surge in investments can be explained by the implementation of several infrastructural projects in the Alagirsky municipal district (such as the construction of a hydropower station) and did not significantly influence the development of the city's economy. The investments had been characterized by the dominance of mixed ownership in the total amount (almost 87% in 2010) and a sharp predominance of extra-budgetary sources of funding (about 88%). The absence of the positive influence of the investments on the city's economy demonstrates data on employment. In 2011, the number of enterprises decreased by 23%. The number of employees had been demonstrating a stable negative trend. Since 1999 to 2011, the number of employees reduced from 5,907 people to 3,747 people. While the total population decline in Alagir was 4%, the number of employees lost was 37%. This fact means the involvement of the local population into seasonal works or commuting with the closest cities, mainly with the regional capital. The rate of reduction in the number of workers in Alagir was significantly ahead of those in other cities and the region as a whole. That led to a marked decrease in the city's share in the total number of employees in the Northern Ossetia-Alania as a whole (from 5.4% in 2000 to 2.8% in 2010).

The number of enterprises operating in Alagir and organizations had been increasing up till 2010, when it reached 1,023 (where individual entrepreneurs made up half of this number). This growth was significant compared to 1998, when the number of enterprise was just 243. However, the number of individual entrepreneurs per 1,000 people was 20 in 2011, which is the lowest number among the case studies. It can be explained by the state sector as the main employer in the area and the low business activity of the population.

The average salary in Alagir during the whole period under review was growing, but its size in 2011 was the lowest (as well as in Ardon) among the cities in the region at just 85% of the

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average in the republic. A relationship between the average salary and the living age grew from the very low of 0.94 in 1998 to 2.1 in 2011, which is one of the lowest among the investigated cases. Compared to the neighboring Ardon, the growth of the indicator was slower, because the starting point in Alagir in 1998 was better (0.94 compared to 0.5); while in 2011 the indicator in Alagir was a little bit lower than in Ardon (2.1 to 2.13).

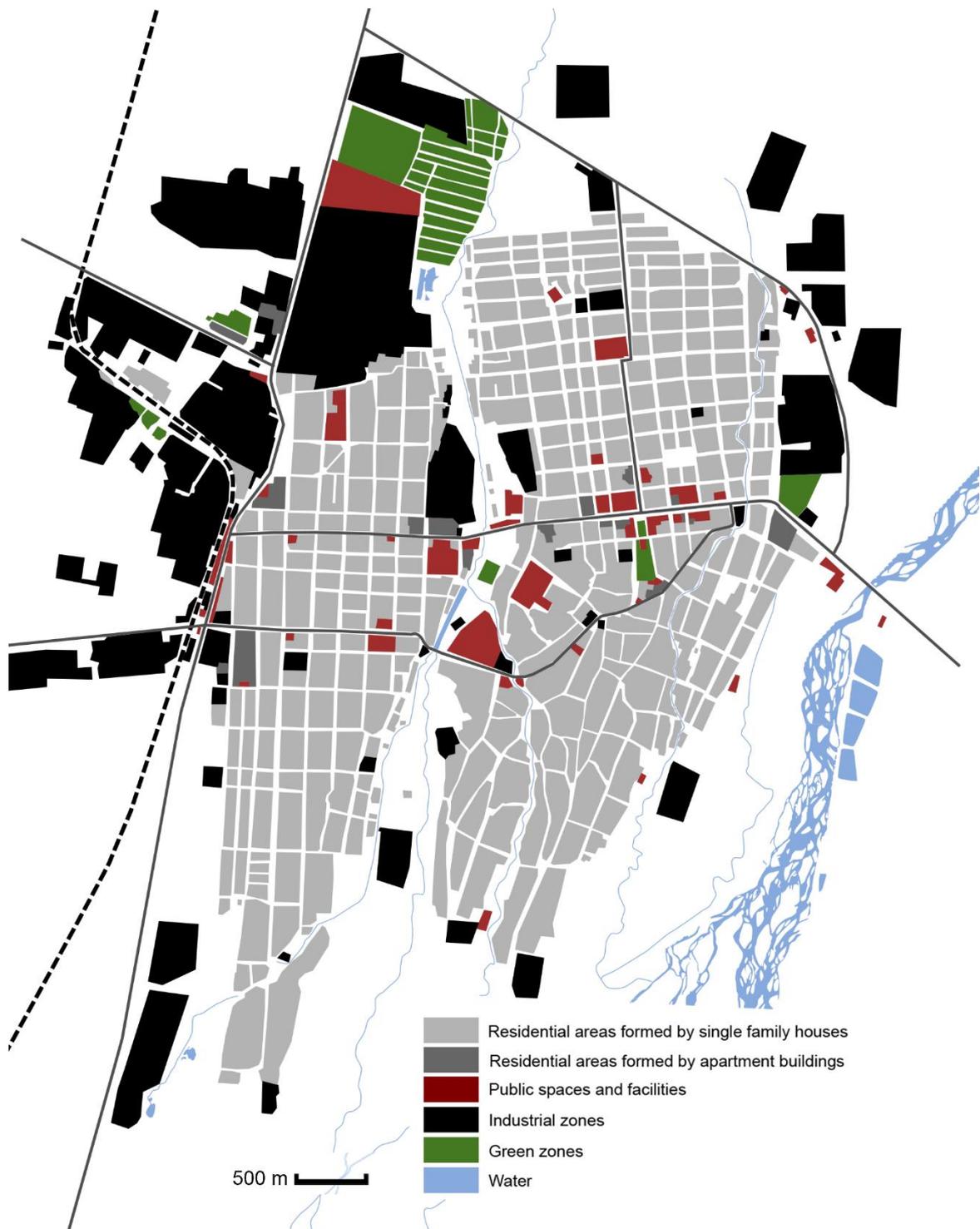
Alagir's planning structure and urban environment.

The city of Alagir is located between the rivers Ardon and Tsrau and its territory is limited to the South by the spurs of mountains covered with forest, from the west by the floodplain of the Tsrau river, whose width is about 100 meters and has high steep banks. From the northwest, the village Tsrau and from the north the partially preserved gardens and arable land limits the city. The main part of the city is located on the floodplain terraces of the left bank of the Ardon River. The surface of the terraces has a slight slope to the northeast. These existing limits result in the city's relative compactness. It occupies a territory of 11.9 square kilometers with a population density of 17 people per ha, which is higher than in the other cases of the same type (Novoanninsky, Gorodovikovsk).

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Map 4.5.2.
Planning structure of Alagir.



The planning structure of the main part of the city is based on an orthogonal street grid, forming rectangular blocks. Historically, this grid was derived from two villages, Salugardan and Alagir, formed in the middle of the XIX century. The city center historically formed around the Church of Ascension, surrounded by a parks system associated with the boulevard on Lenin

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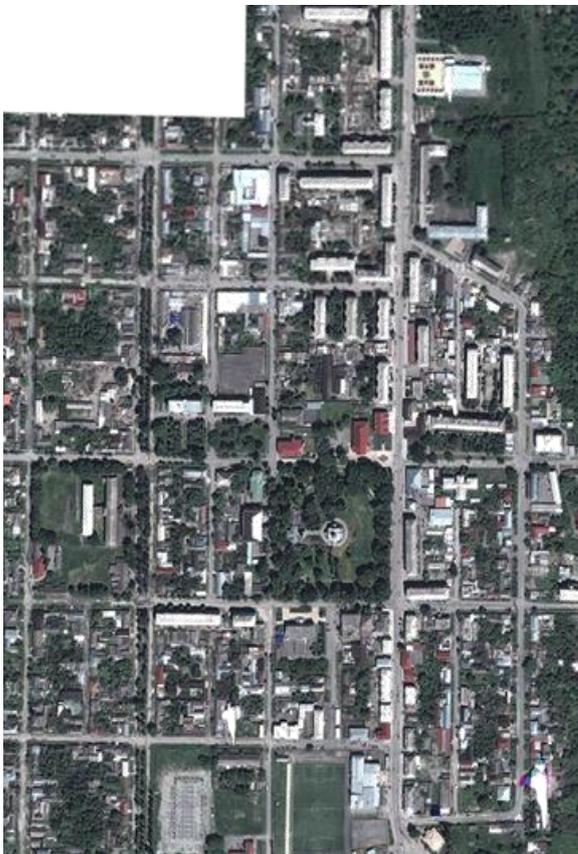
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street, stretching across the major sections of the residential areas (map 4.5.2). The main administrative buildings and public facilities are located around the church. Some other important facilities, such as the Palace of Culture, sports and recreation center along with the market comprise the main compositional accent, formed by the church and the adjacent park. Peripheral and specialized centers in the city do not exist.

As in other small cities, the river is not used as a recreational zone, there is no connection between the river and the residential areas. As in Ardon, the mountain river would require large expenses for the creation of any kind of embankments or parks along it due to the necessity to protect those recreational territories from flooding. Moreover, in the 1970's the transit road was constructed around Alagir, which worsened the situation and cut the city off from the river.

*Image 4.5.1.
Types of the residential areas in Alagir.*

The residential area of the city center



The residential area of the city periphery



Alagir's planning structure is characterized by the prevalence of residential areas formed by single-family houses. In the city center and its peripheral areas there are some 4-5 story apartment buildings. In the southern part of the city, on the river bank, there is a residential area formed by 5-9 story buildings. This area was constructed for the workers of the hydropower station located in the southern part of Alagirsky municipal district. Single-family houses occupy 55% of all the residential areas and represent about 85% of the city's housing floor area. Since the major part of the housing was constructed in the period between 1971-1995 (75%) and the main material used was stone (bricks, blocks, concrete panels), its condition is quite good without significant signs of deterioration.

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*Image 4.5.2.
The streets of Alagir.*



The apartment buildings do not form “microrraions” and have been constructed mainly along the central streets by the demolishing of single houses in order to transform the ex-villages into the city. Although these apartment buildings are better serviced by engineering and transport infrastructure, they do not alter the city’s planning structure or character of urban environment. In general, the most residential areas in Alagir are characterized by the low level of social, transport and engineering infrastructure provision.

Shrinkage consequences in Alagir.

Physical degradation.

In general, Alagir does not demonstrate significant features of physical degradation, but mainly a poor urban environment due to the lack of pavements and bad treatment of the urban elements thanks to the lack of financial resources. Nevertheless, a combination of the beautiful landscape, relatively new and well preserved houses, presence of architectural heritage and closeness both to the mountain resorts and to the regional capital make Alagir a quite pleasant place for living.

Social infrastructure.

In Alagir the reduction of social facilities has resulted mainly in the reduction of educational facilities. Thus, the number of kindergartens declined from nine in 1994 to six in 2011 with the reduction of their total capacity dropping from 940 in 1994 to 830 in 2011. A reduction of the total capacity of kindergartens in the context of a recent increase in the birth rate led to the burdening of existing facilities. In 2011 there were 967 children attending kindergartens with a capacity of only 830 places (with the excess by 16.5%). The total number of children of pre-school age in 2011 was 123 per 100 places in kindergartens. The number of schools has remained the same despite the significant reduction of children of school-age: their overall number from 2006 to 2011 declined by three times. The reduction in the number of pupils during the period 1994-2011 was 31%, dropping from 4,130 to 2,869 children. Accordingly, the situation has even improved for most schools, because their capacity were able to meet the existing needs of the city and schools stopped working in two shifts. The physical conditions of the existing buildings are quite good and in general, Alagir demonstrates an example of temporary positive changes in the secondary education facilities’ functioning due to the decline in a number of children. The city healthcare system is represented by two facilities: one hospital and one outpatient clinic. Both of

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these two facilities serve not the only the needs of the city, but also the needs of Alagirsky municipal district. The number of outpatient clinics from the period 1994-2011 has reduced from two to one. The capacity of the healthcare facilities has been reduced significantly. Thus, a number of the hospital beds dropped from 340 in 1994 to 165 in 2011 (or from 137.6 per 10,000 people to 79.7 per 10,000 people). The capacity of outpatient clinics declined from 714 to 540 visits in a day in the same period (or from 289.1 to 260.8 visits in a day per 10,000 people). However, a capacity of outpatient clinics is higher than required according to the national standards, while a capacity of the hospital is only 63.9% of the required. A number of cultural facilities in Alagir have been on the rise since the collapse of the USSR, now reaching 20, which includes the Palace of culture, four libraries, two museums, two parks of culture, a children’s musical school, a cinema and nine other cultural and leisure facilities. Some of those facilities are characterized by low level physical conditions due to the lack of funding over a long period. A system of sports facilities is represented by one stadium with stands, seven sports fields, 13 gyms, a swimming pool and a children's and youth sports school. The number of these facilities has increased compared to the past, which is linked to the state support program.

Housing.

Alagir is characterized by a high level of housing provision per capita: in 2011, that indicator was 35.6 square meters per capita. The housing provision up to 1995 had been growing due to the construction of new houses, while in the period after the improvement of the indicator was mainly due to the population decline. The major part of the housing was constructed between 1971-1995 in order to provide housing to the workers of big enterprises. After 1995, only 3% of the total housing area was constructed in the city. In the period 1998-2011, the housing floor area in Alagir increased by 33,100 square meters, 73% of which was constructed by the population. That means that the construction of single-family houses was done with the population’s own money. On average, annually, about 0.1 square meters of housing per capita had been constructed.

Engineering infrastructure.

The engineering infrastructure in the whole city is characterized by insufficiency and low capacity to satisfy current city needs. Thus, the water supply network was built mainly in the 70’s and has never been reconstructed. Accordingly, the level of its physical deterioration reaches 50-70%. Since 1994, only 15 km of new water supply network has been constructed. For the sewage network, only 7.7 km has been constructed. Sewage treatment facilities in Alagir do not exist and wastewater flows directly into the river.

Socio-economic and spatial planning in Alagir.

The strategic documents for the city of Alagir at the municipal level (table 4.5.1) are presented by the Strategy of socio-economic development for the Alagirsky municipal district until 2026, the forecasts of socio-economic development for the Alagirsky municipal district, the scheme of territorial planning for the Alagirsky municipal district until 2027, the general plan of Alagir until 2033 and the municipal programs.

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Table 4.5.1.

Municipal strategic documents acting within the territory of Alagir.

	Strategy of socio-economic development	An action plan of the implementation of the strategy of socio-economic development	A forecast of socio-economic development of the municipality in the medium or long term	A budget forecast of the municipality in the long term	Municipal programs	Documents of territorial planning
Alagirsky municipal district	Until 2026	no	Every 3 years	no	+	Scheme of territorial planning of Alagirsky municipal district until 2027
Alagir	no	no	no	no	+	General plan of Alagir until 2033

The Strategy of socio-economic development for the Alagirsky municipal district, developed in 2012.

A very small part of the document is dedicated to demographic issues. The demographic analysis represents data for one year only and does not consider all the aspects of demographic development. However, out-migration and lack of high-skilled labor force are listed among the main threats to the city’s future economic development. Despite the absence of detailed analysis for the demographic situation, the authors claim that the demographic projection uses the cohort-component method and three scenarios were developed: inertial, stabilization and optimistic (table 4.5.2). However, the calculations are not presented and the results for only the stabilization scenario is included in the document.

Table 4.5.2.

The results of population projections in the Strategy of socio-economic development for Alagirsky municipal district according to the stabilization scenario.

	2011	2016 (forecast)	2021 (forecast)	2026 (forecast)	2016 (statistic)
Population of Alagirsky municipal district	38,830	39,600	40,100	41,000	37,061
Population of the city of Alagir	20,949	21,380	21,500	22,040	20,211

The Strategy is quite optimistic in its demographic projection, while the current situation is characterized by continuing depopulation both in urban and rural settlements of Alagirsky municipal district. Yet, the improvement of the demographic situation and the slowing down of out-migration flows are declared among the main strategic goals of the document. Unfortunately, at the end, the demographic analysis and projection are not used in the development of the Strategy’s measures and they do not influence the decisions made. There are no measures oriented to the management of the demographic situation.

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The scheme of territorial planning for the Alagirsky municipal district, developed in 2009.

In this document, a quite significant part is dedicated to the demographic analysis and its forecast. The analysis of the current situation includes the most important indicators of demographic development, such as birth and death rates, migration, marriage and divorce rates, demographic burden and age-sex structure. The period of analysis of six years is very short, but the indicators used and consideration of the general demographic situation in the region described existing trends. The authors noted that in recent years the demographic situation improved slightly due to the stabilization of out-migration and rising birth rate, which exceeded the death rate. Such a situation is typical for the Caucasian regions, where, according to some demographers, the second demographic transition is not yet completed. However, this increase is temporary and the mortality rate is still very high. Authors claim that the area is under long-term and steady depopulation, which is caused by the changes in population reproduction parameters. Almost all indicators of demographic security of the municipal district are beyond the critical level. The current demographic situation in Alagirsky municipal district is characterized by a chronic process of natural decline, with rates of reproduction, which does not provide a simple reproduction of the population, an ageing population and the loss of the demographic potential.

The demographic projection (table 4.5.3) is developed using the cohort-component method and offers three scenarios: inertial, stabilization and optimistic. All of these scenarios are quite positive with the inertial one assuming the stabilization of the population at the existing level, while the stabilization scenario assumes population growth by 4% and the optimistic one projects 10% of population growth until 2027. In all three scenarios the urban population will grow faster than the rural, which means the growth of only the city of Alagir, located in the municipal district.

*Table 4.5.3.
The results of population projections in the Scheme of territorial planning for Alagirsky municipal district according to the inertial and stabilization scenarios.*

	2008	2017	2027	Predicted population change 2007-2027, %
<i>Inertial scenario, thousand people</i>				
<i>Alagirsky municipal district</i>	35.0	34.4	35.0	0
<i>The city of Alagir</i>	19.7	19.5	19.9	1
<i>Stabilization scenario, thousand people</i>				
<i>Alagirsky municipal district</i>	35.0	34.9	36.5	4.3
<i>The city of Alagir</i>	19.7	19.8	20.7	5.1
<i>Optimistic scenario, thousand people</i>				
<i>Alagirsky municipal district</i>	35.0	35.7	38.4	10
<i>The city of Alagir</i>	19.7	20.2	21.8	11

Unfortunately, it is difficult to evaluate how close the demographic projection is to the developing situation, because the 2010 census significantly changed the official population number (from 34,600 people to 38,800 people, or by 12%). However, starting from 2010 the municipal district’s population has been declining. The same aspect characterizes the demographic statistical data in Alagir itself. In 2010, due to the census, the city’s population number grew from 19,500 to 20,900 people (or by 7%). Since 2010, it has also been in decline.

Developed in a detailed way, the demographic projection allowed the authors to calculate the future needs of social infrastructure according to the future population’s age structure. A

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necessary housing construction was not calculated, but the authors note that land recourses for new housing construction are very limited due to the location of Alagirsky municipal district in the highlands. Thus, the authors proposed making an order on the current land use and in the future to organize it better and in a more intensive way.

The general plan of the city of Alagir, approved in 2013 and developed for the period until 2033.

The document dedicates a significant part to the demographic issue. A chapter with the analysis of the current situation includes data for ten years and considers all the important aspects of population development: death and birth rates, causes of death, age-sex structure, demographic burden and migrations. The main problems found by that study are the high level of out-migration, the high level of demographic burden, mainly due to elderly residents, and, accordingly, the high mortality rate and the high disproportion in the sex structure.

The demographic forecast includes three scenarios: inertial, stabilization and optimistic (table 4.5.4). The inertial scenario envisages preservation of the existing at the moment components of natural population change and intensity and direction of the external migration. The optimistic scenario assumes, first, a positive change in the migration situation due to the city's increasing attraction. However, all three scenarios predict further population decline at different scales.

*Table 4.5.4.
The results of the population projections in the general plan for the city of Alagir municipal district according to three scenarios.*

	2011	2015	2020	2025	2030	2030 in % to 2011
Inertial	20,966	20,810	20,021	19,019	18,321	87.4
Stabilization	20,966	20,850	20,200	19,594	19,455	92.8
Optimistic	20,966	20,887	20,373	20,137	20,475	97.7

The period passed since the general plan development has been quite short to evaluate of the forecast's quality. However, the population number of Alagir in 2015 was 20,300 people, which was lower than predicted by the worst scenario by 2.4%.

The general plan confirms the high level of housing provision, compared to the other municipalities in the region, which was 35 square meters per capita in 2011. The document designs increase that indicator up to 38 square meters per capita in 2020 and to 43 square meters per capita in 2033.

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Map 4.5.3.

The territories of new extensive development designed in Alagir general plan, 2013.



However, the city's limited land resources and initial high level of housing floor per capita prevented decisions envisaging significant urban sprawl: the general plan designs extension of the built up urban territories by 16%, which is a modest rate in comparison with the other cases (map 4.5.3).

Alagir: results.

Alagir represents a case where the trajectory of population-economic development can be strongly associated with the term “shrinking city”. The population decline in Alagir is caused mainly by out-migration and in this sense, the city follows the general trend for most of the Caucasian republic. In the context of a zero or positive natural population change, the out-

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migration from the region provokes population decline. In this way, the regions of the northern Caucasus became donors to the other regions of Russia, the target points of the migration flows. The demographic structure of Alagir's population is much more favorable for the positive population change than in the other case studies of shrinking cities. However, in Alagir the effects of the second demographic transition is observed as well in the decrease in number of births and ageing. However, the positive preconditions for the demographic change are the obvious advantages for the city's future development. Accordingly, the target of the municipal policy should be diminishing the negative effects of factors provoking out-migration, the first of which is the weak economic development. At the same time, all of the city experiences the problem, typical for cities of such a small scale that lack or have poor development of infrastructure, bad quality urban environment and few opportunities for education and self-development. On the other hand, Alagir is located in an area rich with natural resources and heritage, which can be used for industrial production (including energy production) and touristic attraction. Nevertheless, considering the high level of competition among the Caucasian regions, the successful economic development is not easy to reach. Regardless, the local authority should be ready for the probable continuing population decline, its negative effects and utilize planning tools to address such specific conditions.

Unfortunately, the analyses of the local planning documents illustrate a weak attention of the local authorities, not only to the demographic issue, but overall to the strategic vision of the city's future development. The local strategic documents do not represent any kind of strategies, but include sets of stamps and general declarations about desired development. They demonstrate a clear lack of the specialists in the local administration and their inability to form a strategic vision. The difference in the projections and solutions in the documents even of the same level, the very low quality of the current situation analysis reduces the value of the planning document within the governance process.

4.5.2. *Novoanninsky: a “dying” city.*

Novoanninsky’s profile and its historical background.

Novoanninsky’s foundation is linked to the development of the railway network in southern Russia. The village of Privokzal’ny was founded close to the new railway station in 1872 for providing its maintenance. In 1918, the village became a Cossack settlement – stanitsa Novo-Annenskaya. Many enterprises using local resources and serving the surrounding areas have appeared in the settlement. Novoanninsky gained its city status in 1956.

The city’s economy during the Soviet period was based on the industrial sector, which lost its significance after the fall of the USSR. The main enterprises, such as casting and the mechanical plant, brickyard or meat processing plant were closed with the socialist system’s demise. Nowadays, the city maintains the local administrative, educational, cultural and service center including some small industrial enterprises, mainly specialized in food production.

Novoanninsky’s administrative status and location.

The city of Novoanninsky is one of 19 cities in Volgogradskaya oblast’. The municipality of Novoanninsky has a status as an urban settlement and it is one of 29 such municipalities.

Novoanninsky is a center of the municipality “Urban settlement “The city of Novoanninsky” and an administrative center of the municipal district “Novoanninsky”. The urban settlement includes the city Novoanninsky with a population of 16,777 people and one village with a total population of seven people. At the start of 2015 the population of the Novoanninsky municipal district was 34,743 people and the city represented 48.3% of the municipal district’s population.

Novoanninsky is characterized by a peripheral location in the region. It is located 253 km away from the regional capital, Volgograd, located to its north-west (map 4.5.4). The distance to another regional capital Voronezh is 329 km to the north-west from Novoanninsky. This part of the region has a low population, settlement and infrastructure density. The closest city to Novoanninsky in the Volgograd region are Mikhaylovka, 70 km to the south-east, and Uryupinsk, 88 km to the north-west (Uryupinsk provokes an image of the Russian deep province and its name has become a common noun for describing a remote place, a kind of synonym for “in the middle of nowhere”). Novoanninsky is connected with the regional capitals by the roads and the railway.

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Map 4.5.4.
Location of Novoanninsky in Volgogradskaya oblast’.



Demographic situation in Novoanninsky.

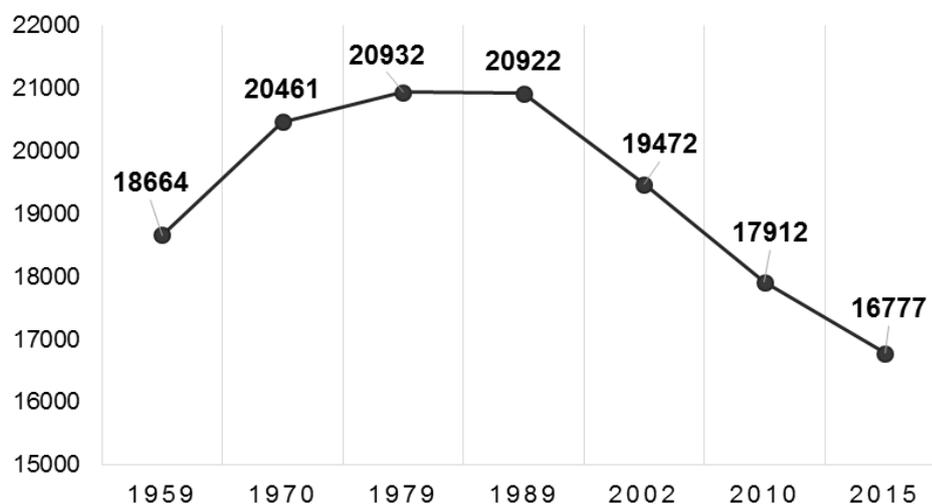
Population change and population structure.

The population of Novoanninsky was 16,780 people at the beginning of 2015. The city’s growth had slowed down already during the Soviet period and between 1979 and 1989, a population decline of 10 people was registered. With the socialist era’s end, Novoanninsky started to continually lose its population. Up to 2015, the city lost 19.8% compared to 1989 (figure 4.5.4). It is necessary to note that among 19 cities in Volgogradskaya oblast’, ten lost some of their population in the period from 1989-2015 and the region represents the worst performance in southern Russia in terms of urban population change. Novoanninsky in Volgogradskaya oblast’ is characterized by the severest population decline.

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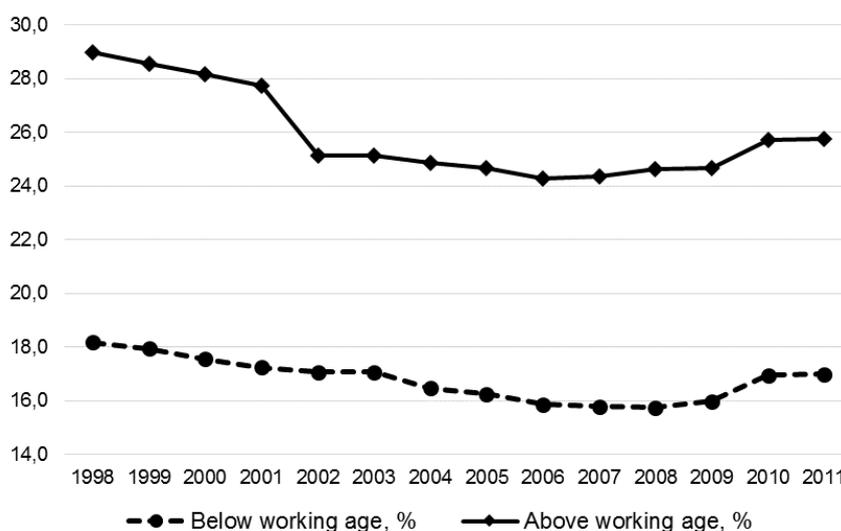
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Figure 4.5.4.
Population change in Novoanninsky according to the census data of 1959, 1970, 1979, 1989, 2002, 2010 and data on population number in 2015.



The constant population decline is accompanied by other negative demographic trends. Thus, the sex structure in Novoanninsky is less positive than in the country as a whole. The female population has prevailed constantly at the level of about 54.5% from the total number (while for Russia this indicator is 54%). The age structure of the city's population is not favorable as well. The population has a low share of working age and children residents with a high share of population above working age (figure 4.5.5). It is worth noting that all the groups have been declining in absolute terms: the working age population has lost 3% since 1998, below working age has lost 16%, but the biggest loss of 20% has occurred in the above working age group. Additionally, a share of the elderly has been declining consistently from 1998-2006, falling from 29% to 24.3%, but then started to increase and reached 25.8% in 2011.

Figure 4.5.5.
Percent of population below and above working age in Novoanninsky, 1998-2011.



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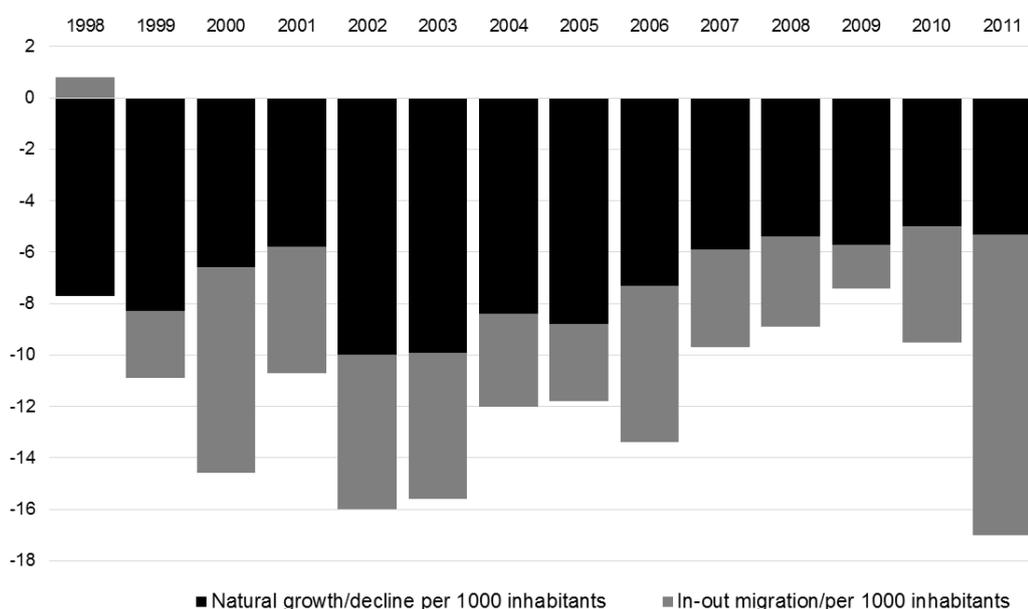
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The demographic burden had been slightly increasing, but compared to the other case studies, in Novoanninsky the elderly do not represent a significant share in the population structure.

Components of demographic change.

Since the end of the 90's, both natural and migration population decline have been characterizing Novoanninsky's demographic development (figure 4.5.6). However, natural population decline has been playing a crucial role in the city's population change. The natural decline, on the background of the slightly increasing birth rate (this trend had been following the general demographic trends in Russia) is formed mainly by the very high mortality rate, which in average had been about -17.9‰ in 1998-2011, and in several years, it reached a level of about -20‰. This number was much higher than the average in Russia (about 14‰).

Figure 4.5.6.
Components of population change in Novoanninsky in 1998-2011.



Together with out-migration, the natural population decline has created a real threat for the city's future development since it is located in a low-density, remote and depopulating area with very limited opportunities for positive population development.

Economic development of Novoanninsky.

The economy of Novoanninsky consists mainly of the enterprises involved in food production and production of construction materials with some exceptions, such as the electro medical equipment plant or the casting and mechanical plant. The enterprises, occupied in food production, work on the local food raw materials and are oriented mainly on the local consumers producing bread, dairy products, meat and oil. The service functions in governmental sector are very important in city economy since it is an administrative center for the vast rural area.

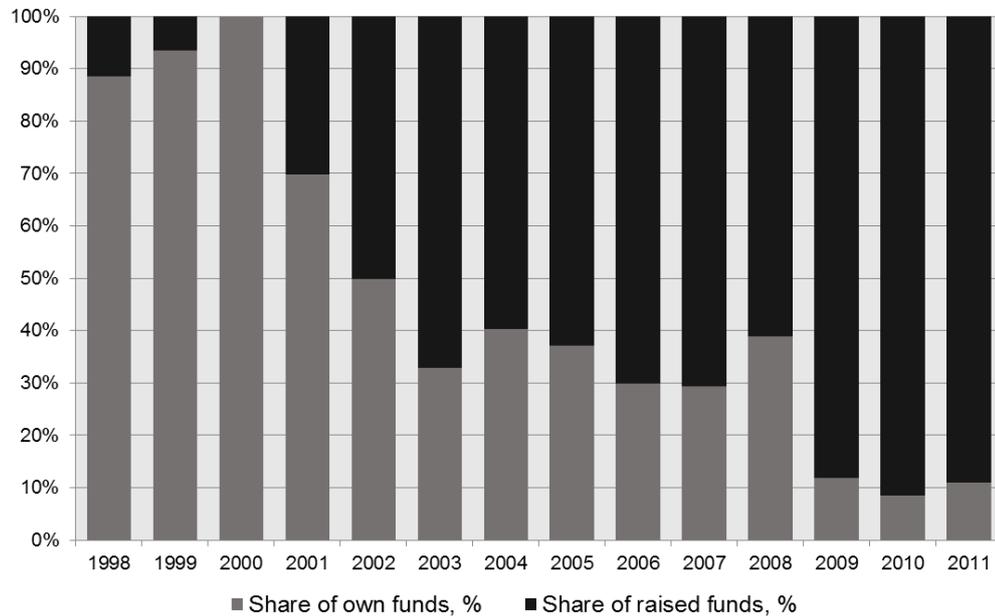
Despite the constantly growing investments into the city economy, their amount was quite small with the maximum of 13,300 rubles per capita in 2011. In the investment structure, the shift from the dominance of their own funds to the raise funds is notable: in the last years, the share of

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involved funds was about 90% (figure 4.5.7). In turn, the raised funds in particular years have been replaced by budget money.

Figure 4.5.7.
The structure of the investments in fixed assets in Novoanninsky in 1998-2011.



This fact clearly indicates an inefficiency of the local economy and a worsening economic situation with the increasing need of governmental support. However, that support has not resulted in an improvement of the indicators characterizing a positive dynamic in the city's development. Thus, the number of economic entities in Novoanninsky had been also constantly growing until 2010, when their number reached a maximum of 1170 units. The share of individual entrepreneurs in the total number of business entities in the last years was about 70-72% with about 42 business entities per 1000 people. This number is quiet high in comparison with other case studies and indicates a tendency for self-employment.

The low average salary in Novoanninsky indicates weak economic development, which in 2011 was 11,900 rubles. That was 18% less than the average salary in Volgogradskaya oblast' and 40% less than the average salary in the regional capital. The relationship between the average salary and living wage in Novoanninsky with its 2.08 was at the last position among the case studies in 2011, but despite its amount was not the smallest one.

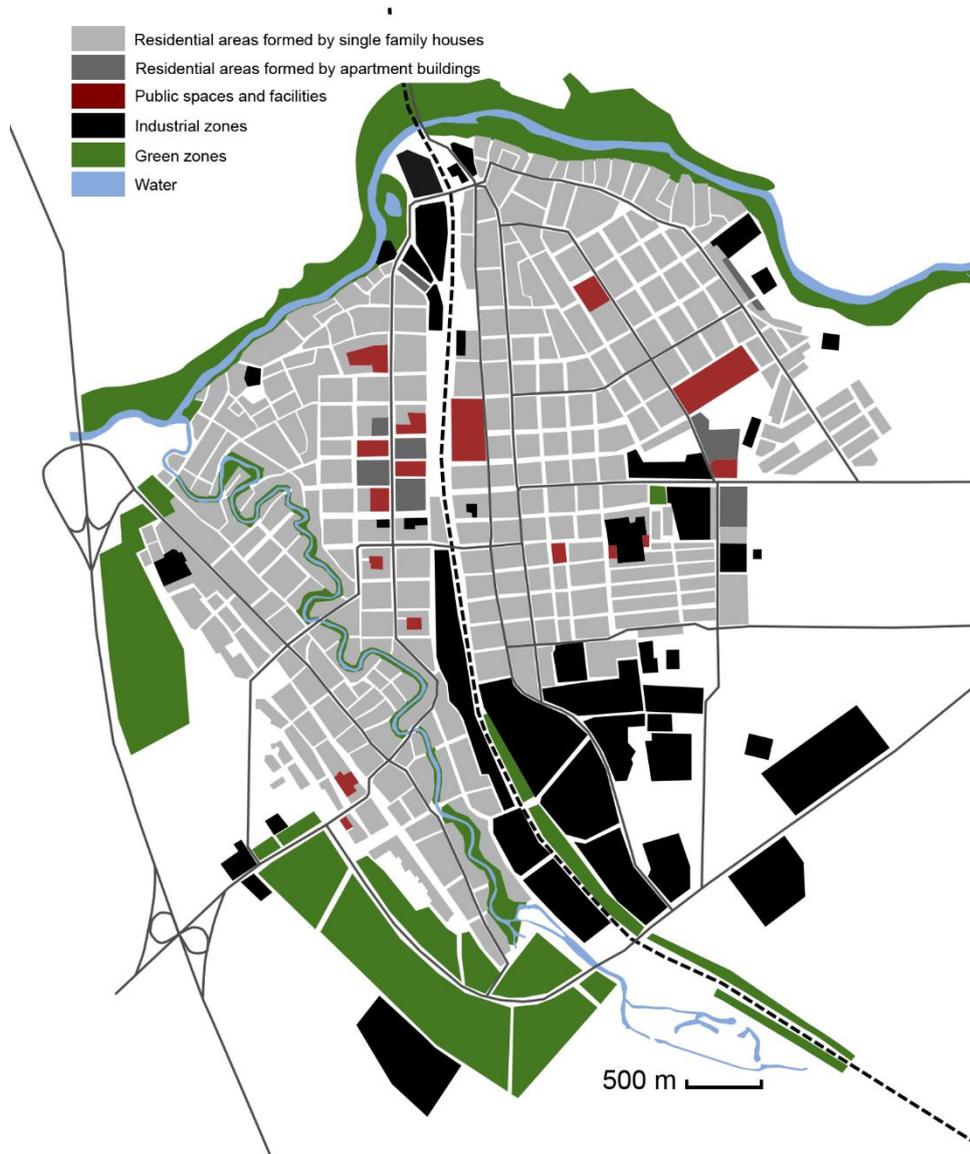
Novoanninsky's planning structure and urban environment.

Novoanninsky has quite a simple planning structure, formed around the railway and the river Buzuluk. The railway divides the city in two more or less equal parts: the eastern and western. Despite the fact that Novoanninsky received its city status in 1956, its urban environment has all the characteristics of a rural settlement (map 4.5.5). As in other small cities, the river is isolated from the city and forms just a part of many backyards, but not of urban recreational zones. There is the only one small beach in the northern part of the city. Novoanninsky occupies an area of about 12.3 sq km, the population density is about 14 people per ha, which is very low for an urban settlement.

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Map 4.5.5.
Planning structure of Novoanninsky.



The city's urban fabric is monotonous and most of the residential areas are comprised mainly of one-family houses. Most of the service facilities and public spaces are concentrated in the city center, while there are no any peripheral centers in Novoanninsky.

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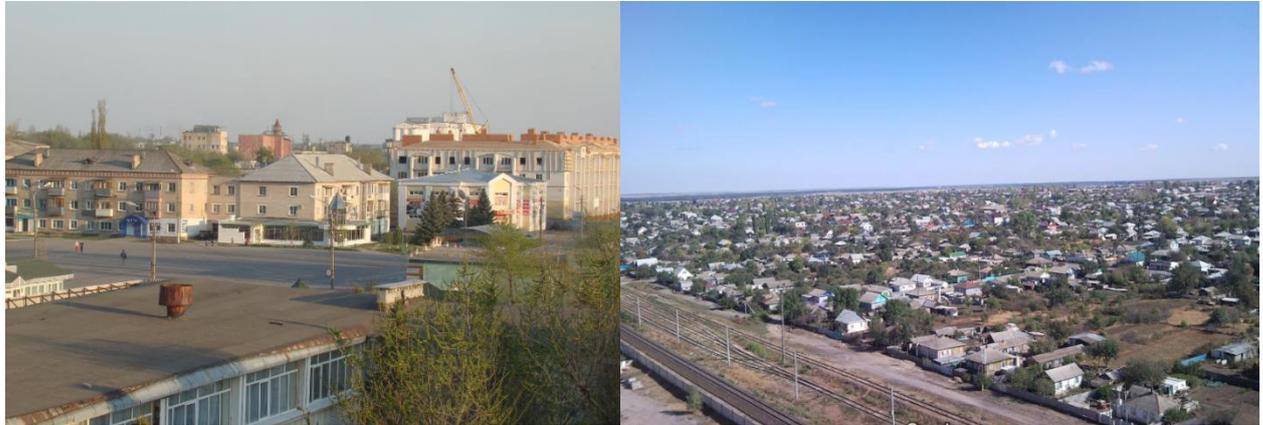
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Image 4.5.3.

Character of urban environment in Novoanninsky.

The central part of the city

The typical residential area in Novoanninsky



The planning structure of the main part of the city is based on an orthogonal street grid, forming rectangular blocks. During the Soviet period in the eastern part of Novoanninsky, there was an attempt to form a microrraion, which has not been completed. Accordingly, in that area as well as in the peripheral part of the city, there are many plots of wasteland, which have not been privatized and are not currently used along with land that is not used effectively. Those land plots represent an internal resource for urban use. However, the city follows an extensional development and continues to grow in the eastern direction (image 4.5.4) through the construction of single-family houses built mainly with the use of the population’s private money.

Image 4.5.4.

Continuing urban sprawl in the Eastern part of Novoanninsky.



Since the main type of housing in Novoanninsky is rural housing, its typical characteristics as a small Russian “semi-urban” settlement means a poor provision of any type of infrastructure: social, transport or engineering. The roads in many streets are not paved. The indicators of engineering infrastructure provision demonstrates a very low level. For example, only 49.7% of housing is provided with water supply, the same amount are connected with the

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sewage network. The best situation is in the provision of gas mains that almost 84% of housing uses. Moreover, the engineering systems are characterized by a high level of physical deterioration (more than 80%) and the absence of any kind of development.

Consequences of shrinkage in Novoanninsky.

Physical degradation.

The city of Novoanninsky, as in other southern cities does not demonstrate typical images of shrinking city in residential areas, despite the significant depopulation, such as abandoned dwellings. However, existing houses often have poor physical conditions due to many years of unavailable financing. Abandonment can be observed in the industrial and infrastructural areas, as well as the waste land in industrial areas and residential territories, which were caused by the contradiction between Soviet planning and following trend of land privatization.

Social infrastructure.

The number of social facilities in Novoanninsky has reduced, although the reduction has not been as dramatic as in other cities. The number of kindergartens from 1994-2011 declined from six to four, while the number of six primary schools remained stable. Accordingly, the capacity of the kindergartens declined from 486 to 417 or by 14% while the capacity of schools remained steady at 2,403 places. The reduction of the pre-school facilities led to an increasing burden on the system. The number of students per 100 places in the kindergartens rose from 103 in 1994 to 121.8 in 2011. It caused a growing birthrate in recent years and, accordingly, a rise in the number of students. At the same time, the number of children of school age has been constantly declining and in 2011, it dropped to 1,862 children (from its maximum of 2,837 children in 1996). Thereby, the total school capacity exceeded the city needs by 541 places or by 29% in 2011. The healthcare facilities are presented by one hospital and two outpatient clinics. The capacity of the hospital declined from 280 to 172 hospital beds in 1994 and 2011 respectively (or from 139 hospital beds per 10,000 people to 98 hospital beds per 10,000 people). The total capacity of outpatient clinics, in contrast, has risen from 223 to 296 visits in a day during the same period. Accordingly, their capacity per 10,000 has risen notably from 111 to 168.7 visits in a day per 10,000 people. In this way, the indicators of outpatient care have been improved due to the population decline. The sport facilities are represented by a stadium, 15 gyms, and eight open air sport fields. Their total number has increased from 17 to 26 during the period under review. The cultural facilities include the center of culture and art, three libraries, one museum, a park of culture and a musical school. The number of cultural and leisure facilities has remained stable, but the lack of funding has resulted in their physical conditions.

Housing.

Despite the worst natural population decline among the city-case studies, the rate of housing construction reached the best result. The housing provision in Novoanninsky is characterized by the constant growth of the housing floor area per capita and since 1994 it has increased from 15 to 26 square meters per capita. However, the absolute amount of housing constructed during the period under review was the only 81,000 square meters of housing floor area. Accordingly, the population decline plays a crucial role in increasing of the housing provision per capita indicator. An average annual amount of newly constructed housing had been about 0.23 square meters per capita with the largest amount being 0.33 sq. m per capita in 2000. The share of housing constructed by population in the total amount of newly constructed

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housing had been very high: more than 95%, which means the absence of big actors in the Novoanninsky housing market and also the state investments into housing construction. Despite the relatively positive dynamic of housing provision, its quality remains low.

Engineering infrastructure.

The newly developed residential areas suffer from a lack of infrastructure including social, transport and engineering due to the lack of budget resources of municipality, which is responsible for the infrastructure provision.

*Image 4.5.5.
One of the peripheral streets in Novoanninsky.*



Thus, during the period under review, only three kilometers of water supply network had been constructed, and there had not been any development in the sewage system.

Socio-economic and spatial planning in Novoanninsky.

The strategic documents for the city of Novoanninsky at the municipal level (table 4.5.5) are presented by the scheme of territorial planning for the Novoanninsky municipal district until 2025 and the general plan of Novoanninsky until 2029, the forecast of socio-economic development of the municipality and the municipal programs.

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Table 4.5.5.

Municipal strategic documents acting within the territory of Novoanninsky.

	Strategy of socio-economic development	An action plan of the implementation of the strategy of socio-economic development	A forecast of socio-economic development of the municipality in the medium or long term	A budget forecast of the municipality in the long term	Municipal programs	Documents of territorial planning
Novoanninsky municipal district	no	no	Every 3 years	no	+	Scheme of territorial planning of Novoanninsky municipal district until 2025
Novoanninsky	no	no	no	no	+	General plan of Novoanninsky until 2029

The scheme of territorial planning for Novoanninsky municipal district until 2025, developed in 2011.

In this document there is no any specific analysis or projection of demographics. The current situation is described in the presentation of the population for every municipality included in Novoanninsky municipal district for 1990, 2007 and 2010. This data shows a slight population growth that allowed the authors to assume further population increase both in rural and urban areas (table 4.5.6). Actually, the data presented in the document is not adequate and the official statistic demonstrates other numbers. According to the document, the population of Novoanninsky municipal district has been declining since 1989 and the real population number now is much lower than the predicted one.

Table 4.5.6.

Population projection developed in the Scheme of territorial planning for Novoanninsky municipal district and the city of Novoanninsky.

	Population in 2011, people	Population projection for 2015, people	Population projection for 2025, people	Population in 2015 (statistic)
Novoanninsky municipal district	39,686	40,877	43,738	34,743
Novoanninsky	18,454	19,645	22,506	16,777

The demographic situation is not considered a threat for the territory in the scheme and there are no measures oriented towards the management of the depopulation issue or population territorial distribution. However, the document proposes increasing the settlements' territories, supporting the idea of continued extensive development.

The general plan of the city of Novoanninsky approved in 2009 and developed for the period until 2029.

The city's general plan presents the analysis of the previous document developed in 1980, during the Soviet period planned economy. The presented description demonstrates how wrong the predictions were of the future of the city in almost any aspect of the city's development. Thus, the population was predicted to increase from 20,000 residents in 1980 to 22,000 by 2005-2010. In reality, the city declined to 18,900 in 2005 and to 17,900 in 2010. The population growth had to follow the planned economic development that never happened. Interestingly, the last Soviet general plan did not design a significant increase of the built up territories with only 1% added to the existing areas in 1980. The document assumed an intensification of the use of the urban territory through the increase of reconstruction and density.

The prognosis of the current general plan is based on the strategy of development, defined by the authors due to the absence of any other strategic documents in the municipality. As it is written in the document, the project was oriented to both the “optimistic” and “pessimistic” views. The optimistic position is used for the transformation of urban design and the socio-economic development projection, while the pessimistic position is used for the finance provision evaluation. The general plan mentions a flexible approach, which is necessary under conditions of high level of uncertainty. This approach includes a minimization of activities on the construction of new large infrastructure facilities, the possibility to implement big projects by stages that could work autonomously, investment attractiveness and the use of public-private partnership tools along with the transformation of the inner city and the use of the existing infrastructure.

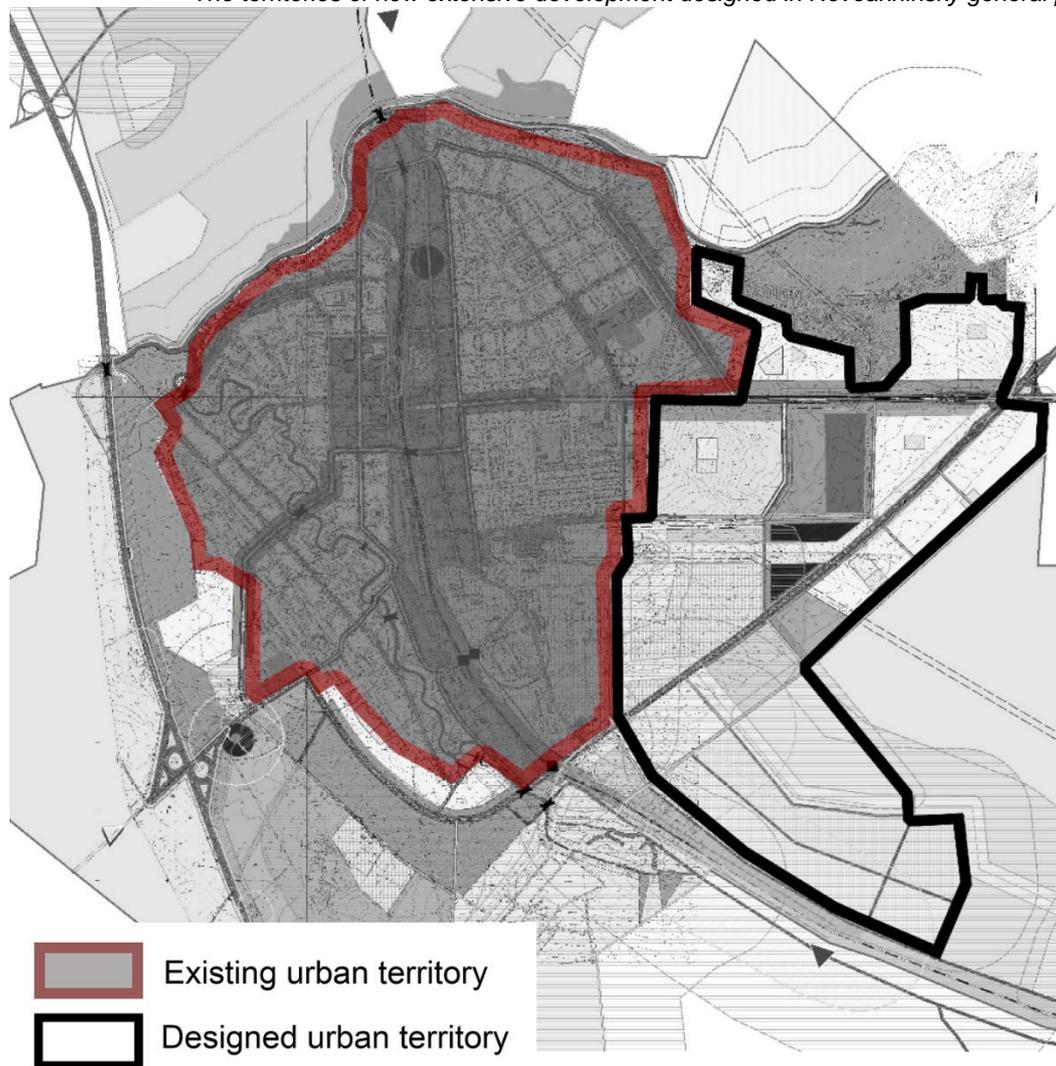
The general plan of Novoanninsky ignores completely the current demographic problems in its measures. In the analytical section these problems are mentioned (without a detailed analysis) and in the design part there are several scenarios of future development, based on differing assumptions. Unfortunately, those assumptions do not have any scientific investigations behind them and a population change is projected based on probable housing construction. The existing territorial resources around the city and the presence of the river, the railway and the regional road are the factors considered enough for future successful economic development. Housing construction is seen as an important aspect in the improvement of life quality. According to the authors, it will attract new citizens. At the end, the city's territory, which is already characterized by a low population density, is believed to increase by 19% compared to the existing area (map 4.5.6).

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Map 4.5.6.

The territories of new extensive development designed in Novoanninsky general plan, 2009.



For the calculation of housing and infrastructure provision, the indicator of 30,000 people has been used as the future population number, without any explanations, which means a predicted population growth by 79%.

Novoanninsky: results.

The label “dying” city chosen for Novoanninsky illustrates the nature of its depopulation. If even the depopulation in Novoanninsky caused by both natural population decline and out-migration, the natural population decline and, especially a high mortality rate, has played a crucial role in this process. The natural population decline is based on the shift in the demographic structure and all the processes, which cannot be regulated at the local level. However, the mortality rate, higher than in other settlements, might be explained by local problems, which should be investigated. In the current demographic situation, the only possible way to improve the negative population trend is the increase of the in-migration flow. In reality, such a solution in the case of Novoanninsky could hardly be implemented. It has many more disadvantages in terms of its attractiveness than advantages, such as its peripheral location and

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remoteness from any large center or capital cities. The climate conditions and poor natural resources (even from an aesthetic point of view), absence of a historical heritage or any attractive natural or artificial objects, poor conditions or absence of infrastructure, weak economic development and little opportunities for the future self-development, education and job opportunities make future development difficult. In the case of Novoanninsky, it should be obvious to the local administration that the city will more likely continue to shrink over the long term.

In contrast, the analysis of the local planning documents demonstrates numerous weak points: the absence of the strategic vision and strategic documents for the municipality (both at the municipal and the regional level; the city seems neglected); poor consistency of the city's and the municipal district's documents of territorial planning; absence of scientifically based analytical documents examining the depopulation issue and unreasonable optimism in the planning of territorial development. In summary, the planning in Novoanninsky is absolutely inadequate to the actual situation.

4.5.3. *Akhtubinsk: between two capitals.*

Akhtubinsk’s profile and its historical background.

The appearance of the settlements in the northern part of Astrakhanskaya oblast’ is related to the exploration of the salt deposits. These areas are not characterized by fertile soil and agricultural activities are risky here, but they could satisfy the salt needs of the Russian Empire. Akhtubinsk was founded as the village Vladimirovka located on the river Akhtuba and has many salt storages, where salt had been transported from Baskunchak Lake. Later, close to Vladimirovka, another village Petropavlovka was founded. In 1882, the Russian government constructed the railway for salt transportation, which connected the area with central Russia. In Petropavlovka, the carriage repair plant and ship repair plant have also been built, in order to serve transportation on the Volga River. Akhtubinsk has grown from those two villages and gained city status in 1959. The city’s later development during the socialist period was connected with the construction of the large aviation test facility and implementation of military functions.

Akhtubinsk’s administrative status and location.

The city of Akhtubinsk is one of six cities in Astrakhanskaya oblast’. The municipality has a status of an urban settlement and is one of four such municipalities.

Akhtubinsk is the administrative center of the municipality “Urban settlement the city of Akhtubinsk” and also an administrative center of Akhtubinsky municipal district. The urban settlement includes the city of Akhtubinsk itself with a population of 38,507 residents and five villages with a total population of 70 people. Two of five villages exist officially, but they do not have a population. By the start of 2015, the total population of Akhtubinsky municipal district was 66,105 people, 58.3% of the municipal district’s population.

Map 4.5.7.
Location of Akhtubinsk in Astrakhanskaya oblast’.



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Akhtubinsk is located 305 km from the regional capital of Astrakhan' to the north-west (map 4.5.7). The specific location of the city makes it in fact much closer to another regional capital, the city of Volgograd. At a distance of 152 km, it is twice as close.

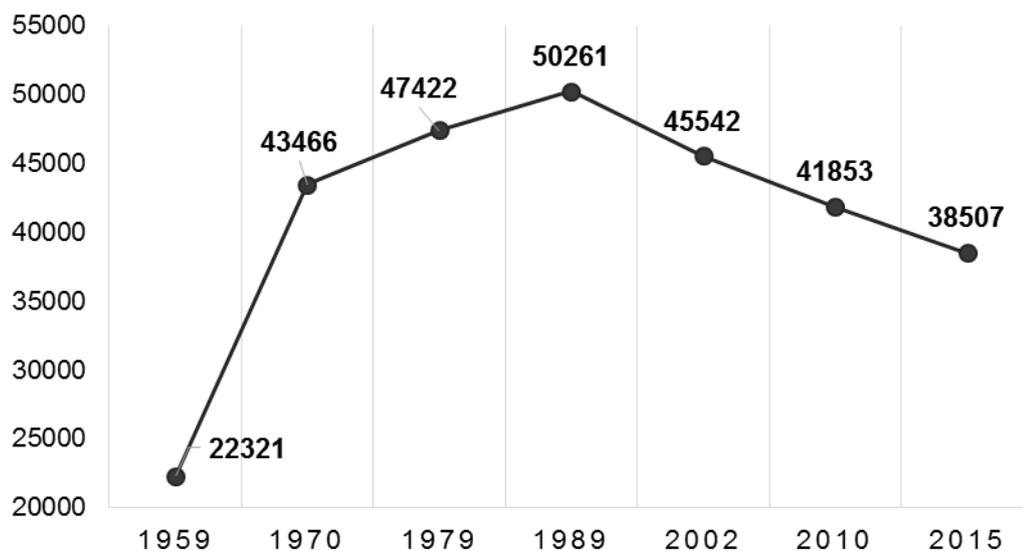
Akhtubinsk is connected with the regional capitals by roads and railways.

Demographic situation in Akhtubinsk.

Population change and population structure.

The population of Akhtubinsk was 38,507 people at the start of 2015. In the Soviet era, the city experienced a period of fast growth from 1959 to 1970, when in ten years its population doubled. The next two decades were characterized by slower growth as the city gained another 15% of its population and reached its peak population of 50,261 people in 1989 (figure 4.5.8). Immediately after the USSR collapse, Akhtubinsk started to decline and since 1989, it has lost 24% of its population. Notably, the process of population loss has been steady with the city losing more or less an equal percentage each year.

Figure 4.5.8.
Population change in Akhtubinsk according to the census data of 1959, 1970, 1979, 1989, 2002, 2010 and data on population number in 2015.

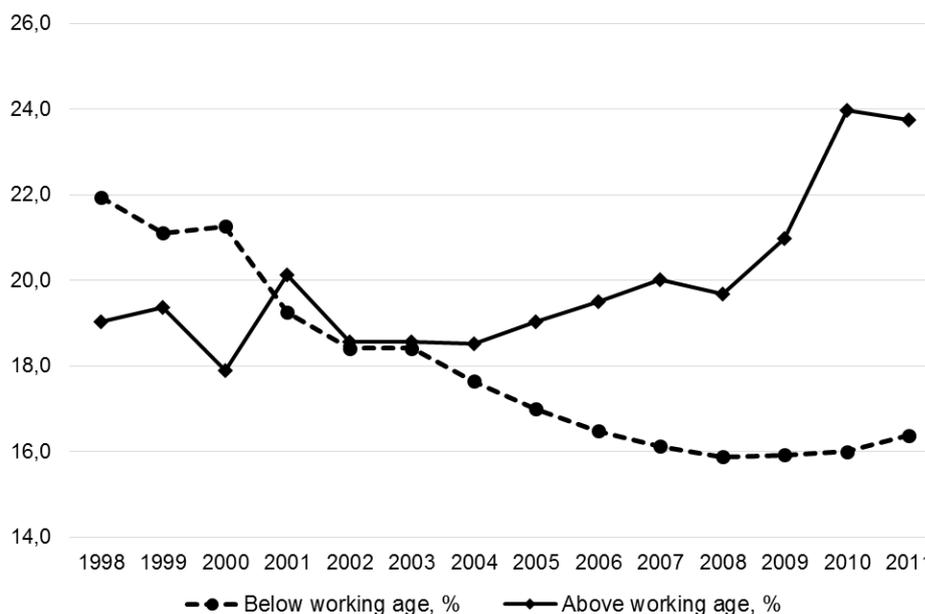


In addition to the stable population decline, other negative aspects characterize the city's demographic situation. Thus, the sex structure in Akhtubinsk is similar to the general proportion in Russia where the female population prevails. Its share has been fluctuating at the level of 52-54% of the total population number. As in the rest of Russia, this disproportion increases in older age groups (figure 4.5.9). The very low share of the children age group and the higher share of elderly characterizes the age structure in Akhtubinsk with 16.4% of population below working age and 23.7% of the population above the working age group. Importantly, Akhtubinsk's population has been declining by reducing the number of people from the working age and below working age groups. The population in the working age group has decreased by 4,533 people from 1998 to 2011 (or by 15%) and the number of children has fallen by 4,135 in the same period (or by 62.3%), while the population number in above working age group has increased by 392 people or 4%.

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Figure 4.5.9.
Percent of population below and above working age in Akhtubinsk, 1998-2011.



The data clearly shows the process of population ageing and increase of the demographic burden on working population.

Components of demographic change.

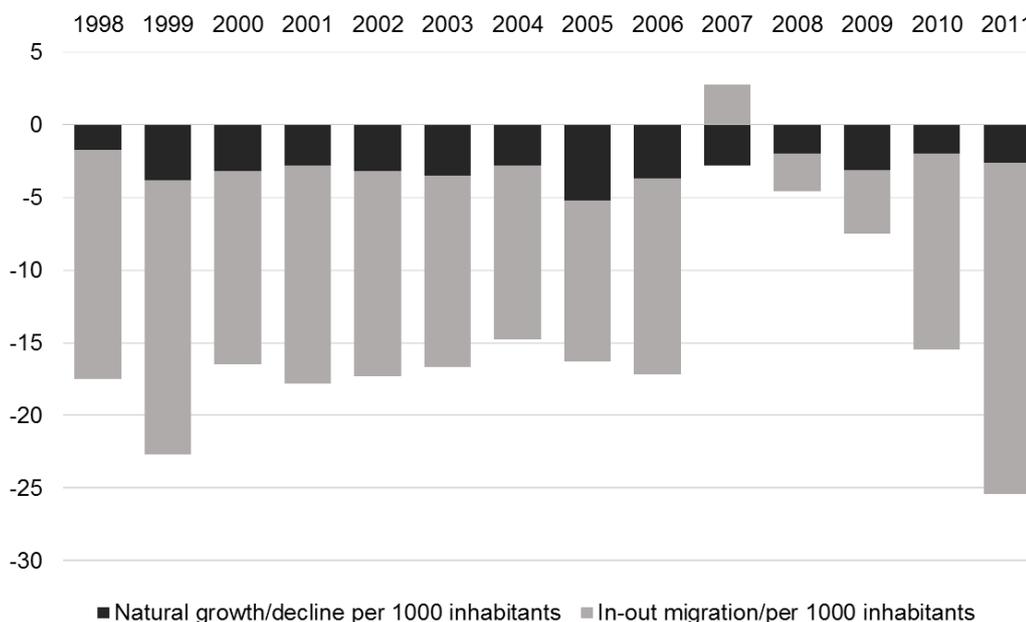
In the Soviet period, Akhtubinsk was growing mainly due to in-migration, which was a typical mode for cities' growth in the 20th century in the USSR. Fast development of the industrial sector provided new jobs, attracting about 1,000 new inhabitants every year in the 60's and 70's. Nowadays, both natural population decline and out-migration contribute to the current demographic situation in Akhtubinsk, but out-migration's role is more significant.

The natural demographic change is characterized by a quite low birth rate and high death rate. Despite the improvement of these indicators from 1998-2011, they are worse than the regional and national averages. Thus, the birth rate in Akhtubinsk was about 12.2 per 1,000 people in 2011, while in Astrakhanskaya oblast' it was 15.1‰ and 13.3‰ in Russia. The death rate in Akhtubinsk in 2011 was 14.8‰, when the regional and national averages were 12.6 and 13.3 accordingly. Moreover, while in the whole country the mortality rate has been decreasing, in Akhtubinsk, it followed an opposite trend, going from 10.8‰ in 1998, growing to 14.8‰ in 2011. That demonstrates the unhealthy situation, which differs from the regional average trends and needs special attention by the local authority and the regional government.

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*Figure 4.5.10.
Components of population change in Akhtubinsk in 1998-2011.*



The negative natural population change is aggravated by the enormous out-migration. The net migration rate since the 90's in the city has always been negative and in 2011 it reached its maximum drop of -22.8‰. The indicator of out-migration in Akhtubinsk is the worst among the cities in Astrakhanskaya oblast'. Being a remote peripheral city in the region, it is located much closer to the large cities of Volgogradskaya oblast', which allows for commuting between them and Akhtubinsk leading to the relocation of citizens to the larger cities. The real reasons of out-migration needs to be investigated, but, obviously, the economic situation plays a crucial role.

Economic development of Akhtubinsk.

Akhtubinsk represents one of those cities whose economy had been based on military functions. The city is known as a major center for testing Russian military aviation. Akhtubinsk has always functioned as a military training ground. The other important functions of the city are the river port (Akhtubinsk is located on the river Akhtuba, which is a part of the Volga River) and the Shipbuilding Repair Plant. As in many other small cities with local centers, there are several enterprises of food industry involved in meat, dairy and bakery production. The agricultural sector also plays an important role in the city's economy. However, the enterprises in governmental sectors (including governance and social sphere) make the main contribution into the city economy.

Analysis of the investments into the city's economy reveals a positive dynamic and constant growth during the period under review in both absolute terms as well as per capita. Compared to 1998, the amount of investments has risen by 17 times and by 21 times per capita. The dominance of raised funds in the investments is notable: from 1998-2011, the average share of raised funds was 65%. Yet, the main portion of the raised funds come from the regional and federal budget: where the share of the budget money in the total amount of investments for the period 1999-2011 was 58%. Despite the positive dynamic, the total amount of investments is

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notably small when compared with other city-case studies like Akhtubinsk, the city at the lowest position in this rank. Moreover, the growth in total investments does not correlate with the employed dynamic. The number of employed people had been growing until 2007, when it reached its maximum of 12,891. Then, the number started to decline and by 2011 it has already lost 23.5% of employees compared to 2007. Nevertheless, Akhtubinsk had been characterized by the relatively high share of employed people compared to the total number of population of working age, which since 2006 has been higher than 40%. Moreover, for most years, the number of employed people has been growing and became negative in 2008. By this indicator, Akhtubinsk follows the most successful city among the case studies, Timashyovsk, but in contrast to Timashyovsk, the level of life is significantly lower. The share of officially unemployed people, in contrast, has been low, less than 1% for most years.

The number of economic entities in Akhtubinsk have been constantly growing as well as the number of individual entrepreneurs. In 2010, the number of units reached its maximum of 1,773 and then in 2011 declined to 1,688. Notably, the share of individual entrepreneurs in total number of economic units reached 70% in 2003 and then in the following years fluctuated between 71-77%. However, the number of economic units and individual entrepreneurs per 1,000 people in Akhtubinsk was not high: 40 and 29 in 2011 respectively, which indicates a large share of people employed in the state sector of the economy.

The average salary in Akhtubinsk in 2011 was 13,100 rubles. By this indicator, Akhtubinsk in the region took the second position, following the regional capital Astrakhan'. However, the typical for many Russian mono-centric regions with the regional capital as the dominant player in the economy in terms of population number and functional importance, created inequality amongst the municipalities. Accordingly, the average salary in Akhtubinsk is less than in the regional capital by 36% and 6% less than the average in Astrakhanskaya oblast'. The relationship between the average salary and the living wage in Akhtubinsk in 2011 was 2.44. By this indicator, Akhtubinsk took the fourth position among the case studies.

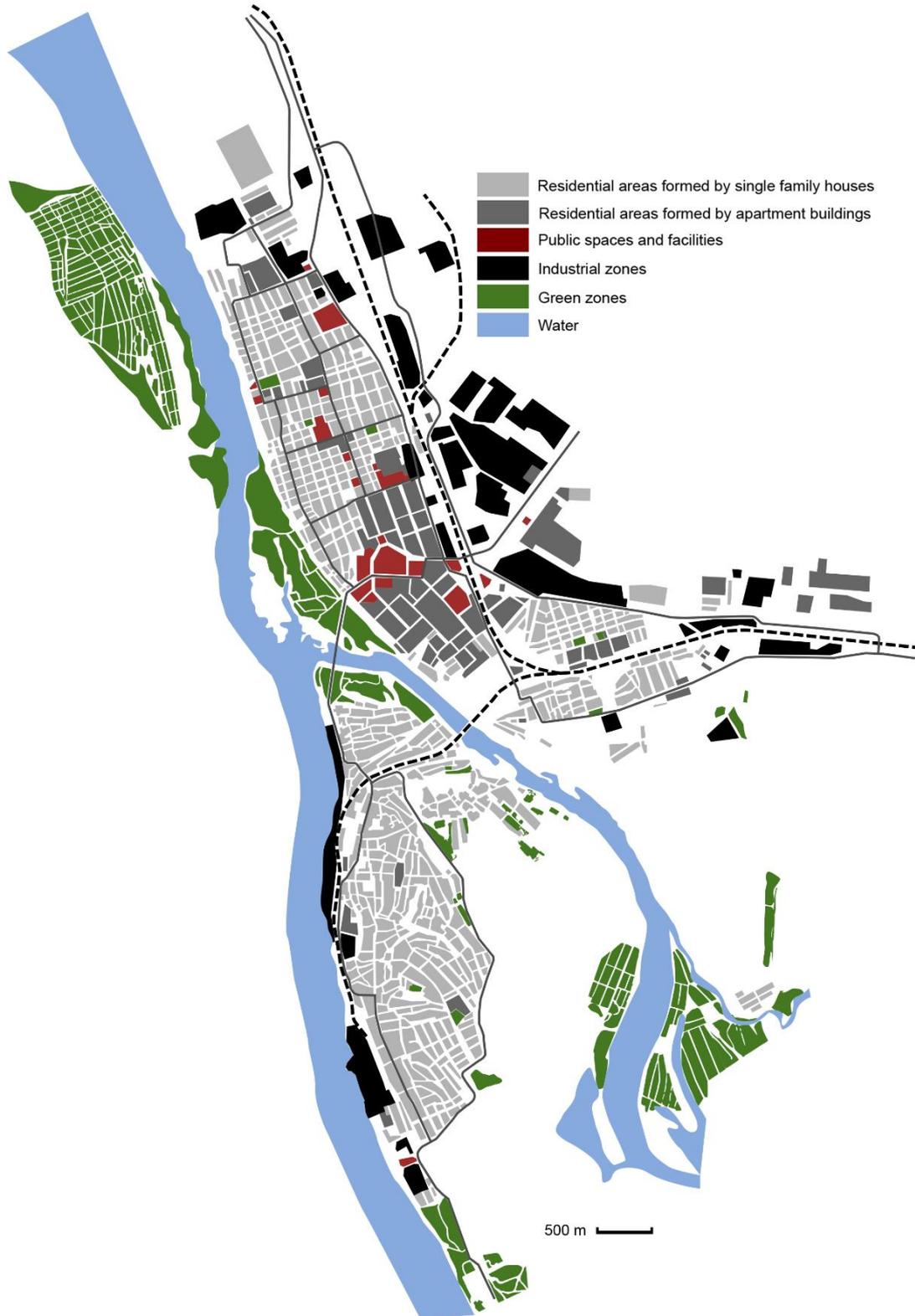
Akhtubinsk's planning structure and urban environment.

The city of Akhtubinsk is located in the Volga-Akhtuba floodplain, which ranges in width from 12 to 50 km. Within the city territory, the river Akhtuba, the Gerasimovka and a number of small channels create the hydrographic network. Akhtubinsk has been formed by the merger of several independent settlements separated by natural and artificial barriers. Their influence on the planning structure of the city, and the functional connections between the individual urban areas they create, is quite significant. The planning structure of each area is caused by the relief features of the territory. Thus, the flat area of Vladimirovka and Akhtuba villages has resulted in the regular planning structure with a rectangular grid of streets. Hills, ravines and channels in the territory of Petropavlovka became the cause of a chaotic development of the area's planning structure, which contrasts sharply with the more rigorous planning of other parts of the city. East Akhtubinsk's development is limited by two military aerodromes and by the rivers from the west. The river plays an important role in the city as a recreational zone, because Akhtubinsk is located in a semi-desert area characterized by a severe climate with very hot summers and cold winters. However, there are no organized parks or embankments and in some parts of the city the river bank is occupied by industrial areas (map 4.5.8). Akhtubinsk occupies an area of about 16.7 sq km with a population density of about 23 people per ha.

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Map 4.5.8.
Akhtubinsk planning structure.



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The main type of housing is a single house with a garden. The apartment buildings are concentrated in the city center, in the separated microrraion formed to the east from the city center and in some new residential areas in northern Akhtubinsk. The southern part of the city, Petropavlovka, located between the river Akhtuba and the flow Gerasimovka presents a more rural settlement than the urban area where a chaotic planning structure, monotonous urban environment formed by the same one-family houses, absence of public spaces and public facilities can be found. The part of the city located on the left bank of the river Akhtuba presents a more variable urban structure and functional land use. The city center is located in this area, but there are also several small peripheral centers.

*Image 4.5.6.
The central part of Akhtubinsk.*



Housing in Akhtubinsk is characterized by prevalence of dwelling spaces located in apartment buildings, about 57% of the total housing floor area. Individual one-family houses comprise about 43% of the housing floor area. About 34% of housing is presented by wooden dwelling and usually are characterized by poor physical conditions (image 4.5.7). Akhtubinsk experiences a serious problem of dilapidated and emergency housing. Officially in 2011, there were about 8,000 square meters of such housing.

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Image 4.5.7.

Examples of the wooden dwellings in Akhtubinsk. Source: Google street view service.



In general, the city is an example of a typical attempt of the Soviet government to turn a rural settlement into an urban one by reconstructing the central areas and introducing new apartment buildings along the main streets.

Shrinkage consequences in Akhtubinsk.

Physical degradation.

In Akhtubinsk, as in other shrinking cities in southern Russia, abandonment can be observed mainly in industrial areas and large infrastructural zones. At the same time, other areas, such as residential or public zones, demonstrate a long-term lack of resources and consequent degradation, but are mainly in use (sometimes changed from their original form). In Akhtubinsk, due to its specific natural and geomorphological conditions, which do not provide any limits to the city's territorial extension, there are many examples of inefficient land use and vacant land, though mainly not due to their abandonment, but due to their original non-use.

Social infrastructure.

The second factor indicating urban shrinkage is the decline in the number of social facilities. In Akhtubinsk, their number has notably reduced during the period under review. The most significant reduction could be observed in the number and capacity of educational facilities, especially in pre-school education. The number of kindergartens decreased from 21 to 15 with

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their total capacity declining from 3,009 to 2,339 or by 22%. Despite this reduction, the total capacity of kindergartens exceeds city's needs and the excess has been increasing. If in 1994 there were 90 children per 100 places in pre-school facilities, in 2011 there were only 75. The number of schools declined insignificantly from nine to eight on the background of halving in number of schoolchildren, their number dropping from 8,533 in 1994 to 4,213 in 2011. The total designed capacity of the schools in Akhtubinsk was 6,451 in 2011 and exceeded actual needs by 2,238 places or 53%. Accordingly, the further reduction of the secondary education system in Akhtubinsk seems probable. The healthcare system in Akhtubinsk is represented by one hospital and four outpatient clinics. A capacity of the healthcare facilities has also reduced. Thus, the number of hospital beds has dropped from 660 in 1994 to 324 in 2011 (or from 131 per 10,000 people to 79.7 per 10,000 people). The capacity of outpatient clinics has declined insignificantly from 1,674 to 1,623 visits per day in the same period. Accordingly, their capacity per 10,000 has risen notably from 331 to 399.4 visits per day per 10,000 people, which means a large surplus compared to that required by Russian social standards. The sport facilities are comprised of a stadium, a swimming pool, 16 gyms, 33 open air sport fields and two children's and youth sports schools; their total number has declined from 78 to 59. Analysis of the information in the mass-media shows problems of the physical conditions of the existing sport facilities due to lack of funding. The total number of cultural facilities had been stable during the period under review; however, the structure of cultural facilities network has changed. For example, the number of children musical schools has declined from four to two and the number of libraries has dropped from nine to six, while the number of cinemas has risen from one to four. Such transformations are explained by the significant changes in social life and new needs of population that cannot be satisfied with the old forms and system of cultural facilities. All the cultural facilities have been suffering from a lack of funding along with the other social facilities.

Housing.

Despite the continuing depopulation, during the period of 1994-2011 about 91,000 square meters of housing had been constructed, half of those being built by individuals with their own money. However, the share of housing constructed by the population in Akhtubinsk is lower than in other city-case studies. That means the presence of enterprises with commercial interests or the presence of the state as the main developer on the territory. The military city functions cause a necessity for housing construction for the military members. However, the dynamic of new housing construction had been low: the average annual amount of the housing floor area constructed per capita between 1998-2011 was 0.13 square meters.

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Image 4.5.8.

New residential area in the northern part of Akhtubinsk. Source: Google street view service.



Engineering infrastructure.

The level of provision of engineering services in the existing residential areas is quite low at only about 20% of housing being provided together with water, sewage, central heating and hot water. Akhtubinsk, in contrast with the other case studies, is characterized by a low level of mains gas provision, which was less than 70% in 2011. Physical deterioration of all engineering networks and facilities in Akhtubinsk was about 80%, including street lighting system. Such a condition of the engineering networks leads to a large waste of sources. For example, about 30% of water is lost due to the bad conditions of the water supply network. The physical condition of the sewage network and facilities is also characterized by the high level of deterioration and inadequate satisfying quality of water cleaning. Actually, wastewater cleaning includes the filtration fields only. The similar situation can be observed in the conditions of the electric and heating network with their functions often interrupted by emergencies. According to statistics, in Akhtubinsk from 1994-2011, the only 500 m of water supply network that was constructed and not one meter of sewage network. However, the capacity of the water treatment facilities did increase.

Socio-economic and spatial planning in Akhtubinsk.

The strategic documents for the city of Akhtubinsk at the municipal level (table 4.5.7) are presented by the strategy of socio-economic development for the Akhtubinsky municipal district until 2020, the forecasts of socio-economic development for the Akhtubinsky municipal district, the scheme of territorial planning for the Akhtubinsky municipal district until 2026 and the general plan of Akhtubinsk until 2027 and the municipal programs.

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Table 4.5.7.

Municipal strategic documents acting within the territory of Akhtubinsk.

	Strategy of socio-economic development	An action plan of the implementation of the strategy of socio-economic development	A forecast of socio-economic development of the municipality in the medium or long term	A budget forecast of the municipality in the long term	Municipal programs	Documents of territorial planning
Akhtubinsky municipal district	Until 2020	no	Every 3 years	no	+	Scheme of territorial planning of Akhtubinsky municipal district until 2026
Akhtubinsk	no	no	no	no	+	General plan of Akhtubinsk until 2027

The Strategy of socio-economic development for the Akhtubinsky municipal district until 2020.

Part of the document was dedicated to demographic analysis and demographic projection. The analysis included the data for less than five years and concludes that Akhtubinsky municipal district suffers both from natural population decline and out-migration of the younger higher skilled population. Ageing is mentioned as the main demographic challenge for the municipality's future.

The population projection presented in the document, predicts the continuing population decline of the municipal district from 67,800 people in 2012 to 66,000 people in 2020. The real depopulation decrease was worse in 2016 when the population number has already dropped to 65,200 residents. However, it is important that the strategy does not set population growth as its aim, but the significant life quality improvements through poverty reduction and improvement of the quality of environment. Accordingly, economic development and housing construction (which the provision of must be increased from 21.7 sqm per capita to 23.1 sqm per capita) are the main goal of the document.

Except for the indicators characterizing population, housing, income, and volume of economic production, all other indicators are absent or described without quantitative characteristics. The measures planned by the document are not concrete and do not include any specifications that could separate Akhtubinsky municipal district from any other municipality in Russia.

The scheme of territorial planning for Akhtubinsky municipal district, developed in 2007.

In this document, a quite significant section is dedicated to the demographic analysis and forecast. First, the demographic analysis considers most of the important factors characterizing demographic development: birth and death rates, migration, marriage and divorce rates, demographic burden and the age-sex structure. The period of the analysis of six years is very short, but the indicators used and the consideration of the general demographic situation in the region well describes the existing trends and threats. Thus, in conclusion, the situation in the municipal district is evaluated as critical and “a real threat for the sustainable development of the

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area as it is now and in the future”. The document claims, that the municipality performs worse than all others in Astrakhanskaya oblast’ with the highest mortality rate in the region (14.7%), which is “catastrophically high” in the rural areas (18.9%). High infant mortality is also one of the specific factors characterizing the municipal district, which indicates the deterioration of the health system, unhealthy lifestyle and deterioration in the socio-economic and environmental conditions. Increase in ageing and demographic burden are described as the current trends with the tendency to worsen in the future, becoming the main characteristic of the municipal demography. The document also shortly analyses the quality of life, where the low income, lack of housing and its low quality, low provision of technical infrastructure are pointed out. At the same time, the social infrastructure’s capacity is becoming a surplus: the declining number of children changes the use of schools and kindergartens, the hospitals should reduce the number of beds.

The demographic forecast includes three scenarios: inertial, stabilization and optimistic, and is developed using the cohort-component method of demographic projection (table 4.5.8). Thereby, the optimistic scenario is not calculated, but mentioned as the “most desirable but less probable”. Its implementation needs significant natural growth and in-migration. The inertial scenario is based on the conservation of existing trends and assumes the worst variant of the demographic situation development. It predicts population decrease in the municipal district by 11.2% until 2026 and in Akhtubinsk itself by 9.7%. The stabilization scenario is more optimistic and projects a slight population decline. The intermediate results of both scenarios projected for 2016 allow an evaluation of the probability of the developed forecasts. In 2016, the population of Akhtubinsky municipal district was 65,200 people and the population of Akhtubinsk was 38,100 people. Therefore, Akhtubinsk’s population declined from 2006-2016 by 10.1%, which was worse than predicted by the inertial scenario for 2016. Almost the same situation is true for the municipal district as a whole, whose population decline means limited human resources in rural areas for the further probable population growth of Akhtubinsk.

Table 4.5.8.
The results of population projections in the Scheme of territorial planning for Akhtubinsky municipal district according to the inertial and stabilization scenarios.

	2006	2016	2026	Predicted population change 2006-2026, %	Population in 2016 according to statistic, thousand people
Inertial scenario, thousand people					
Akhtubinsky municipal district	73.0	69.9	64.8	-11.2	65.2
The city of Akhtubinsk	42.7	41.2	38.7	-9.7	38.2
Stabilization scenario, thousand people					
Akhtubinsky municipal district	73.0	71.7	70.1	-4.0	65.2
The city of Akhtubinsk	42.7	42.5	42.2	-1.2	38.2

The document does not offer any measures responding to demographic challenges. It also does not provide any significant changes in the municipal economic structure, assuming a stable economic development based on the existing resources and infrastructure (without taking into consideration the declining labor force and especially of qualified workers. Despite the emphasis in the document of increasing social infrastructure surplus, there are no measures for adapting the social infrastructure to the declining population.

The general plan of the city of Akhtubinsk, approved in 2009 and it is developed for the period until 2027.

In the general plan, the population decline in Akhtubinsk is labeled as “insignificant”. However, the document warns, that further population decline will cause a deficit in the labor force which will provoke economic decline. There are two possible scenarios of population projection offered by the general plan. The first one considers the population prognosis done in the Strategy of socio-economic development of Astrakhanskaya oblast’ and assumes future population decline. The second one does not agree with the current trends and existing projections and contradicts the expectations of the population increase up to 50,000 people (or by 17%). The first scenario (called “interpolation”) is based on the existing indicators of the demographic development, while the second one (stabilization-optimistic) assumes the improvement of fertility and mortality rates to the level of 1980’s.

“The project will not accept population decline in the long term, as it means the degradation of the nation. The project takes as a basis for calculating the prospective population inevitability of the measures aimed at increasing the birth rate and the overall improvement of the demographic situation.

It is impossible to talk about sustainable development of the city with the population decline”.

Notably, despite the optimistic expectations since 2009, when the general plan approved the Akhtubinsk’s population has declined from 42,400 people to 38,100 in 2016 (or by 10% in seven years).

Akhtubinsk’s general plan does not specify any territorial aspects of population distribution: there is no information about more or less attractive residential areas, population relocation within the city etc. Accordingly, the document’s measures do not include any interventions oriented to particular areas of the city in order to create conditions for more favorable demographic development or adaptation of the city’s functions and infrastructure to the changing needs of the population.

The goals of Akhtubinsk’s future territorial development are defined in general way as the following:

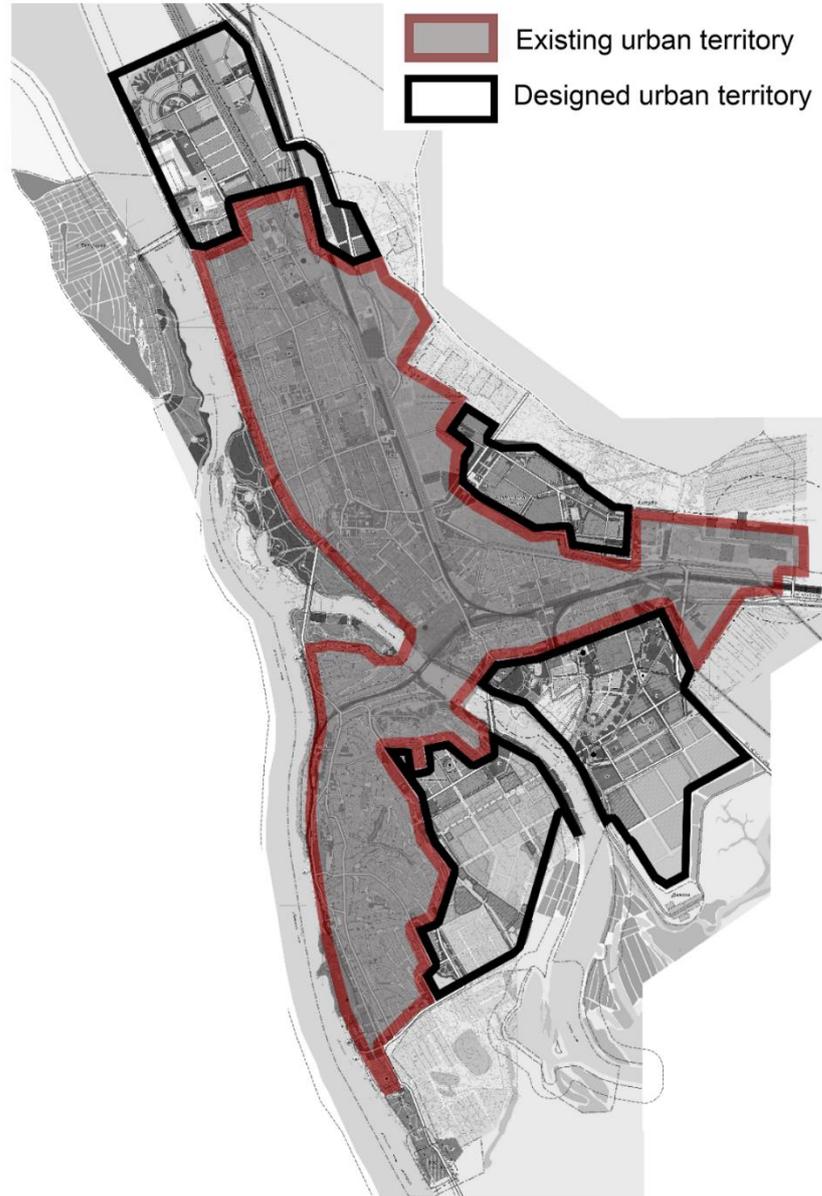
- improving the quality and comfort of living (providing engineering infrastructure, accessibility improvement, demolition of dilapidated housing and construction of new housing, social facilities provision, greenery);
- ensuring the safety of the living population (areas’ protection from flooding);
- increasing the intensity of the use of urban areas (the city center reconstruction);
- strengthening the existing intercity connections and creating new ones;
- creating a network of urban centers and a distinctive and coherent image of the city.

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Map 4.5.9.

The territories of new extensive development designed in Akhtubinsk general plan, 2009.



In the end, the general plan’s solutions in the territorial development are based mainly on the calculation of the projected population’s housing needs, which is defined as 34 square meters per capita. Considering the projected population growth up to 50,000 people, the general plan projects an increase of housing floor area by 44%. The existing residential areas will be increased “insignificantly” according to the document from 678 ha to 802 ha or by 18%. All new residential areas are supposed to be provided with social and engineering infrastructure in accordance to the current standards.

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Akhtubinsk: results.

Akhtubinsk obviously might be classified as a shrinking city due to its long-term population decline, weak economic development investment attractiveness, poor and degrading urban environment and low level of infrastructural provision.

Its depopulation is caused by both natural population decline and out-migration, but out-migration obviously plays a crucial role in this process. Economic development seems the main factor provoking out-migration, however, Akhtubinsk has many other disadvantages as well, which influence people's decision to leave the city. Among those are climate conditions, poor urban environment and infrastructure, ecological problems, lack of cultural and educational facilities, closeness to the regional capital of Volgogradskaya oblast, which offers much more opportunities for self-development. The local authorities have little influence on the city's economic development due to its historical orientation to the satisfaction of the needs of the state client (such as the military sector, for example). Accordingly, a projection of its possible development may be difficult at the local level.

The territorial development of Akhtubinsk depends not only on the planning culture, but also on the city's location in the steppe zone and access to almost unlimited land sources, which have led to extensive development on the part of the local municipality. While the existing city's territories require modernization and reconstruction, the local administration focuses on green field development. Obviously, the local authority does not pay much attention to the development of the current demographic situation. A local monitoring system does not exist nor are specific local plans or strategies oriented towards addressing the demographic issues.

The local strategic and territorial planning documents represent an illustration of a poor correlation and their parallel existence (which actually illustrates the current Russian planning system). All the municipal planning documents have a very different perception of the demographic issues. While the documents of the municipal district recognize the current demographic situation as a serious threat, the city's general plan prefers to ignore this obvious trend. Surprisingly, both levels, despite having different perceptions, do not provide any solutions for managing the growing contradiction between the continuing population decline and the existing city's infrastructure.

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4.5.4. *Gorodovikovsk: internal periphery.*

Gorodovikovsk's profile and its historical background.

Gorodovikovsk became a city in 1971. Between 1938-1971 the settlement was a working village that had been transformed from the Kalmykia village Bashanta. In 1943, the Kalmyk population was deported in to the Urals, Siberia and Central Asia due to political repressions. For that period, the settlement became a part of Rostovskaya oblast'. It became once again a Kalmyk village in 1957. Gorodovikovsk received its city status mainly due to its functions as an administrative, educational and cultural center for the surrounding rural areas. It has also hosted the agricultural products processing center, based on the local resources of vast neighboring agricultural areas.

Gorodovikovsk's administrative status and location.

The city of Gorodovikovsk is one of three cities in the whole of the Kalmyk region and one of two municipalities with the status of “urban settlement”. The status of urban settlement means Gorodovikovsk is subordinate to the municipal district “Gorodovikovsky”.

The urban settlement “Gorodovikovskoye” includes only one city. Gorodovikovsk is the administrative center of the Gorodovikovsky municipal district with a population of 15,979 people that includes seven municipalities (one urban and six rural), one city and nineteen villages.

Gorodovikovsk may be called a “remote” city due to its location within the region far from the regional capitals and the main roads. It is located 239 km from the regional capital to its west (map 4.5.10). The city is in-between two neighboring regions of Kalmykia with the distance from Gorodovikovsk to Rostovskaya oblast' only 10 km to its north and Stavropol'sky krai is 12 km to its south.

Map 4.5.10.
Location of Gorodovikovsk in Republic of Kalmykia.



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The closest cities to Rostovskaya oblast' are Sal'sk, with a population of 59,126 people (the distance is 58 km,) and Proletarsk, with a population of 19,623 residents (the distance is 90 km); the closest cities in Stavropol'sky krai are Izobilny with a population of 38,551 people (the distance is 106 km), Novoaleksandrovsk with a population of 26,894 people (the distance is 106 km) and Ipatovo with a population of 24,966 people (the distance is 125 km). Actually, the area surrounding Gorodovikovsk is characterized by a low density population, settlements and infrastructure, absence of large cities, weak economic development and population decline both in urban and rural areas.

Table 4.5.9.
The distance between Gorodovikovsk and the closest regional capitals of southern Russia by roads, km.

	Elista (Republic of Kalmykia)	Stavropol' (Stavropolsky krai)	Rostov-on-Don (Rostovskaya oblast')	Maykop (Republic of Adygea)	Krasnodar (Krasnodarsky krai)
Gorodovikovsk	239	133	247	295	310

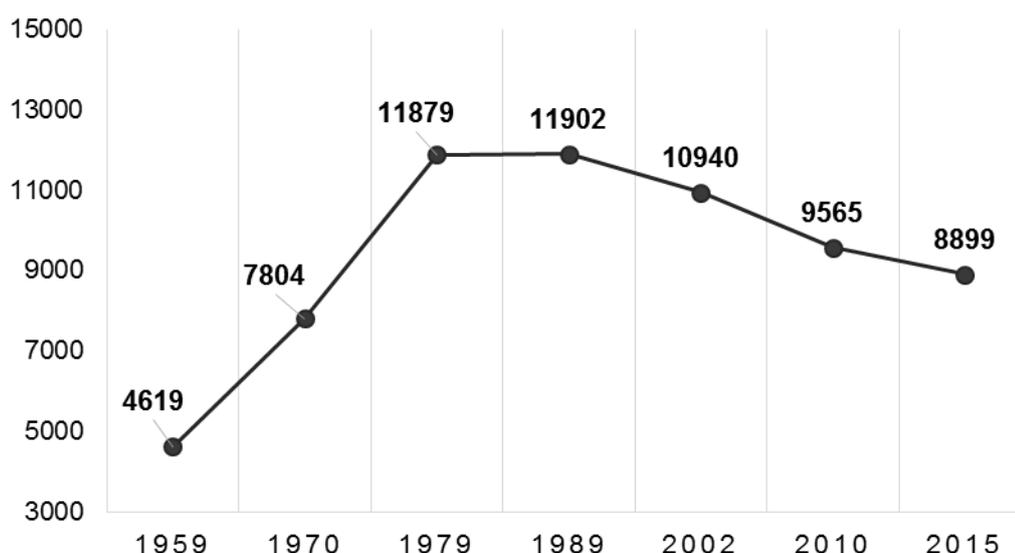
There is no connection of Gorodovikovsk with the other regions by the railway, which together with unfavorable climate conditions and lack of water sources limits opportunities for the economic development of the area.

Demographic situation in Gorodovikovsk.

Population change and population structure.

The population of Gorodovikovsk was 8,899 people at the beginning 2015. In 2015, Gorodovikovsk had lost 25.2% of its population compared to 1989 (figure 4.5.11). The city's population stopped growing already in the Soviet period and during the last ten years of the USSR, it did not change. After the collapse of the USSR, Gorodovikovsk started to decline. The population of 11,900 people in 1989 was the city's historical maximum.

Figure 4.5.11.
Population change in Gorodovikovsk according to the census data of 1959, 1970, 1979, 1989, 2002, 2010 and data on population number in 2015.



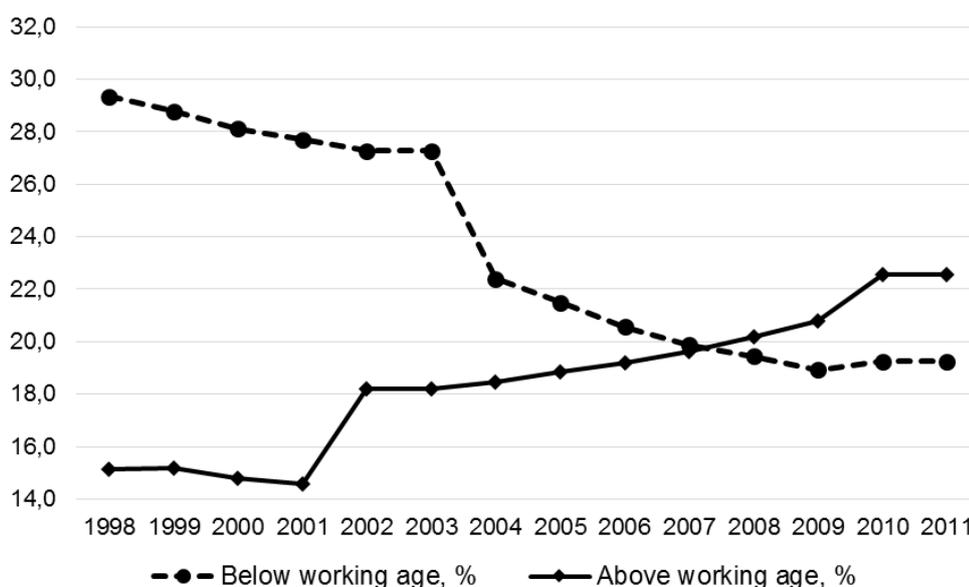
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Gorodovikovsk's population is characterized by the typical disproportion of sex structure found in Russia. In 2001, this disproportion reached its maximum: 56% of the female population to 44% of the male population. Later, this misbalance was diminished to 53% of female population.

The transformation of the age structure of Gorodovikovsk's population has followed the same scenario as in most other city-case studies. There is a growing share of the population in the working age group and above working age group with a simultaneously decreasing share of the younger population (figure 4.5.12). Yet, in Gorodovikovsk, the share of population below working age group in 1989 was almost 30%, which is much higher than in the other cities. However, by 2011, the number of children was reduced by 40% and the share of this age group fell to 19%. The share of the population in the working age group corresponds to the average indicator for Russia and its share during the period under review has been reduced by 6% compared to 1998. The most significant growth in absolute and relative indicators has been observed in the above working age population group where the number of people in this group has increased by 33%.

Figure 4.5.12.
Percent of population below and above working age in Gorodovikovsk, 1998-2011.



Thus, the population decline and ageing characterize the city's demographic development.

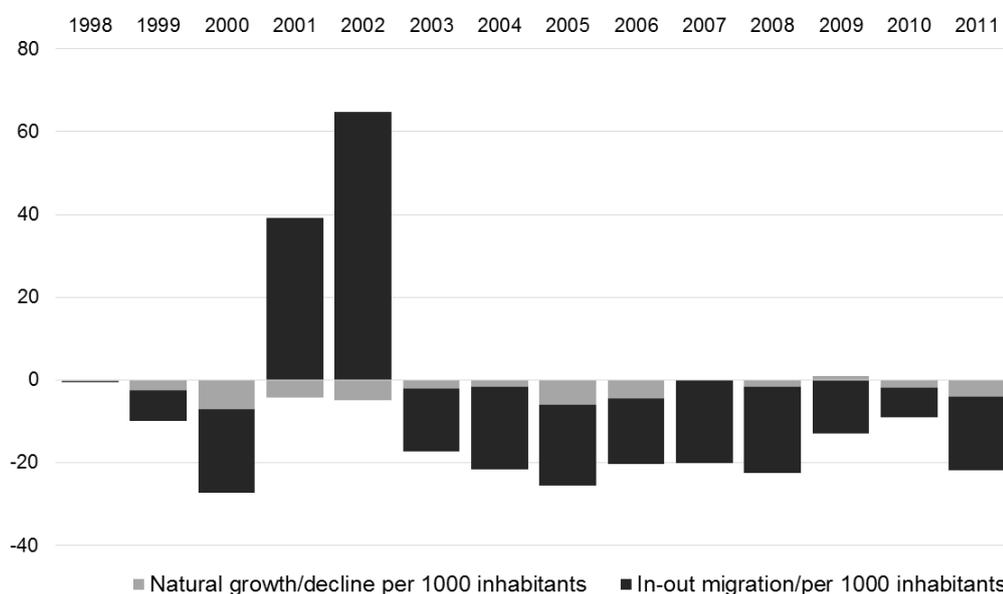
Components of demographic change.

Gorodovikovsk has been experiencing long term natural population decline and out-migration since the Soviet period. The graph below shows the dynamic of these processes from 1998-2011 (figure 4.5.13). A high level of in-migration in 2001 and 2002 seems to be a statistical mistake, because a population growth was not observed in those years in the city. Out-migration contributes much more to the city's population decline. In some years, the migration rate reached -20‰, while the natural population decline was not so severe with its minimum of -6‰.

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Figure 4.5.13.
Components of population change in Gorodovikovsk in 1998-2011.



However, the indicators of the natural population change should be a concern for the municipality. In the Republic of Kalmykia the birth rate is quite high (15%) compared to many other regions and the mortality rate is relatively low (10.1%). The population loss here is provoked mainly by out-migration. In Gorodovikovsk, the birth rate in most years was about 10-11‰, while the mortality rate was notably higher than the regional and in some years it reached 15-16‰.

Economic development of Gorodovikovsk.

Being a small city in a depressed region, Gorodovikovsk is characterized by a declining economy. Actually, it represents a case where the local center contains the main economic activities of which are concentrated in public service, trading and food industry. The list of the companies located in the city includes "Gorodovikovsk cannery", "Gorodovikovsk Creamery", sausage factory, meat factory, agricultural production cooperatives, farms and agro-industrial enterprises, which grow corn, wheat, barley, sunflower, buckwheat, vegetables, melons and raising pigs, goats, sheep and cattle.

Analysis of the investments into the city economy shows its very low amount and the dominance of budget investments. Among the case studies, Gorodovikovsk remains in the last position by the total amount of investments in the period under review, in which the investments per capita have grown from 12 rubles in 1998 to 2,836 rubles. It is one of the worst indicators among the case studies.

The number employed during the period from 1998-2011 fluctuated between 2500 and 2900, but in 2011 it declined to its minimum of 181 people. However, the share of employed people in the total number of population of working age was relatively high (about 40-45%), which usually signalizes in poor regions the occupation by the state sector (administration and social services). The number of registered unemployed had been around 300-500 people, or 5-7% from the total number of population of working age, which is higher than in other cases.

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The number of economic entities in Gorodovikovsk grew until 2007 when it reached 765, then it started to decline and in 2011 fell to 630 or 82% of its peak. Most of those units were individual entrepreneurs. Their share in the total number in has grown from 8% in 1998 to 77% in 2011. The number of economic entities and individual entrepreneurs per 1000 people is quite high going from 66 and 50 respectively in 2011, which is comparable with the successful case of Timashyovsk. Nevertheless, in Gorodovikovsk, this factor means the absence of big economic actors in the municipality.

The average salary in Gorodovikovsk in 2011 was at the lowest position among the case studies together with Ardon, Alagir and Novoanninsky. However, the relationship between the average salary and the living wage in Gorodovikovsk demonstrated a better dynamic than in other cities with this indicator increasing by 146% from 0.91 to 2.24.

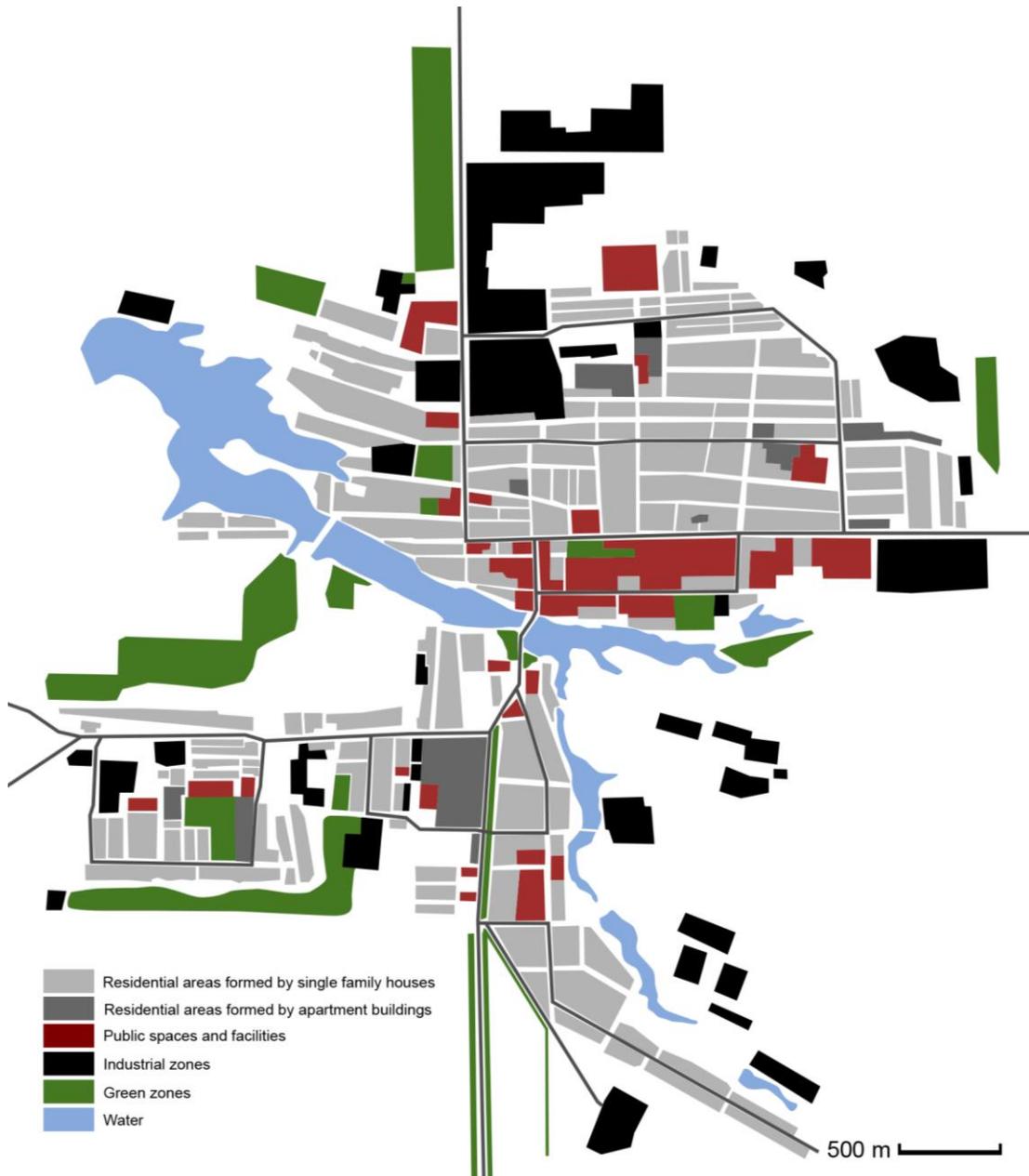
Gorodovikovsk's planning structure and urban environment.

As with other southern cities in Russia, Gorodovikovsk resembles more a village than a city. Among all the cases, this city is the most “rural” due to its small population, absence of big industrial enterprises and prevalence of single-family houses with gardens. The total area of the built-up territory is about 660 hectares that means a population density of 13.5 people per one hectare. It is a very low indicator among all the case studies, but with the lowest population density in southern Russia and one of the lowest densities in the European part of Russia, which characterizes the region of the Republic of Kalmykia itself.

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Map 4.5.11.
Planning structure of Gorodovikovsk.



Gorodovikovsk is located on the river Bashanta, which divides the city into two parts: northern and southern. Due to the city's location in the arid zone, water is a very valuable resource. However, there are no any organized parks or open spaces for the recreational functions close to the river, but there are well-developed public spaces in the city center, including the main square, boulevard and the park, which is located in the northern part of the city in close proximity to the river. It is clearly identified in the urban fabric, because the city is very small and the character of public facilities, concentrated in the center, differs a lot from the rest of the city (map 4.5.11).

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Image 4.5.9.

The Buddhist temple in the Southern part of Gorodovikovsk and the city center.



There are very few residential apartment buildings in Gorodovikovsk as they are included into the main urban fabric formed by one-family houses. As in most small and medium-sized cities of southern Russia, the major part of the housing is presented by individual one-family houses: in Gorodovikovsk, about 73% of total housing floor area is one-family houses. Those residential areas are poorly provided with infrastructure of all types and have a low quality urban environment.

Image 4.5.10.

The residential buildings in Gorodovikovsk.



The city does not have any morphological or other limits to its continued development, which has provoked an increased land consumption and urban sprawl in the past.

Consequences of shrinkage in Gorodovikovsk.

Physical degradation.

As in other cities, there is no database containing information about abandoned property, either land plots, houses or apartments. The typical situation is represented by poor conditions of the existing housing and the low level of engineering infrastructure provision. Yet, there are many areas used in the past by industrial and agricultural enterprises within the city borders. Many of them are planned chaotically, now abandoned and wasteland.

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Image 4.5.11.
Abandoned industrial building in Gorodovikovsk.



Social infrastructure.

In Gorodovikovsk, the number of social facilities has been quite stable despite a significant population decline. Thus, a number of kindergartens has even increased since the 2000's from five to six and then declined to four in 2011. However, their total capacity has declined imperceptibly from 440 to 419 (or by 5%). As the total number of children dropped from 3,110 in 1994 to 1,835 in 2011 (or by 40%), there is no deficit in the capacity of pre-school educational facilities. In 2011, the surplus was 18%. The number of schools was reduced from five in 1994 to four in 2011. The capacity of the schools was also characterized by a surplus of 22% in 2004. Later, this surplus increased even further. A number of health care facilities remains stable; the system is presented by one hospital and one outpatient clinic. However, the capacity of the hospital has declined from 132 to 91 hospital beds, while the capacity of the outpatient clinic remained the same in absolute terms and has increased from 183 to 214 visits in a day per 10,000 people due to the population decline. Most of the buildings and facilities of the health care system are located in adapted buildings and are in need of repair. The number of cultural facilities has declined from four to three. One stadium and several gyms, which have not changed their number, represent the sport facilities in Gorodovikovsk.

Housing.

The dynamic of all the indicators characterize the housing development as new construction being in very low demand and low interest by investors in the city. Thus, in the

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period from 1994 to 2011, only 20,000 square meters of housing floor area have been constructed. The population has realized 80% of this amount with their own financing. An average annual amount of newly constructed housing had been about 0.1 square meters per capita with the biggest amount of 0.29 sq. m per capita in 2001. However, the indicator of housing provision per capita has been improving constantly from 19.1 sq. meters per person in 1994 to 24 sq. meters per person in 2011 due to the declining population. There is no information about average price of square meter of housing in Gorodovikovsk, but the region of the Republic of Kalmykia itself is characterized by the lowest housing price in southern Russia.

Engineering infrastructure.

Although the statistical data demonstrates a growth of indicators of water supply and sewage provision, we may observe the construction of 18.7 km of new water supply network in the period of 1994-2011, but not one meter of sewage network was constructed. The length of existing sewage network is just 5.5 km, while the length of the water supply network is 86 km. Their physical deterioration is close to 100%. The sewage system serves less than 10% of housing areas. The capacity of sewage treatment facilities has not been increased neither and they are characterized by very bad conditions with an inability to clean wastewater according to existing standards.

Image 4.5.12.

The wastewater treatment plant in Gorodovikovsk before and after the reconstruction in 2015.



In the period from 2009-2015, the sewage treatment plant was not functioning at all and waste water was discharged directly into the Bashanta river. In 2015, after a scandal, the filtration fields and the septic tanks have been reconstructed and started to function. The water supply system also needs investments, because the quality of distributed water does not correspond to existing sanitary standards due to the high content of impurities. The water treatment systems of the water intake does not exist. All the residential areas are provided with by gas mains, which are used for heating, cooking and water heating.

Socio-economic and spatial planning in Gorodovikovsk.

The strategic documents for the city of Gorodovikovsk at the municipal level (table 4.5.10) are presented by the Strategy of socio-economic development for the Gorodovikovsky municipal district until 2020, the forecasts of socio-economic development for the Gorodovikovsky

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municipal district, the scheme of territorial planning for the Gorodovikovsk municipal district until 2027 and the general plan of Gorodovikovsk until 2027 and the municipal programs.

Table 4.5.10.

Municipal strategic documents acting within the territory of Gorodovikovsk.

	Strategy of socio-economic development	An action plan of implementation of the strategy of socio-economic development	A forecast of socio-economic development of the municipality in the medium or long term	A budget forecast of the municipality in the long term	Municipal programs	Documents of territorial planning
Gorodovikovskiy municipal district	Until 2020	no	Every 3 years	no	+	Scheme of territorial planning of Gorodovikovskiy municipal district until 2032
Gorodovikovsk	no	no	no	no	+	General plan of Gorodovikovsk until 2027

The Strategy of socio-economic development for the Gorodovikovskiy municipal district until 2020, developed in 2016.

Despite the long-term population decline in Gorodovikovskiy municipal district, which began in 1979 and resulted in a 25% population loss, the depopulation is not considered as a threat in the strategy. A very short description of the current demographic situation is included in the chapter on quality of life. The population projection, done until 2018, is not based on any scientific methods and represents a simple assumption about possible improvement of the demographic situation. This projection predicts a slight population growth up to 16,000 people from 15,800 in 2015.

Increase in Gorodovikovskiy municipal district’s population is possible due to the development of the measures aimed at the implementation of demographic and migration policy, as well as the measures aimed at improving the quality of health care and reducing the mortality rate, the implementation of the demographic programs stimulating the birth rate and the provision of housing for young families.

The strategy’s goals and measures are described in a very general way: there are no indicators, spatial specifications, qualitative or quantitative characteristics.

The scheme of territorial planning for Gorodovikovskiy municipal district, developed in 2012.

In this document, the stabilization and further growth of population is declared among the main tasks of territorial planning. Thus, the document emphasizes that the provision of housing per capita increases only due to the population decline. At the same time, the presented analysis of the demographic situation is not satisfactory at all, because it uses the data for one year only (the year of the document’s development).

The demographic forecast is also presented (table 4.5.11) and is based on the forecast done for every municipal district in Republic of Kalmykia in the regional scheme of territorial planning,

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developed in 2005. In that document, the demographic projection was introduced for three scenarios: inertial, stabilization and optimistic.

*Table 4.5.11.
Demographic projection developed in the Scheme of territorial planning of Republic of Kalmykia compared to
the real demographic development, thousand people.*

	2015 (forecast)	2025 (forecast)	2015 according to statistic
Inertial	15.0	12.1	15.8
Stabilization	18.5	18.4	
Optimistic	19.0	19.1	

Using that projection and making corrections according to the population number in 2012, the Scheme of territorial planning of Gorodovikovskiy’s municipal district assumes a slight decline in population number to 17,000 people stabilized at the level of 16.9-17,000 people. However, as we see from the table 4.5.11, the population number has already declined to 15.8 thousand people and, accordingly, the most pessimistic projection developed in the regional document is the closest to reality.

The document also notes that the indicator of housing provision per capita in Gorodovikovskiy municipal district is growing, not due to the housing construction, but mainly due to the population decline. A positive aspect is in the understanding of unrealistic expectations of the projection done at the regional level for the housing construction and its calculation with a much lower dynamic predicted by the regional government. No other measures and indicators developed in the scheme confront the existing demographic issues. At the end, all the documents’ measures are included in the calculation of housing and social infrastructure need in accordance with the projected population number.

The general plan for the city of Gorodovikovsk, developed in 2004.

The general plan is characterized by a very low quality. It includes just a simplistic statistic information about different aspects of the city’s development without any attempts to analyze it and to produce logical conclusions.

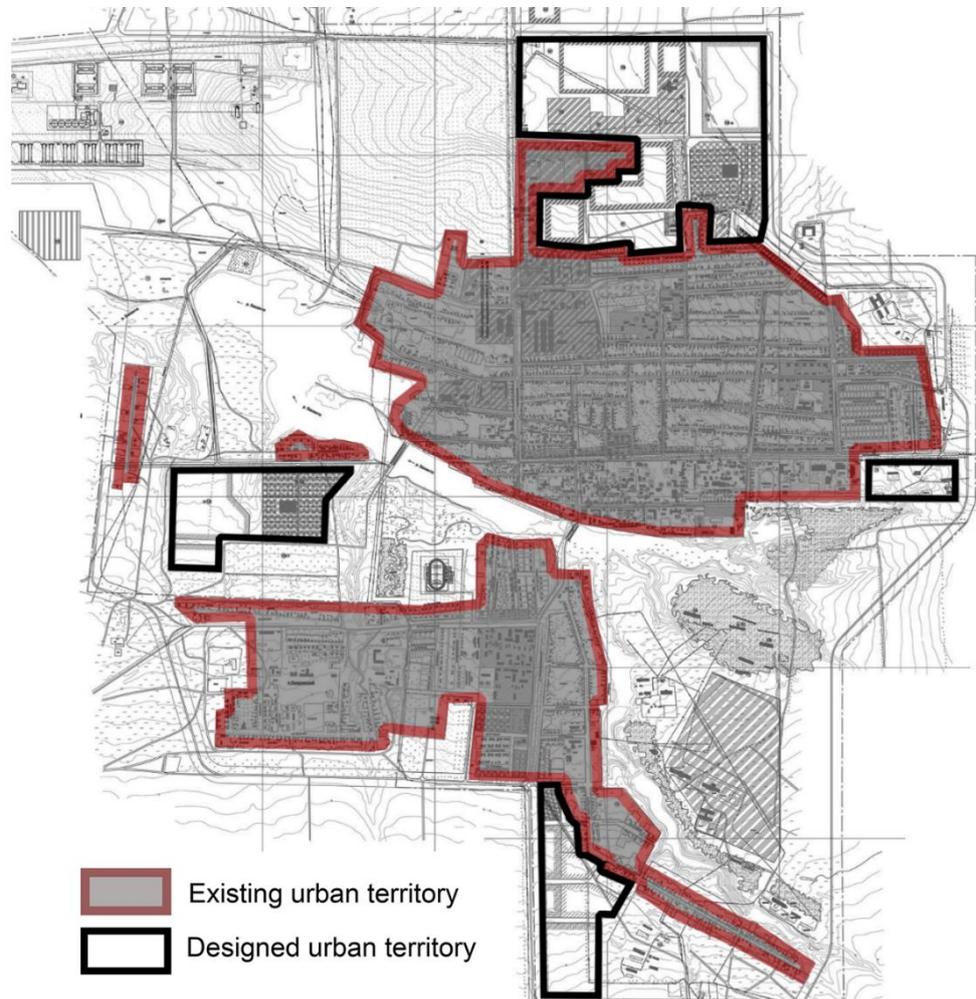
Thus, the analysis of the current demographic situation includes the data on population for one year including population number, number of born and dead people, age structure and employment. The number of migrants is presented for six months of the year of the general plan’s design. A population projection is presented by one line, stating “the future population number is decided to be 14,000 people”, which clearly shows planners’ habit to be provided with the population number from the other levels of governance and to operate on the basis of this number.

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Map 4.5.12.

The territories of new extensive development designed in Gorodovikovsk general plan, 2004.



The population number and its dynamic are not considered in the design of the city's future territorial development, but is mainly defined by the desired housing typology. The general plan does not provide any calculation on the territorial expansion as can be seen from the maps included in the document (map 4.5.12).

Since the general plan's development in 2004, Gorodovikovsk has lost 19% of its population and now the population growth from 8,800 people in 2016 to the projected 14,000 people in next eight years is likely impossible.

Gorodovikovsk: results.

Being the smallest city among the case studies, Gorodovikovsk has less hope to change its negative demographic trends in development than others. It is located in a semi-desert climate zone, which makes agricultural activities, the main specialization of the area, risky. This fact decreases the competitiveness among the agricultural producers. Lack of natural water sources and poor transport connections have become reasons for the weak economic development. Gorodovikovsk has all the disadvantages for the demographic development and is located within the depopulating area. However, it has its unique cultural characteristic since it is the most

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western Buddhist city keeping the traditions of Kalmyk culture. In contrast to such a one-company city as Zverevo, Gorodovikovsk is less dependent on the development of the particular enterprises and the relatively high economic activity of its population, expressed in the number of individual entrepreneurs. However, despite some existing opportunities for the diversification of the municipal economy, there is no reason to expect a flourishing future. The city has experienced many problems in maintaining its infrastructure and providing basic needs. Urban shrinkage in the case of Gorodovikovsk might be defined as inevitable.

However, the local planning documents try to avoid a pessimistic or, better, a realistic vision for the future and continue to hope, if not for the future growth, than at least for its stabilization. Unfortunately, all the documents have not realized even their minimum function in the analysis of the current situation. All the documents represent a set of the statistical data without a critical investigation for deeper understanding. Such aspects signal a poor capacity of the local authority in managing such a serious problem as urban shrinkage.

4.5.5. *Zverevo: a “classic” shrinking city.*

Zverevo’s profile and its historical background.

Zverevo gained its status of urban settlement in 1989. The rural settlement appeared in 1819, developed at the beginning of 20th century into a mining settlement and in 1929 received a status of “work settlement”. The interesting fact is that Zverevo got its “city” status as a response to a requirement of striking miners in 1989.

The history of Zverevo is closely connected with industrial exploitation of coal resources in the region. Being a village since the beginning of 20th century, Zverevo’s first stimulus for its development with the construction of the railway station was necessary for the transportation of goods. The development of the railway network in the Donbass region was required by the mining industry. Starting in the 60’s, several coal pits were constructed in Zverevo’s surroundings that provoked foundation of a new working village Novo-Mikhaylovka close to Zverevo. That village had been growing fast due to the development of the mining industry and attraction of new working in-migrants. It went out of the planned in its general plan boundaries and in 1989 the decision to unite Novo-Mikhaylovka and Zverevo the assignment a status of “city” to the new settlement was done at a national level. In this new “city” three villages were included: the history of Zverevo demonstrates very well that the artificial way of urbanization during the Soviet period. In the Rostov region, most of the mining cities and towns represent cases of artificial unification of villages that can clearly be seen in these cities’ planning structure. Often there is no city core, the cities’ districts are separated and connected only physically by roads. The Soviet Union collapse had a dramatic impact on the city’s development as its economy, based on coal mining, sharply declined. Still, coal mining is the main sector of the city’s economy. Now the city is included into the second category of one-company cities that risks a worsening economic situation.

Zverevo’s administrative status and location.

The city of Zverevo is one of 12 urban okrugs in Rostovskaya oblast’ with direct subordination to the regional government and the smallest urban okrug in the region. It is the only urban okrug among the case studies

The urban okrug “Zverevo” includes one city, Zverevo, with a population of 20,437 people and one village, Trudovoy, with a population of 1,648 people.

Zverevo is located 110 km from the regional capital of Rostov-on-Don to its north.

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Map 4.5.13.
Location of Zverevo in Rostovskaya oblast’.



Zverevo is a part of mining cities' network based on the resources of the Donetsk coal basin (image 4.5.13). The Donetsk coal basin is the main fuel and energy base of the central and southern regions of the Ukraine (Dnepropetrovsk, Donetsk, Lugansk region) as well as of southern Russia (Rostov region). During the Soviet period, when Ukraine and Russia were both part of the USSR, the cities' mining activities were integrated into the national economic system and the cities and towns of Donbas region were considered as producers of the important energetic resources for the national economy. After the collapse of the Soviet Union, the only peripheral cities and towns of Donbas region have remained in Russia: Shakhty, Novoshakhtinsk, Krasny Sulin, Gukovo, Donetsk and Zverevo, located in the area called "Eastern Donbas". The economy of all these cities was based on coal mining and now all of them are suffering from the economic decline due to the destruction of functions in the past Soviet economic cooperation between regions, cities and enterprises and declining demand for the cities' products.

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Image 4.5.13.

Donetsk coal basin in Ukraine and Russia and the Soviet poster of 1921 “The Don Basin – the heart of Russia”.



Zverevo is geographically located 20 km from the national border with Ukraine. The distances between Zverevo and the other mining cities/towns of the Rostov region are quite short: the longest one between Zverevo and Donetsk is about 76 km. The closest city, Gukovo is located 17.3 km from Zverevo.

Table 4.5.12. The distances between mining cities/towns of Rostov region.

	Zverevo	Donetsk	Kamensk-Shakhtinsky	Gukovo	Krasny Sulin	Shakhty	Novoshakhtinsk	Rostov-on-Don
Zverevo	0.0	76.0	51.0	17.3	35.3	44.4	57.9	113.0
Donetsk	76.0	0.0	29.1	62.6	90.5	100.0	113.0	168.0
Kamensk-Shakhtinsky	51.0	29.1	0.0	47.0	65.5	75.3	88.2	143.0
Gukovo	17.3	62.6	47.0	0.0	29.8	62.7	49.0	120.0
Krasny Sulin	35.3	90.5	65.5	29.8	0.0	31.6	30.0	97.9
Shakhty	44.4	100.0	75.3	62.7	31.6	0.0	28.6	81.5
Novoshakhtinsk	57.9	113.0	88.2	49.0	30.0	28.6	0.0	83.8
Rostov-on-Don	113.0	168.0	143.0	120.0	97.9	81.5	83.8	0.0

Such close location, however, does not create prepositions for the cities’ cooperation due to the orientation of their economy within the same sector and corresponding similar economic problems.

Demographic situation in Zverevo.

Population change and population structure.

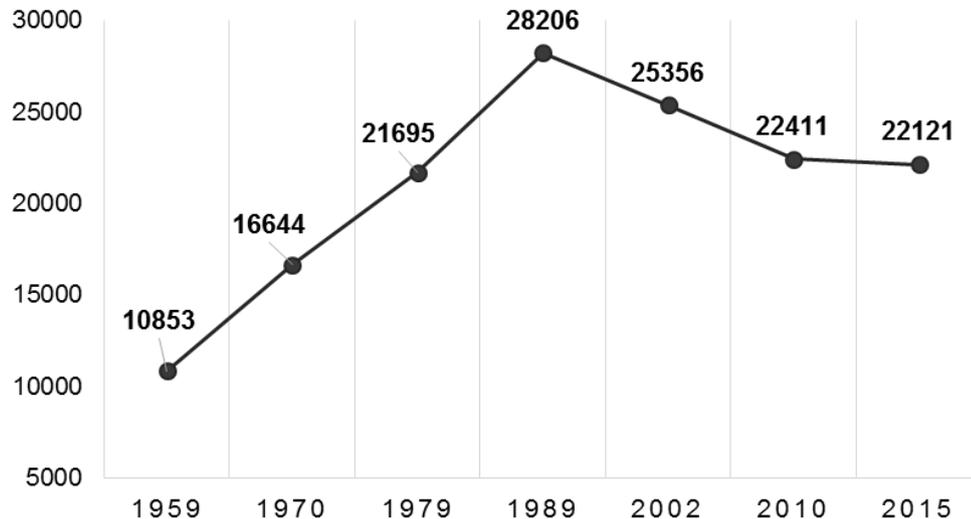
The population of Zverevo was 20,121 people at the start of 2015. The highest population in Zverevo was registered by the census of 1989, but the town continued to grow up until 1996. Up to 2015, Zverevo lost 21.9% of its population compared to 1989 and 36.4% of its population

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compared to the population of 31,600 people registered in 1998, which means an annual population loss of more than 2% (figure 4.5.14). That change was the worst among both the case studies and all the cities of southern Russia.

Figure 4.5.14.
Population change in Zverevo according to the census data of 1959, 1970, 1979, 1989, 2002, 2010 and data on population number in 2015.



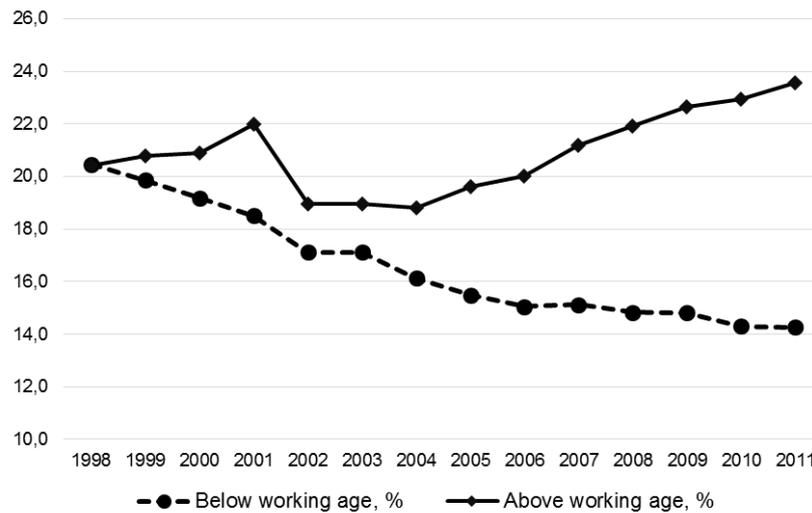
In addition to the decrease in its population, Zverevo demonstrates other negative aspects of its demographic development. Despite the city's population being formed mainly by immigrants that have come in search of employment in the mining sector, the female population in Zverevo has always been dominant. The imbalance in the sex structure is specific of the Russian population as a whole, where women number ten million more than men. The biggest disproportion in female-male population was registered in Zverevo at the beginning of the 2000's, when the male population was about 45.8% of the total.

The city's population age structure represents a classic case of ageing in a shrinking city, starting with the same percentage of the younger and older population in 1998 (about 20% for each group), the age structure has changed (figure 4.5.15) significantly by the sharp reduction of the number of youth and growth in both the working age group and the above working age group. In 2011, the difference between the number of the younger and older residents was about 10%.

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*Figure 4.5.15.
Percent of population below and above working age in Zverevo, 1998-2011.*

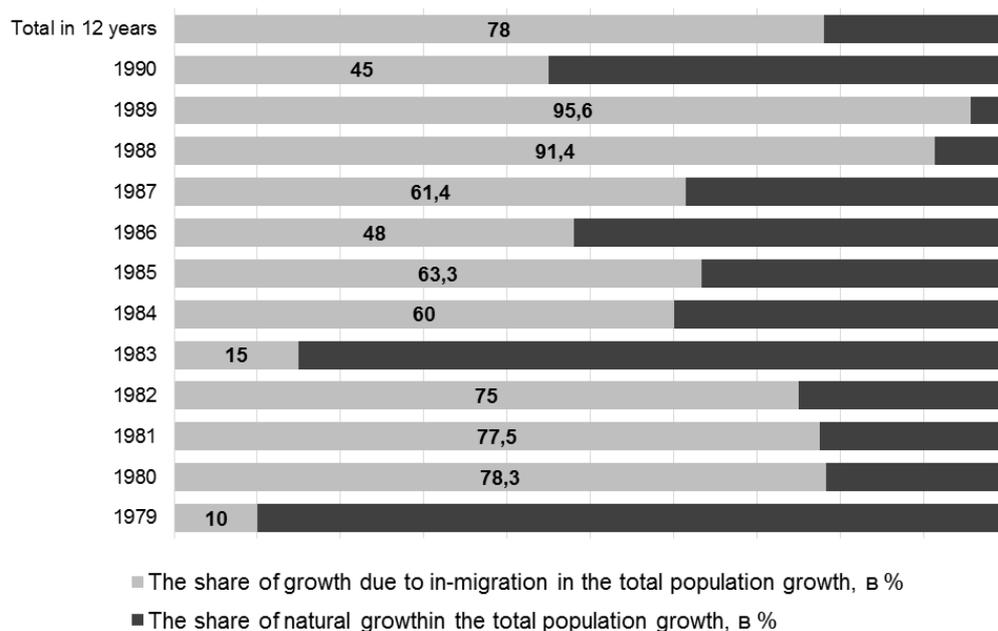


The disproportion promises growth in the future as Zverevo demonstrates one of the lowest birth rates among the cities of the Rostov region.

Components of demographic change.

Since the beginning of Zverevo’s industrial development, its population growth has been based mainly on in-migration rather than on natural population growth. The in-migrants were mostly originally from the rural areas of the Rostov region, attracted by the higher incomes in the industrial sector and better infrastructure in developing urban areas. The graph below (figure 4.5.16) shows the share of natural population growth and in-migration in total population growth of Zverevo during the Soviet period.

*Figure 4.5.16.
The share of natural population growth and in-migration in total population growth, 1979-1990.*

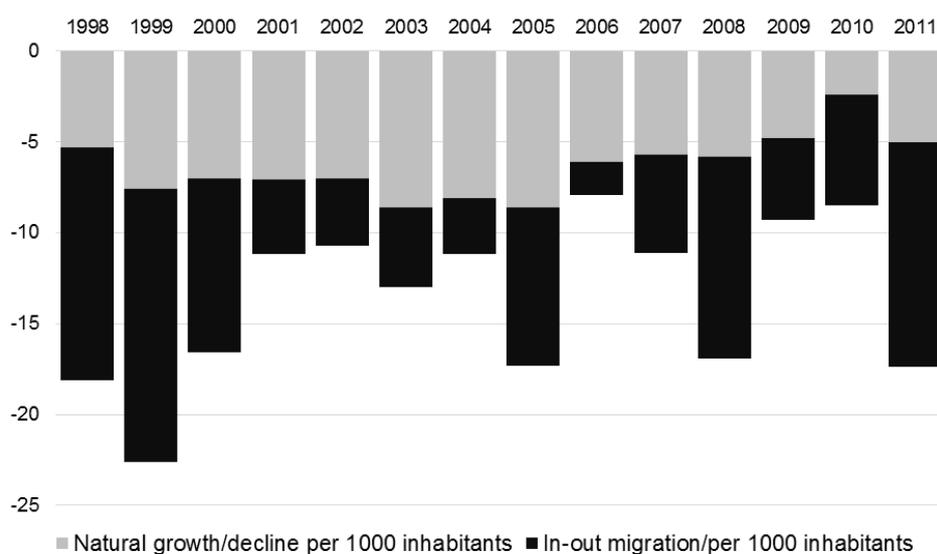


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After the USSR collapse, the town experienced population growth for several years, mainly due to in-migration from the rural areas of Rostovskaya oblast' and the other regions of Russia. The first decade after the fall of the Soviet system was favorable for most southern cities that attracted internal migrants from northern and far eastern regions. However, that positive situation shifted soon to a population decline as Zverevo now represents the “classic case” of shrinking cities where population decline is based on both natural decline and out-migration.

Figure 4.5.17.
Components of population change in Zverevo in 1998-2011.



The data shows that over some years the natural population decline contributed more to the depopulation and in other years, the contrary, where out-migration was more significant. The natural population decline contributed both to a very low birth rate and very high mortality rate (figure 4.5.17). The birth rate began at 6.4‰ in 1998 and slightly increased, reaching 10.4‰ in 2011, which was lower than the regional average indicator of 11.7‰. The mortality rate was much higher than the Russian and regional average indicators. It fluctuated from the level of 15-16‰ in 1998-2011 and several times reached the level of 17‰. Meanwhile, in Rostovskaya oblast' in 2011 maintained a level of 14‰ and in Russia as a whole, the level was 13.3‰.

Such negative trends in both migrations and natural population growth are the real threats for the future city's development and are difficult to confront at the local level.

Economic development of Zverevo.

The economic situation in Zverevo might be described as a crisis. In 2009, Zverevo officially received a status of “monogorod” – a one-company city. According to the government resolution №709 from 29.07.2014, a one-company city defined as a municipality (urban settlement or urban okrug) with a population more than 3,000 people and no less than 20% of all employees working in one enterprise (or different enterprises belonging to the same sector of economy). The specialization of the main company should be in mining (with the exception of oil and gas extraction) or industrial production. In Zverevo, the main enterprise is the coal mine “Obukhovskaya” where 2,099 employees were working in 2015, which was about 32% of the total number of working people in Zverevo.

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The coalmine “Obukhovskaya” started functioning in 1978 with a production capacity of 3.0 million tons of raw coal per year. In the 90’s, the volume of production was reduced significantly and every year it has continued to decline.

*Table 4.5.13.
Coal mining by year (thousand tons) by coalmine “Obukhovskaya”.*

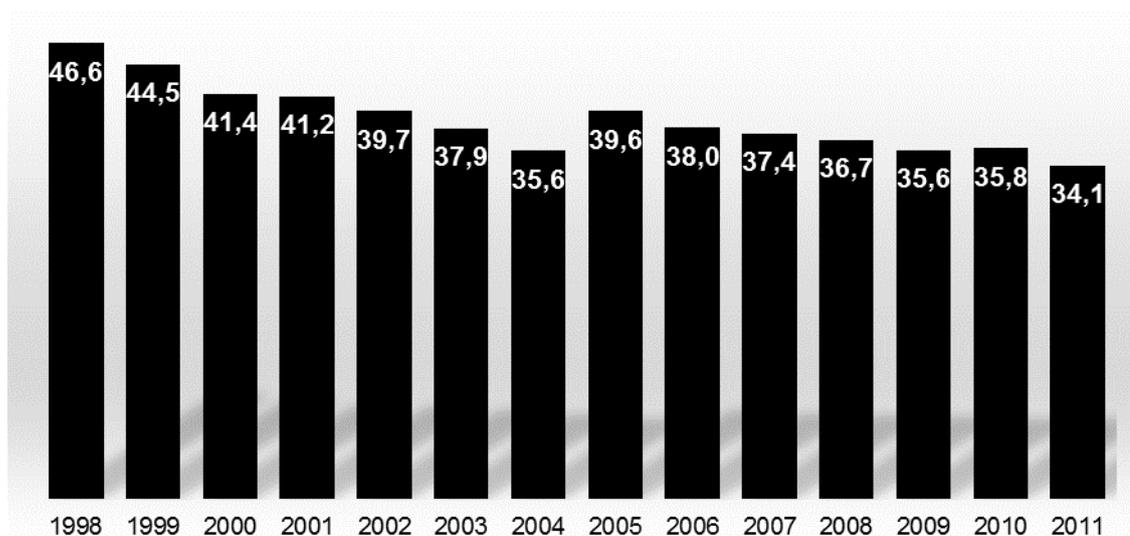
2005	2006	2007	2008	2009	2010	2011
1,048.3	937.2	943.2	539.3	721.4	530.5	333.6
% to 2005	89.4	90	51.5	68.9	50.6	31.9

For comparison, the second “big” enterprise in Zverevo is a grain company, where 97 people were working in 2015. All other companies are operating in construction, trading and services and they are all small companies. All the companies have been experiencing difficulties in their economic success and the situation tends to worsen. Thus, the share of unprofitable enterprises in Zverevo in the recent years was 100%.

The investment attractiveness of the city’s economy is very low. It is at the lowest position by the total amount of investments among the case studies. Moreover, the amount of investments do not demonstrate a stable positive dynamic and has been fluctuating with the significant falls almost every second year. The share of the involved budget funds in the total amount of investments has always been significant and fluctuated from 50% to 100% with the average level of 72%. The main part of the raised funds comes from the regional and federal budget.

Despite the critical economic situation, there is no local monitoring of unemployment. The statistic data on unemployment is not representative. It includes people officially registered in the Employment Service. Some specialists claim that the real level of unemployment in Russia is usually higher, sometimes by 50%, to the official one. Officially, the unemployment level in Zverevo was not very high, less than 2%. However, representatives of the local and regional authorities claim that the level of unemployment in Zverevo was twice higher than the average in the region. Notably the percent of people in working age employed in Zverevo has been constantly reducing almost the entire period following the end of socialism (figure 4.5.18).

*Figure 4.5.18.
Percent of population in working age employed in Zverevo, 1998-2011.*



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The local statistic does not include the information on people working outside the city, this information is not presented by free access. According to the data of the tax office, in 2009, about 4,000 citizens of Zverevo were working (one quarter of the working-age population). It is possible to assume that the reduction in the number of population working in Zverevo has resulted in the growing number of people working outside the city, since its location close to the bigger cities creates conditions for commuting.

The average salary in Zverevo is one of the lowest among the cities of Rostovskaya oblast'. During the whole period under review, the average salary was growing, but the dynamic of its growth was very low. A better representative is to analyze the relationship between the average salary and living age. From 1998 to 2011, this relation grew insignificantly from 1.79 to 2.2, this value corresponds to the poorest regions of the country.

Zverevo also demonstrates the lowest housing price per square meter in Rostovskaya oblast', which is much less even in comparison to the rural areas in the region. Thus, for the first quarter of 2016 the average price per square meter in Russia was 36,000 rubles and 35,257 rubles for Rostovskaya oblast'. In Zverevo, the average price for the same period was 19,500 rubles: almost twice below the average for the country and the region. In 2015, when the average price in the rural municipal districts of Rostovskaya oblast' was at a level of 29-32,000 rubles, in Zverevo it reached 19,300 rubles.

Zverevo's planning structure and urban environment.

The city of Zverevo is located in the steppe area and its territory is flat and does not have rivers or lakes. Only in its eastern part are there shallow ravines and artificial ponds. Zverevo does not have any external natural limits for its extensive development. However, the city's territory is quite compact. Thus, the built up area of Zverevo is about 520 ha and the population density is about 40 people/ha. Analyzing the current land use, one may observe large areas of wasteland. Most of such unused plots were reserved for the mass housing construction that has never been implemented due to the change in socio-economic formation and infrastructural limitations. However, in Zverevo as in many other Russian cities, local authorities used to imagine development only as development of green fields. In Zverevo, several land plots for new housing were formed out of the built up area, on agricultural land not served by any kind of engineering or social infrastructure.

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Map 4.5.14.
Planning structure of Zverevo.



Specific mining cities and towns of the Rostov region represent agglomerations of mining towns and villages rather than normal cities. In the planning structure of Zverevo, this fact is seen very clearly. The northern part of the city was a working mining settlement, whose territory since the beginning was built up by 5-storey apartment houses, while the southern part was a typical village built up by the single-family houses (map 4.5.14). The general plan of 1991 attempted to unify both separate settlements in one town, but still there is a difference in urban structure and quality of urban environment forms, lifestyle and use of the city.

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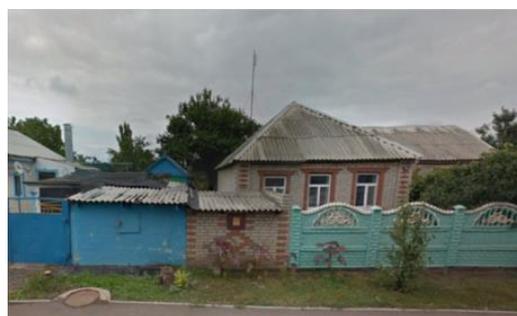
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Image 4.5.14.
Residential buildings typology in Zverevo.

Planning structure



Type of housing



The city center in Zverevo is not clearly identified. Actually, the public facilities usually composing city centers in Zverevo are distributed in a larger area, which would be appropriate for a city of a bigger scale. Accordingly, this “smeared” center do not give an idea of a unified public space and there are no public spaces in Zverevo, except for public facilities and streets.

Consequences of shrinkage in Zverevo.

Physical degradation.

There is no information about abandoned houses and apartments in Zverevo, but analysis of official documents and information in the media demonstrates a presence of demand for new housing due to the bad conditions of the existing dwellings and a mismatch of housing provision compared to modern standards of living conditions. However, the abandoned buildings of different functions and property are presented within the city’s borders with kindergartens, the House of Pioneers, office buildings of various services and industrial buildings.

Social infrastructure.

In Zverevo, the network of social facilities has been notably reduced. First, it has resulted in the transformation of network of educational facilities. Thus, the number of kindergartens decreased from 15 to 6, with the reduction of total capacity from 1,282 places in 1994 to 833 in 2011 (a reduction of 449 places or 35%). However, the number of children per 100 places in kindergartens has risen insignificantly from 90 to 102 and existing facilities were meeting the needs of the city in 2011. However, in following years, the increasing birth rate provoked growth in the number of children of pre-school age so that in 2015 there were 1,010 kids attending kindergartens. The capacity of existing facilities was increased by their reconstruction and

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reached 1,109 places in 2015. The number of schools has fallen from nine to four due to the sharp reduction in number of children in school age from 4,723 in 1994 to 1,969 in 2011 (reduction by 2,754 children or by 58%). However, the total capacity of the schools was 1,800 places in 2011. These existing slight deficits in schools' capacity will aggravate in the following years due to younger children entering the school-age group. The number of hospitals was stable with only one hospital in Zverevo. However, its capacity has been reduced from 360 hospital beds in 1994 to 125 hospital beds in 2011 (or from 109.4 hospital beds per 10,000 people to 53 hospital beds per 10,000 people for the same period). The number of outpatient clinics has declined from four to one with the insignificant capacity reduction from 469 to 400 visits per day. The capacity of outpatient clinics per 10,000 people has risen from 142.6 to 169.5 visits per day per 10,000 people. In this way, the indicators of outpatient care have been improved due to the population decline.

Housing.

Despite the housing market in Russia still being far from satisfied, there are almost no new constructions in Zverevo, because of infrastructural limits and the low purchasing power of the local population. In spite of a minimal dynamic of dwelling construction, the number of square meters of housing per capita becomes higher every year due to the depopulation factor. Thus, in 2011 in Zverevo, there were 23.1 square meters per capita, which was more than the average number in Rostovskaya oblast' (21.9 sq. m per capita). The growth of the indicator from 1994-2011 was 134%. This indicator is one used for the evaluation of municipal efficiency, so in this case, shrinkage formally results in a positive indicator of the local authority's work.

Engineering infrastructure.

Analysis of the municipal and regional documents and mass media publications lets us make a conclusion about the serious problems existing in the engineering infrastructure development and maintenance in Zverevo. As in many small towns in Russia, in Zverevo the capacity of the engineering infrastructure has not reached a minimum level for serving existing buildings. The main problems Zverevo has been experiencing have been due to absence of a city sewage treatment plant and the high level of deterioration of the water supply and sewage systems. According to the governor's claim, in 2010 in Zverevo, 57% of the water supply to consumers was lost because of poor conditions of the water supply network.

*Image 4.5.15.
The conditions of wastewater treatment plant in Zverevo in 2016.*



As written in "Strategy of socio-economic development of the municipality "The City of Zverevo" for the period until 2020", the construction of apartment buildings in Zverevo stopped

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in 1991 due to the exhaustion of capacity limits of wastewater treatment plants. The strategy named a high level of deterioration of engineering infrastructures or their absence as the main limit for the town’s development.

Socio-economic and spatial planning in Zverevo.

A vicious circle appearing in a shrinking city creates difficulties in identifying the priorities in policy. In the local strategic documents and programs, the mono-sectorial character of Zverevo’s economy is defined as the main weakness of the municipality that provokes out-migration, but, at the same time, the high level of out-migration and the consequent reduction in the numbers of the economically active population are listed among risk factors for investors.

The strategic documents for the city of Zverevo (table 4.5.14) are presented by the strategy of socio-economic development until 2020, which is quite an unusual document for small cities, the general plan until 2030 and the municipal programs.

*Table 4.5.14.
Municipal strategic documents acting within the territory of Zverevo.*

Strategy of socio-economic development	An action plan of implementation of the strategy of socio-economic development	A forecast of socio-economic development of the municipality in the medium or long term	A budget forecast of the municipality in the long term	Municipal programs	Documents of territorial planning
Until 2020	no	no	no	+	General plan of Zverevo until 2030

The Strategy of socio-economic development for the urban okrug Zverevo until 2020 was approved in 2012 and sets the following main goals for the economy, creating an innovative industrial complex for deep processing of coal, development of a processing industry of agricultural products and development of transport and logistics functions.

The analysis of the current demographic situation tries to avoid revealing the real existing problem. The document emphasizes the current “improvement” of the demographic situation, which is expressed through the increasing birth rate. However, that fact does not lead to natural population growth and such dynamic is temporary, the document considers it a very positive element. The only problem remaining is the attraction of new young citizens in order to improve the population age structure. Accordingly, the part of the document concerning demographics is based on the assumption of a possible improvement of the situation due to economic diversification, but there is no population projection.

In the long term, the inflow of population at a young age is expected to increase, and the resource of such growth should be in the diversification of the city’s economy, its transfer to an innovative way, which means salary’s growth and, as a result, of incomes of the population and improvement of living conditions.

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The document refers to the regional Concept of Demographic Policy. However, it states in the strategy that a successful implementation of the demographic policy depends on the successful solution of the tasks for the construction of industrial and agro-industrial complexes, including ensuring stable economic growth and the growth of the well-being of the population. The Strategy does not offer any specific solutions for the managing demographic issue.

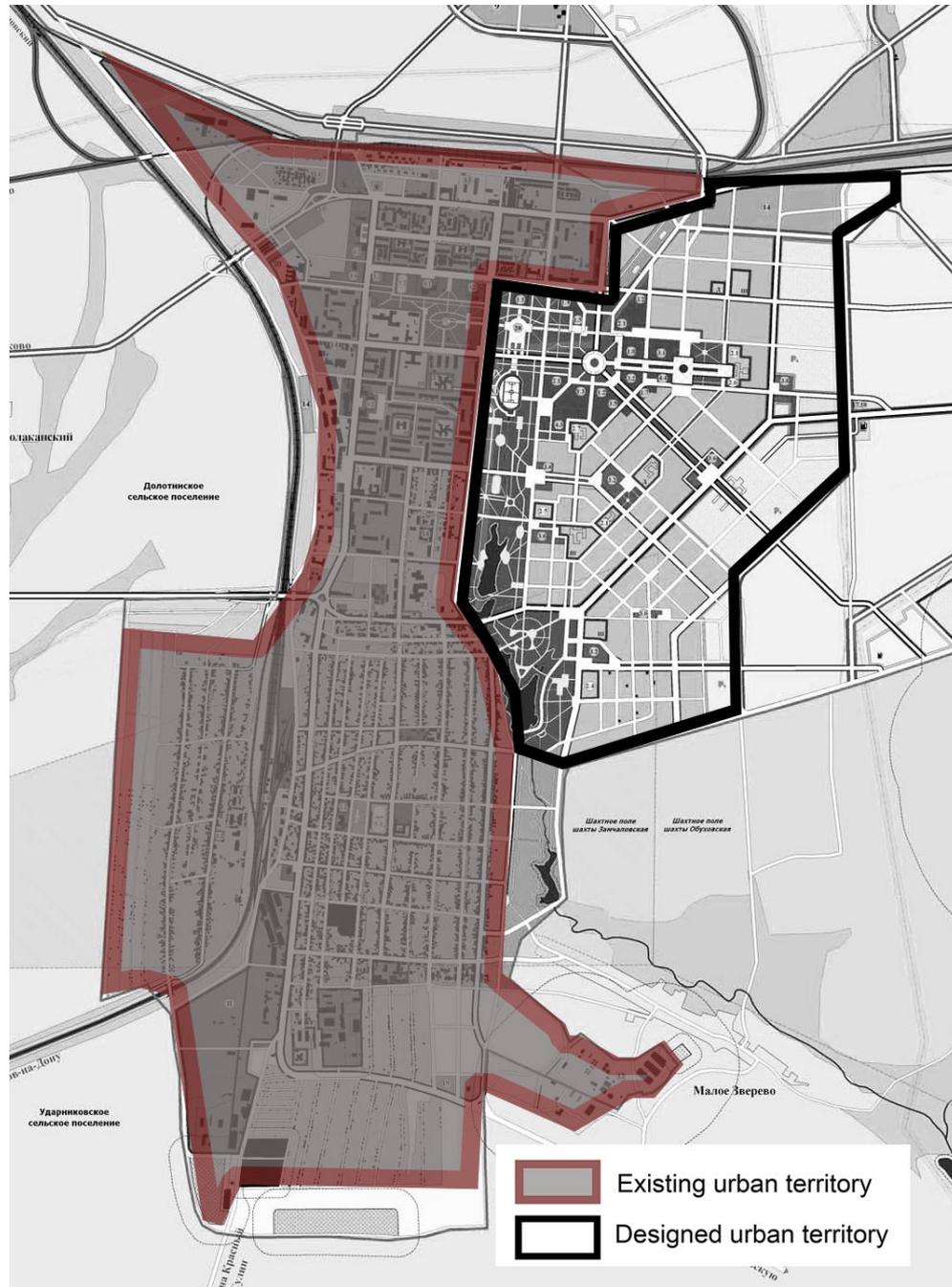
The general plan of the urban okrug “Zverevo” until 2030 was developed in 2009 and approved in 2011. Interestingly, the document includes the analysis of the previous city’s general plan of 1991. It notes that the general plan of 1991 assumed a population growth from 30,700 people in 1991 to 49,000 people in 2011. The planners emphasized this “fundamental mismatch” of planned and actual indicators and the fact that depopulation trends had not been considered in the document. However, the new general plan does not consider the current demographic situation as well and constructs its demographic projection on a simple assumption of possible future economic development and in migration flows and improvement of natural demographic indicators due to an improved socio-economic situation. The general plan predicts growth in Zverevo’s population to 30,000 people in 2030 for the municipality (29,800 for Zverevo itself) and to 35,000 people in case of a successful economic renaissance, were Zverevo to become a center of the settlements’ network. Accordingly, the general plan was designed for the city’s expansion and the development of green fields (map 4.5.15). The area covered by housing according to the document should be increased from 285.4 ha to 427.6 ha or by 1.5 times. The housing floor area should grow from the existing 520,100 square meters (2009) to 900,000 square meters or by 1.7 times. The General Plan also envisages the construction of many objects of social infrastructure with the number of schools projected to increase from five in 2009 to eight in 2030 (in reality the number has decreased to four since 2009), the number of kindergartens should increase from seven in 2009 to nine in 2030 (in reality the number has declined to six).

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Map 4.5.15.

The territories of new extensive development designed in Zverevo general plan, 2009.



On the contrary, the population of Zverevo has declined from 23,262 in 2009 to 19,920 in 2016 or by 14%. Current trends already clearly demonstrate the impossibility of reaching the projected indicators by 2030. However, the green field development for the housing construction is included in the city's investment program. Attempts to develop this area as a residential one were done 10 years ago and several land plots were formed, but due to infrastructural limits and low income of the local population, the development of this area is frozen.

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Zverevo: results.

Among all the case studies, Zverevo presents the most complicated case due to the long duration of the negative processes in all aspects influencing population change, from the demographic structure, the city's economic development, the quality of urban environment and the infrastructure development, a close location of the more attractive cities and climate conditions. The city administration made a step forward in understanding the problem's complexity and a necessity of impossible efforts and serious transformations. However, a hope for a miracle has been the main driver of all implemented measures, while the realistic view is not presented in the local or regional policy. Despite the severe consequences and already appearing negative shrinkage effects, very little has been done even for their evaluation and monitoring. The process is still seen as a temporary difficulty caused by the economic problems and significant structural demographic changes are not considered. The city is located within a depopulating area and even in a case of flourishing economic development, it will experience difficulties to attract migrants. Any modernization of the economy requires development of human capital, which is another complicated and not yet investigated problem.

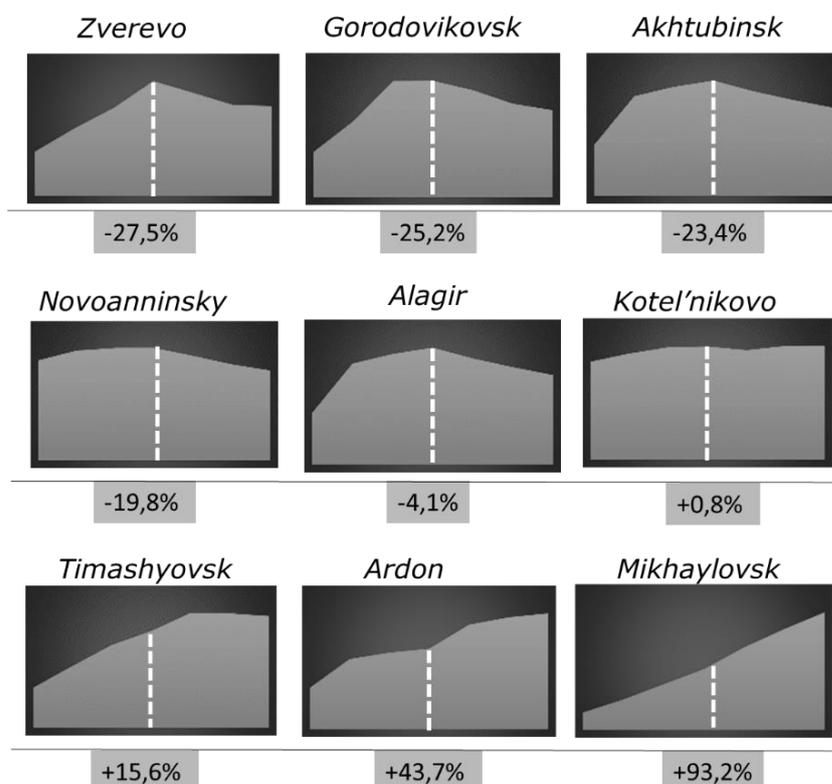
4.6. Case studies comparative analysis.

The following conclusions are drawn from the case studies research. Looking at the results in a comparative way helps to answer the research questions introduced at the beginning of this chapter and it also links the findings to the working hypotheses set up as the starting point. In the absence of wider investigations in Russia on causes and effects of depopulation in urban areas and also of applied relevant policies, a comparative approach leads to a better understanding of current processes through analysing the differences and similarities related to shrinkage and the causal relationship between depopulation severity and policy implications.

One main issue that appeared from the investigation was the particularity of the population change and its effect in every specific case, which limits the opportunity for developing the kind of classification and common conclusions for the region as a whole. Seemingly provoked by similar factors, population change differs from case to case by its importance and weight of causes, the speed of transformations and caused effects. Moreover, even distinguishing cases by one external feature as an indicator of population change through a deeper investigation becomes not so relevant. The growing cities included in the study demonstrate symptoms of critical demographic transformations or economic crisis.

The first intention of the current case study was finding the drivers of demographic changes in the cities and understanding the differences at the local level, dependence of the local situation on the global, national or regional context and perspectives for their future demographic development.

Figure 4.6.1.
Dynamic of population change in the cities-case studies in 1959-2010.



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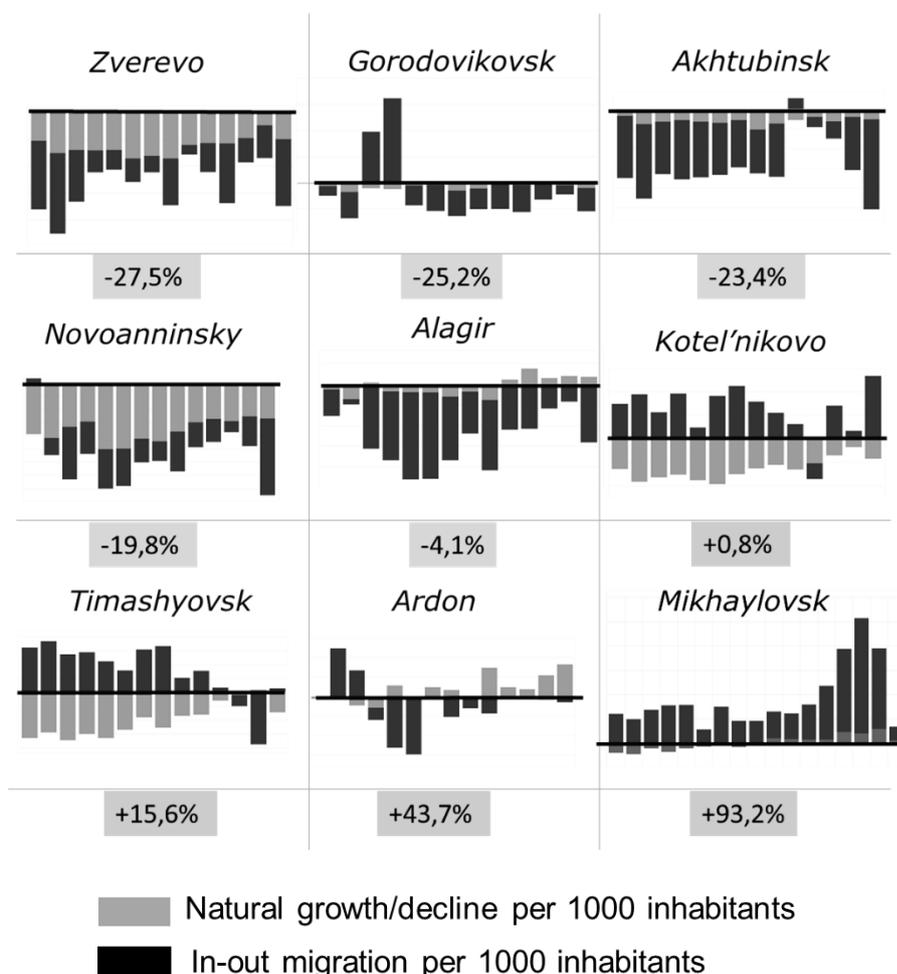
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Thus, for most depopulating cities the year 1989 (marked by the white line on the graphs, figure 4.6.1) was the year when the negative trend replaced a positive dynamic of population change. It applies especially to the cities whose economy was oriented to the governmental order and, accordingly, it collapsed altogether with the Soviet state: Zverevo, Akhtubinsk or Alagir. However, in other cities that are peripherally located, not having a special economic function in the past and playing a role of service centres for rural areas, such as Gorodovikovsk and Novoanninsky, features of depopulation appeared even before the USSR ended.

Growing cities also show a variety of population change patterns. Thus, the undisputed leader, Mikhaylovsk, has constantly been growing during the whole period of its history. Timashyovsk and Ardon had been growing until 2002 (as many southern cities did, they attracted internal migrants during the period 1989-2002) and then their dynamic slowed down as in a case of Ardon or turned into population decline as in a case of Timashyovsk. Kotel’nikovo meanwhile has been demonstrating a remarkable stability in its population levels.

The analysis of the components of population change is very demonstrative (figure 4.6.2): only three cases show slight natural population growth in recent years: Alagir, Ardon and Mikhaylovsk, while the constant excess of deaths over births has characterised all the other cases.

*Figure 4.6.2.
Components of population change in the cities-case studies in 1998-2011.*



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The performance of those three positive cases corresponds to the general demographic situation in Russia and is based on the increase of the population of reproductive age born in the 1980s, which is now being replaced by the population born in the 1990's, characterised by a significantly smaller number. Those positive changes are observed in most Russian regions, if not as a population growth, then as a slowdown in depopulation dynamic. That slowdown could be detected in other seven case studies. Three cases with a positive dynamic are quite specific regarding their demographic development. Ardon and Alagir are Ossetian cities with the Ossetians as the dominant ethnic group and accordingly higher than average birth rate in Russia (as in most ethnic regions). Mikhaylovsk, an attractive area for the young population to purchase property, is characterised by healthier and better-balanced age structure. However, to summarize based on the result of the data analysis and the documents' analysis, it is possible to expect a continuing of the positive trends of natural population growth in Mikhaylovsk and Ardon, while in all other cases the situation will worsen.

As it seen from the graphs, migration plays a definitive role in growing of stable cities except Alagir, in which population growth is based on the excess of births over deaths. Especially as can be seen in Timashyovsk and Kotel'nikovo, where in-migration has been playing a compensating role in the recent decade. Its reduction in the case of Timashyovsk immediately resulted in the decline in the total population number.

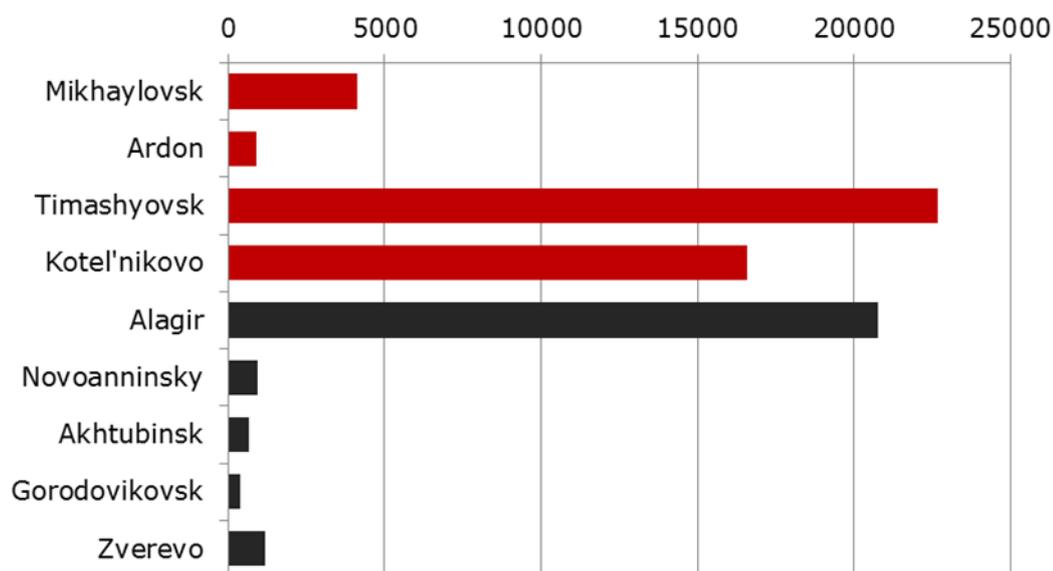
Out-migration is usually associated with economic decline. It can be provoked by the combination of different factors, for which evaluation in the current research there is not enough data, unfortunately. There is also not enough data for an adequate assessment of the current economic development in every city as well. However, the comparison of cases allows to indirectly investigate a relationship between population change and economic development, which, however, without a qualitative analysis, might lead to misinterpretations.

Thus, comparing a total amount of investments in fixed assets from the period 1999-2011, we can easily identify four leaders: three of them among the growing cities (Timashyovsk, Kotel'nikovo and Mikhaylovsk) and one is a shrinking city (Alagir). Moreover, the total amount of investments in the economy of Alagir is much higher than the amount of investments in Mikhaylovsk's economy, which is an absolute leader in population growth. The closer examination helps to understand the difference between those investments. The most stable with positive characteristics is the city of Timashyovsk, where the amount of investments was growing steadily from 1998-2011, and their structure is characterised by the small share of the budget money. Moreover, those investments are involved in different sectors of the economy and various enterprises. In Alagir and Kotel'nikovo the majority of the investments were attracted in the last four years of the observed period and were linked to the implementation of significant projects in mining. However, if in Kotel'nikovo there has been a direct influence on the city's development, then in Alagir the development refers to the national infrastructure located in the municipal district outside of the city itself. In previous years in both cities the budget money mainly represented investments. Following three leaders, Mikhaylovsk demonstrates a much lower level of investments and most of them were investments into housing construction.

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Figure 4.6.3.
Investments in fixed assets in 1999-2011, million rubles.



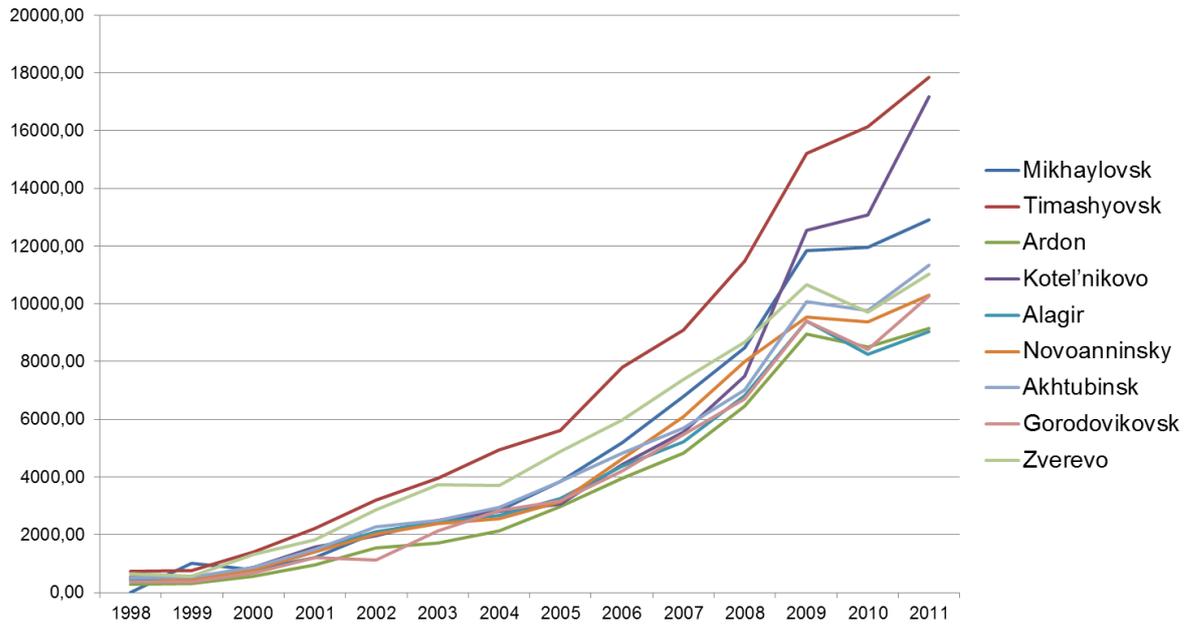
As we can see, the amount of investments into the cities' economy does not always express the real economic development, as well as it does not correlate to the dynamic of population change. The dynamic in the number of employed people might better illustrate the current economic situation. Thus, a normal trend for depopulating cities (Alagir, Novoanninsky, Gorodovikovsk or Zverevo), is where the number of jobs decrease, a surprising occurrence for fast growing cities (Mikhaylovsk and Ardon). In the depopulating city Akhtubinsk, in contrary, a number of jobs had been growing until the economic crisis of 2008. The situation illustrates that there is not always a direct correlation between job creation and population growth. Perhaps, only Kotel'nikovo and Zverevo represent two contrasting cases, where the change in number of jobs corresponds to the population dynamic. In the case of Kotel'nikovo, both indicators increase whereas in the case of Zverevo they decrease.

The average salary in the cities does not demonstrate a significant difference in 1998-2008 except in Timashyovsk, where during the whole period they had been a leader by average salary size. After 2008, the gap between the cities becomes more important, which might be explained by the difference in cities' ability to adapt their economy to the consequences of the economic crisis. Since 2008, we can identify three leaders: Timashyovsk, Kotel'nikovo (whose position has notably risen from one of the lowest) and Mikhaylovsk.

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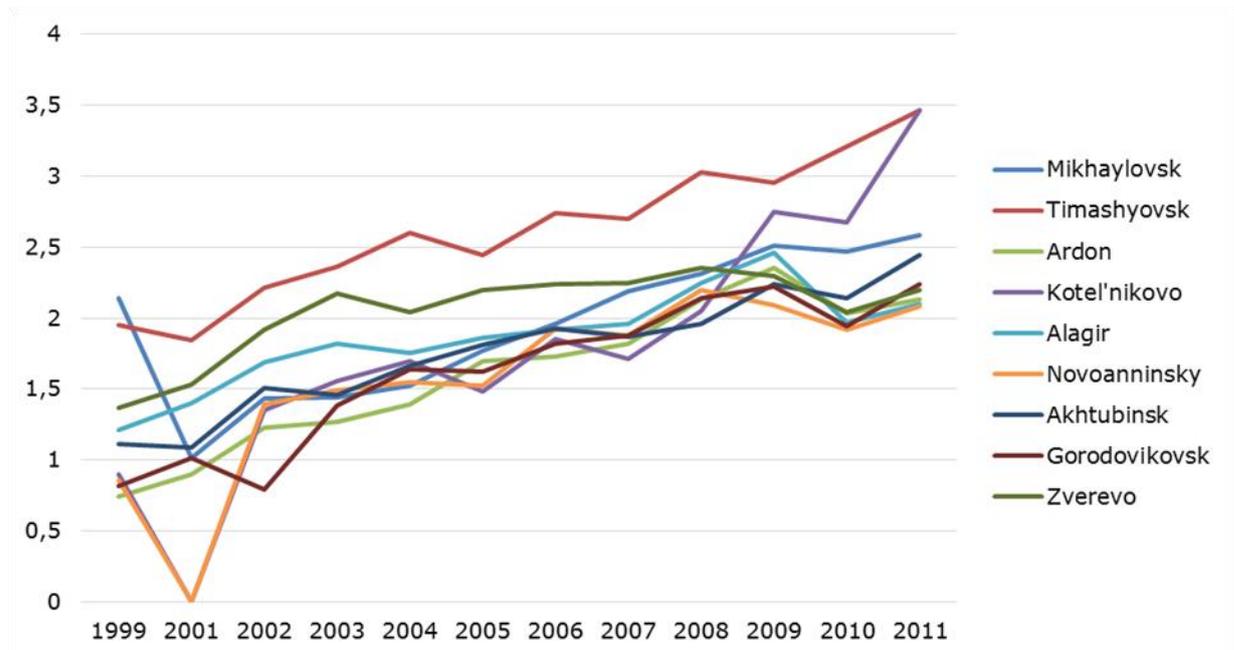
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*Figure 4.6.4.
The average real salary change in 1999-2011, rubles.*



However, considering the specificity of the regional development, it is necessary to take into account the relationship between an average income in a city and the regional living age. Again, Timashyovsk is an undisputed leader, and the rest cases demonstrate a more or less similar dynamic as seen in the previous graph with the notable worsening of the salary-living wage relation since 2008 in all depopulating cities and notable improvement of the situation in Kotel'nikovo.

*Figure 4.6.5.
The relationship between an average income in the city and the regional living age in cities-case studies in 1999-2011.*

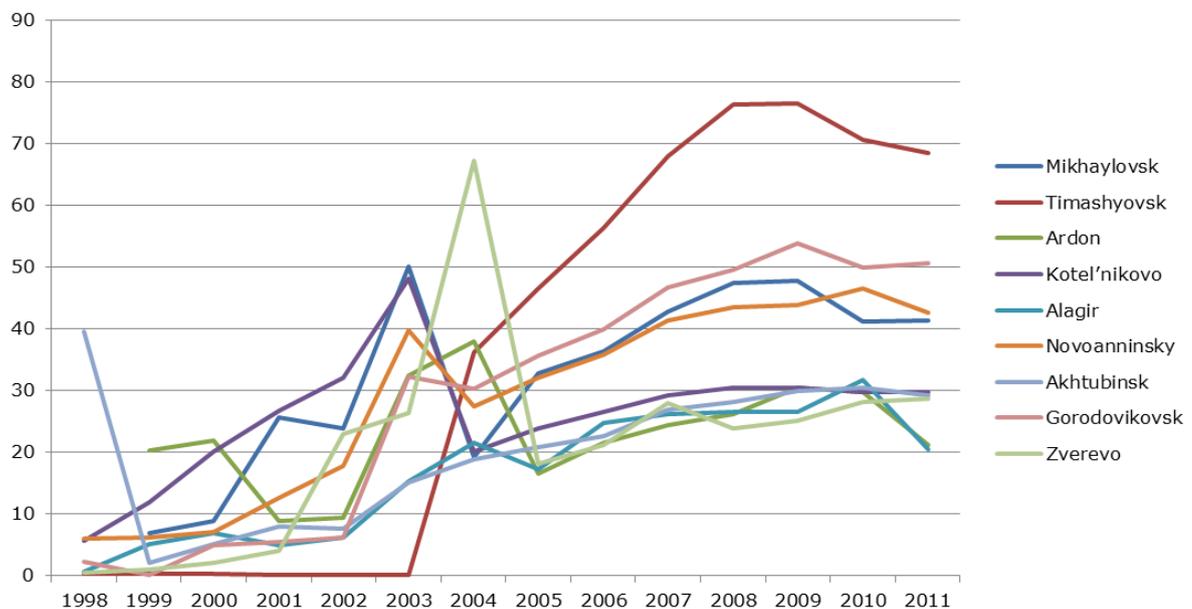


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A number of business entities in all cases demonstrated a similar dynamic with the constant growth until 2008 and a slight decrease after. That number, in general, corresponds with a city's population number: more citizens create more entities. An exception here is the city of Timashyovsk, which is an absolute leader in the cases by the number of organisations, despite its significantly smaller population number compared to Mikhaylovsk. An interesting result demonstrates the comparison of individual enterprises' presence in municipalities. All the cases showed similar dynamics with a notable decline in the number of enterprises after 2008. However, the entrepreneurship is presented differently, and we may observe three groups in the graph below (fig.4.6.6). The first, which includes only the one city of Timashyovsk with its 68 individual enterprises per 1000 people in 2011, greatly exceeds other cases by this indicator as well as the average Russian indicator (which was about 20 individual enterprises per 1000 people in 2011). The second group with an indicator in the range 41-50 individual enterprises per 1000 people in 2011 includes Gorodovikovsk, Mikhaylovsk and Novoanninsky: the cities with weak economic development and insignificant presence of the state in their economy. Accordingly, people here are more active in the development of their small businesses. The last group with the number of individual enterprises at a level that does not exceed 30 per 1000 people, includes Kotel'nikovo, Alagir, Ardon, Akhtubinsk and Zverevo. In all those cities, the share of the state economy is significant, and their residents are less inclined to entrepreneurship.

Figure 4.6.6.
The number of individual enterprises per 1000 people, 1999-2011.



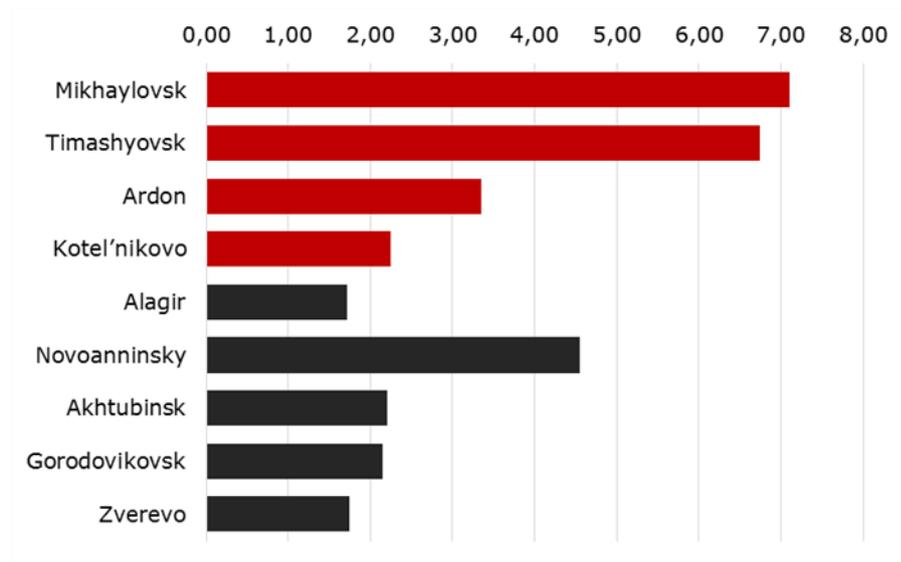
Another indicator indirectly characterising economic development is a dynamic of housing construction. Thus, a quantity of housing floor area constructed in the period 1994-2011 per capita correlates relatively well with the city's population change. Two absolute leaders Mikhaylovsk and Timashyovsk, however, represent very different drivers for housing construction. In the case of Timashyovsk, housing construction is a consequence of the successful economic development, while in Mikhaylovsk housing construction itself is a basis for the city's economic development. Surprisingly, Novoanninsky is characterised by the significant population loss among the cities-leaders in housing construction.

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Figure 4.6.7.

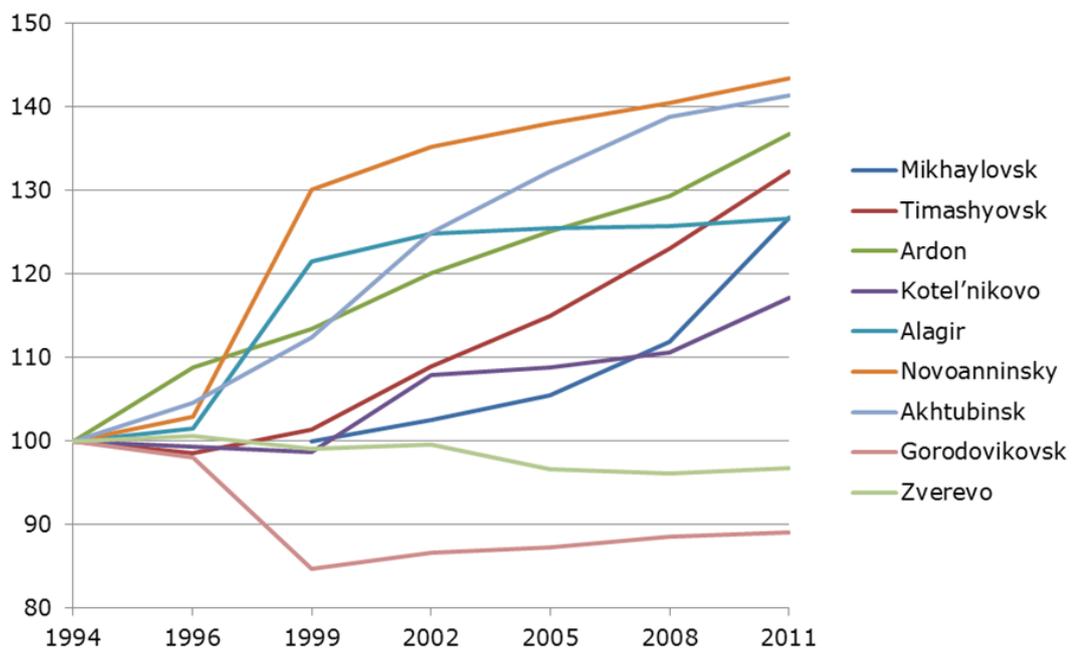
Housing floor area constructed in the period 1994-2011 per capita, square meters.



Housing construction's increase over a 3-year period better demonstrates two outsiders, Zverevo and Gorodovikovsk, where the amount of housing construction in the following period was less than in the previous one. On the contrary, depopulating Novoanninsky demonstrated the best dynamic in housing construction among all the cases.

Figure 4.6.8.

Dynamic of housing construction in 1994-2011 by three-year periods, the percentage of the previous period.



In general, despite it the difficultly in diagnosing the current economic condition in the cities-case studies, it is possible to conclude that population change in small and medium-sized cities of southern Russia is not in direct dependence on economic development only. Obviously, the causes of shrinkage require more thorough investigations.

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Through an analysis of the **negative effects of depopulation** that are physically expressed in the urban fabric we can observe very similar processes despite different economic and demographic performances. Thus, all the cases suffer from a poor development of transport and technical infrastructure to a varying degree. A long-term lack of financing combined with the rural character of the residential areas has led to poor infrastructural provision and a very low dynamic of its implementation. Moreover, in growing cities (such as Mikhaylovsk) the situation might worsen due to the backlog of infrastructure construction from housing construction. The second common feature is the reduction of social infrastructure, which depends on population age change. Natural population decline and ageing are the features common to all cities (except Ardon). The third characteristic is the presence of abandoned industrial sites, which exist in every city without exception: at a smaller scale in Timashyovsk and to a bigger scale in Gorodovikovsk or Zverevo. They are the direct symptoms of economic transition, a general process, which Russia has been experiencing since the end of the USSR and which are particularly pertinent for small cities. The fourth common aspect for all cities is the absence of abandoned housing and vacant land in the residential areas. While we can observe abandoned industrial buildings and social facilities, the residential areas do not demonstrate until now a tendency to be abandoned, if even in some cases, the quality of the existing housing is deficient and it might be characterised by a high level of deterioration (e.g. a case of Akhtubinsk). All the cases experienced a lack of housing provision and continue housing construction. Notably, the housing provision per capita in depopulating cities is higher. The only economically growing cities, such as Timashyovsk and Kotel'nikovo demonstrate better quality of the urban environment in some parts of the city because of a higher quality of street pavements, landscaping, lightning or small architectural forms that have been used. In Timashyovsk, it is related to the city centre, while in Kotel'nikovo to the new residential areas. However, that quality might be considered as better only in relation to the other cases.

Analysis of the **planning documents** in the city-case studies shows only two types of planning documents approved in most cases at the city level: general plans and municipal programs. As we can see, only one city from the list, Zverevo, has developed its Strategy of socioeconomic development. The explanation is in its special status and its economic conditions: Zverevo is only city among the cases that has a status of urban okrug that means its direct subordination to the regional government and is a one-company city included on the federal program of support for one-company cities.

The other cities have the status of urban settlements, which means they are subordinate to the municipal districts and, accordingly, development of the strategic planning documents at the level of the municipal district. However, even at the level of the municipal district, not all cities have a strategy of socio-economic development: this document is not present in Ardon, Kotel'nikovo and Novoanninsky. In most other cases those strategies are too general and do not pay much attention to the particular settlements. Usually, the main goal of any strategy of socio-economic development is defined as “increase the life quality by improving the competitiveness of the municipal economy”. In all strategies, the high level of dependence of local budget, local legal system and capacity for the decision-making on the regional and national government is emphasized. All the strategies are characterized by the lack of any indicators or measures based on the real budget capabilities. Such intentions as, for example, “modernisation of technical infrastructure in the settlements” remains the only optimistic slogan because no single municipality has financial opportunity to implement such kind of actions. Moreover, the

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municipalities are not capable of long term planning due to the lack of knowledge and skilled professionals: that is why many of them do not develop strategies, but only programs of socio-economic development, which means three-five years planning the horizon. Those programs usually have indicators for the future monitoring of social and economic development, but ways and means of achieving goals are weakly defined and cannot be real tools for the municipal policy.

In contrary to the socioeconomic planning, all the municipal districts and all the cities have developed their spatial planning documents: schemes of territorial planning for municipal districts and general plans for cities. However, the Urban Planning Code sets the priority of the socioeconomic planning over the territorial planning, which is described in the rule that “preparation of territorial planning documents should be implemented on the basis of strategies (programs) of development of individual sectors of the economy, of the priority national projects, international programs, programs of socio-economic development of the Russian Federation, plans and programs of social and economic development of municipalities (if available). Thus, the functions of the territories and location of the infrastructural elements should be defined based on the strategic documents. In reality, the very generic character of those documents and absence of any measurable indicators and planned actions do not let the implementation of strategic goals in territorial planning. Thereby, the general plans are created based on the assumptions about future economic development and the current settlements’ needs of housing, social, technical and transport infrastructure. The long-term prognosis about territorial development are usually very weak and almost do not consider social and economic factors.

Thus, the territorial extension is mainly based on mathematic calculations of the areas needed for the construction of particular volume of the housing, which is defined as a simple multiplication of population number and desired/required housing floor area per capita. This housing floor area per capita is usually set in regional strategies or standards and does not consider the capacity of the population to buy housing or investors’ interest to construct housing in particular settlements. Similarly, the necessary social facilities and infrastructural elements designed for the future settlement are often based on the calculation of the future residential territories area. No need to mention such plans remain un-implemented in most of the cases. Moreover, a deficient quality of demographic projections or even their absence in most general plans creates false expectations and provokes planning of unreal future conditions. Thus, the planning of new social facilities except reorganization and modernization of existing ones do not make all the plans unworkable only, but also prevent a local authority from having a realistic view or understanding of real problems and adequate ways of solving them.

For economic development, most of the general plans emphasise the impossibility to make any projections under the conditions of uncertainty and, in this way, disclaim the responsibility for any result of economic development. Accordingly, all the goals and means of economic development in documents of territorial planning are very generic, using references to the strategic or programming documents (if any exist), or simply list advantages of the municipality, which potentially can become competitive advantages. On the one hand, the existing law prescribes the secondary role of territorial planning documents, on the contrary in small municipalities those documents remain the only long-term strategic documents. Due to such uncertain planning conditions and general plans’ function defined by the law, those documents mainly plan new areas for the housing construction needs only. Other territories are usually

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planned “just in case” for the “creating opportunities” for any hypothetical investor to organise business in any part of the settlement. In practice, when an investor comes with the real plans, municipalities are ready to change all their strategies and territorial planning in favour of those business ideas.

A detailed comparative analysis of the strategic documents developed for the case studies is challenging due to the big difference in the documents’ structures and contents. The main goal of the analysis was to understand if and in what context the strategic documents consider the demographic issues of the municipality, how do they correspond to each other (including the correspondence between the level of municipal district and the settlement’s level).

The first observation is an absence of the strategies of socioeconomic development even at the level of the municipal district in three cases: Ardon, Kotel’nikovo and Novoanninsky. The second observation is that the spatial planning documents of the municipal districts do not correspond to the documents of the city level nor in the set priorities of the future development, nor in the target indicators. For example, in most cases, the population projections presented in a scheme of territorial planning and a general plan differ significantly.

The analysis of the general plans’ content ignores, in most cases, the existing demographic issue. Moreover, most of the documents lack the detailed, realistic analysis of the current demographic situation and the scientifically based population projection. However, all the general plans include the future population number as one of the main target indicators, allowing calculations of the expected future needs of housing floor area and infrastructure.

*Table 4.6.1.
Managing of the demographic issue in the general plans.*

City	Presence and quality of the analysis of the current demographic situation	Presence and quality of the population projection	Consideration of the demographic issues in decisions done
Mikhaylovsk	Not presented	Three scenarios, all positive, without explanation	Population projection is used for the calculation of the new residential areas and infrastructure
Ardon	Well-developed analysis	Two scenarios developed with the cohort-component method, both positive	Population projection is used for the calculation of the new residential areas and infrastructure, but with the consideration of the projected changing age structure and need of another use of the existing social infrastructure
Timashyovsk	Poor quality of analysis	Assumption of the future population growth without justification	Population projection is used for the calculation of the new residential areas and infrastructure. Significant extension of the built up areas.
Kotel’nikovo	Poor quality of analysis	Assumption of the future population growth without justification	Population projection is used for the calculation of the new residential areas and infrastructure. Significant extension of the built up areas.
Alagir	Well-developed analysis	Three scenarios developed with the cohort-component method, all negative	Population projection is used for the calculation of the new residential areas and infrastructure. No significant urban sprawl designed.
Novoanninsky	Not presented	Assumption of the future population growth without justification	Population projection is used for the calculation of the new residential areas and infrastructure. Significant extension of the built up areas.

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City	Presence and quality of the analysis of the current demographic situation	Presence and quality of the population projection	Consideration of the demographic issues in decisions done
Akhtubinsk	Poor quality of analysis	Assumption of the future population growth without justification	Population projection is used for the calculation of the new residential areas and infrastructure. Significant extension of the built up areas.
Gorodovikovsk	Poor quality of analysis	Assumption of the future population growth without justification	Population projection is used for the calculation of the new residential areas and infrastructure. Significant extension of the built up areas.
Zverevo	Well-developed analysis	Assumption of the future population growth without justification	Population projection is used for the calculation of the new residential areas and infrastructure. Significant extension of the built up areas.

All the cities, without any exception, designed in their general plans significant territorial expansion, which almost does not depend on the current demographic and economic trends. The only cities, for which the designed urban sprawl was limited, were the cities in the Republic of Northern Ossetia-Alania, located in a foothill zone and accordingly have natural geomorphological limitations to extensive development.

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Chapter 5.

Discussion and conclusion.

Chapter 5. Discussion and conclusion.

The intention of the thesis was to search for evidence of population decline in the Russian cities where it is a defining aspect of their future development; to understand to what degree the current planning policies respond to such demographic challenges; to find the appropriate responses from the accumulated international experience to the existing contradiction between the current depopulation trends and growth-oriented planning approaches and tools regarding possibilities and to then apply such expertise to the Russian context. This study shows that in Russia with “the most shrinking urban system in the world” (Cottineau, 2016), where more than 70% of cities are depopulating and the number of such cities is increasing, searching for appropriate planning solutions for the conditions of urban shrinkage is relevant and urgent. Moreover, it is especially important for the small and medium-sized shrinking cities, which are not as competitive in the new market economy as larger urban economic centres. They have fewer resources (financial, human and power) and are more dependent on both upper levels of government and private actors, implementing their interests within the territory of the city. Understanding how Russia integrates into the “general story” of shrinking cities, which is many-faced and sometimes confusing, helps to find which policies, already approved and tested in other places, could be appropriate in Russian cities. Moreover, Russia, entering later, but faster, into the scene of urban shrinkage, might benefit from the accumulated international experience (Pallagst, 2010).

To answer the research question, the thesis first investigated the existing drivers of population change in Russia in general, its regional difference and specificity at the local level. Since we know from the literature about the global and local factors provoking urban shrinkage (Haase et al., 2014), those factors are used in the study for the construction of the structure of the case studies to verify which combinations at the local level exist and how they can be classified and responded to. Because urban shrinkage does not appear on the political agenda before its expression through physical or socioeconomic problems and the appearance of influential, powerful actors (Bernt et al. 2014; Rink 2012), the next logical step of the research was to then find which negative effects of urban shrinkage are already present and might be predicted. Then, the study focused on discovering the appropriate responses related to spatial planning under conditions of negative population change. In the end, an attempt to understand which gaps exist in the current policies and planning practices was made as well as how those practices can be improved.

The first section, 5.1 discusses the main results of the empirical research of the Russian context regarding the demographic situation and appropriate policies at the national and regional levels and in particular small and medium-sized cities of Southern Russia. The second part, 5.2 represents the contributions from the Russian case that can be added to the general debate on urban shrinkage. Part 5.3 represents the final conclusions.

5.1. Country of shrinking cities: depopulation drivers, existing policies, and possible improvements. The main findings.

Before answering the research questions, an important observation should be mentioned, which is not new and has been emphasized many times in the literature on urban shrinkage. The nature of urban shrinkage and possible policy responses vary significantly depending on the national context (Piro 2016; Pallagst, Wiechmann and Martinez-Fernandez, 2013; Rink 2012; Fol and Cunningham-Sabot, 2010). Geography, history, political system and planning culture create the particular conditions for the demographic changes, perception of urban shrinkage, opportunities to manage demographic processes and implement appropriate policies. Obviously, there are some clear reasons against the direct transferring of the “best practices” for planning shrinking cities. Evaluation of the possibility to use practices approved in other contexts should start from the understanding of those differences that complicate their implementation. Such aspects may refer to such various fields from geographic factors to political issues. For example, in Russian geographic conditions, the strategies oriented to foster cooperation between shrinking cities in order to share their budget burden or common use of social infrastructure (Pallagst et al., 2009) in most cases are hardly realized due to the very low population and settlement density with significant physical distances between cities. Implementation of the strategies promoting active citizens’ participation, which, for example, in the Youngstown’s strategic plan has become the core idea, requires considerable efforts and does not guarantee successful application because of weak traditions of self-governance in Russia, corruption, lack of trust and low population activity in policy-making due to the specificity of historical processes in Russia. Top-down approaches still prevail in the national planning system and hope that a particular city could act independently to face urban shrinkage is unreasonable. Those aspects raise a question of better understanding of what contexts consist of (planning and societal) regarding urban shrinkage process.

Presented below are the findings, completed while investigating shrinkage issue in southern Russia and are grouped according to the three sub-questions set in Chapter 1, related to shrinkage drivers, negative effects and existing policies. The discussion of each aspect concludes with the consequences for spatial planning and those demands, which arise for the adaptation of spatial planning policy to the conditions of shrinkage, as a response to the fourth sub question.

5.1.1. *Research question: the main drivers causing population change in small and medium-sized cities of southern Russia.*

Mainly the excess of deaths compared to births (or natural population decline) causes depopulation at the national level as well as in most depopulating cities in Russia. However, the demographic situation demonstrates the notable regional diversity and can differ significantly from one settlement to another within the same region. The population decline of many Russian cities will be the main trend defining their development in the long term.

The data on the Russian demographic development, provided in Chapter 2, demonstrates clearly that the primary cause of the depopulation in the country is the high mortality rate and ageing, provoked by the past dramatic events in Russian history (such as the October Revolution or WWII), the sharp socioeconomic transformations after the collapse of the USSR, but also by the processes linked to the second demographic transition (Van De Kaa, 1987). The constant positive international migration after the end of the socialist era could not compensate natural population decline. Moreover, depopulation at the national level took place on the background of economic growth from the mid-1990s, which refutes an assumption about the direct correlation between economic development and population change. However, economic decline, which does not significantly contribute to population change at the national level, plays an important and sometimes definitive role in some regions and cities, aggravating population decline caused by demographic factors or even turning depopulation into positive demographic changes. Russia represents a mixed variety of population patterns: growing ethnic republics characterized by a birth surplus, areas of oil extraction that are attractive for migrants with flourishing economic development, depressed depopulating northern or eastern regions or areas nearest to the growing centres that serve as demographic resources. Demographic potentials and the ability of the regions to attract population are also very different and, accordingly, a universal solution for improving the demographic situation does not exist. The empirical study confirmed the significant diversity in population change trajectories, but also in combination of factors provoking positive or negative population change at the city level as well, even in closely located in similar conditions cities.

It is already known from the literature that economic and population decline is not necessary to appear simultaneously (Wiechmann and Pallagst, 2012). The Russian case perfectly illustrates this fact not only at the national level, but also at the regional and local levels as well. The analysis presented in Chapter 2 demonstrates that regional development represents a variety of combinations of economic and population growth and decline and, in some regions, those trends are contrasting. Job-related out-migration in many areas worsened the country's overall depopulation trend, caused mainly by a natural decline. Internal migration in Russia is a result of the changes in the sectoral and territorial structures of economy and a way for people to adapt to the new socio-economic conditions. The regional population change shows well the availability of population resources for implementing a migration policy at the municipal level: in reality, they are constrained. At the city level, the influence of economic development on population change is more tangible, especially in small and medium-sized cities. However, the case studies presented in Chapter 4 show the much more complex relationship between those main factors characterising urban shrinkage.

The classification system offered by T. Wiechmann and K. Pallagst (table 5.1.1), which proposes four types of cities based on a combination of their economic and demographic

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development, could be applied to some degree to many to the cases from southern Russia. The explanation is in the high level of instability and uncertainty in both economic and demographic processes and ambiguity of the current trends when looking closer. Moreover, the data presence and its quality do not allow to evaluate the modern cities' economic development adequately. Those limitations have been described in Chapters 1 and 4. However, it is possible to claim that most cities experience economic growth. Compared to the 1990s, all of them demonstrate an increase in such indicators as amount of investments, income, number of enterprises and volume of housing construction. Still, some of them demonstrate symptoms of a weak economic situation, expressed in the decline in number of jobs number or small indicator of salary-living wage relationship. Moreover, the population dynamic in some cases is currently changing its trend, and it is not straightforward anymore (for example, growing population dynamic of Timashyovsk turned to population decline).

*Table 5.1.1.
Cases classification according to the model offered by T. Wiechmann and K. Pallagst.*

	Economic growth	Economic decline
Population growth	<i>Urban growth poles</i>	<i>Urban gravitation centres</i>
	Kotel'nikovo Timashyovsk	Mikhaylovsk Ardon
Population decline	<i>Transition areas</i>	<i>Downgrading areas</i>
	Akhtubinsk	Alagir Novoanninsky Gorodovikovsk Zverevo

The cities' approximate classification might give an idea of the diversity of economic-demographic relationship in the settlements of southern Russia, which likely might be confirmed in other regions as well (Cottineau, 2016). At the same time, the offered terms for the different types do not match well to the investigated cases: e.g. Mikhaylovsk and Ardon are parts of different stories, in which Ardon demonstrates natural population growth that might hardly be called a "gravitation centre."

The thesis concludes that the population decline in cities of southern Russia can be represented by three patterns, which are well illustrated by the case studies:

- 1) a combination of a long-term excess of death rate over birth rate and job-related out-migration due to economic decline (Zverevo, Akhtubinsk, Novoanninsky);
- 2) job-related out-migration due to economic decline on the background of natural population growth (Gorodovikovsk, Alagir);
- 3) a combination of zero or positive job-related in-migration and dramatic excess of mortality over natality (Timashyovsk, Kotel'nikovo).

Such patterns lead to the following outcomes: natural demographic processes are quite inertial and hard-to-manage, which means limited opportunities for cities to overcome it at the local level; positive economic development and in-migration do not guarantee population growth when mortality rate excesses natality, which reduces the value of economic development strategies against depopulation. At the same time, the cities with natural population growth and job-related out-migration seem to be appropriate cases for the implementation of marketing

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strategies to attract new citizens. However, such strategies are insufficient by the potential demographic resources, which could be used (both Gorodovikovsk and Alagir are located in depopulating areas and should compete with other regions for the human resources).

Analysis of the population projections developed for the Russian Federation, its regions and particular cities by different national and international agencies, presented in Chapter 2 and Chapter 4, makes it clear that most of the Russian cities are doomed to lose their population in the long-term future mainly due to the ageing of their populations. This process cannot be reserved easily in the short-term period (Rink, 2012) even with the strong state support. Lack of internal national demographic resources, weak migration policy and high concentration and polarisation of the national development lead to the lack of opportunities for the improvement of the demographic situation in particular cities, especially small and medium-sized ones. Such conditions in terms of policy development mean that: 1) competition for economic and human resources can be successful for the limited number of cities and always at the expense of the other settlements due to a lack of external resources that might be attracted; 2) little can be done at the local level in order to address the surplus of deaths and ageing. Considering the Russian scale, geography and population density, the characteristics of a city's economic and geographical location are crucial in their competitiveness. Regarding the small and medium-sized cities, it is possible to conclude that the cities located close to the regional capitals or other significant larger economic centres, in the areas where natural resource extraction exists or have tourism potential can use the strategies oriented to increasing the investments of attraction and economic competitiveness. Unfortunately, very often for the majority of such cities, their attractiveness turns into vast land consuming urban development without any benefits for the existing urban environment (see cases of Mikhaylovsk and Kotel'nikovo). Other cities are mainly excluded from the competition, and their integration into the national economy seems problematic; for such cities, the attraction of new citizens is a quite complicated task under the current conditions. Being the centres of attraction for the surrounding rural areas during the Soviet period, they have exhausted population resources of those areas and have now become donors for larger cities, which grow mainly due to in-migration.

The important observation is that in-migration in small and medium-sized cities unlikely may reach a level that will support the city's population growth, especially in the years following an expected significant drop in the birth rate. As observed in the analysis in Chapter 2, the natural population decline does not depend much on local factors but refers more to the global processes relevant for the whole country. The predicted inevitable future population decline should lead to the acceptance of shrinkage, but with the absence of interested actors, it is quite a challenging task (Bernt et al., 2014). The international experience confirms and demonstrates the futility of the local efforts to face problems, whose roots lay at a larger scale (Martinez-Fernandez et al., 2012; Pallagst, Wiechmann and Martinez-Fernandez, 2013). It is especially true regarding market-oriented strategies, similar to those implemented in many American cities like Detroit, Flint, and Gary, which demonstrated an impossibility to solve cities' problems through the use of market mechanisms (Hackworth, 2014). Moreover, as mentioned before, factors leading to the weak competitiveness of cities means a necessity of the national or regional government to support implementation of strategies to face depopulation (Piro, 2016). In the Russian case, the policy against the concentration of resources and population in several poles is relevant: the solution might be searched for in such examples, as, e.g. German state policy, which aims to maintain the system of central places or decentralised concentration (Domhardt and Troeger-Weiß, 2009).

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Ageing, independently on population change trajectory, characterises the demographic development of absolute majority of settlements.

The second demographic transition in Russia is that of ageing, a common problem for both shrinking and growing regions and settlements. This fact is also confirmed by the empirical study. Moreover, the current indicators of life expectancy, which are very low in Russia compared to other countries, are constantly growing, which means an increasing share of the population in the elderly group. The fact that ageing is the common problem for nearly all Russian regions with few exceptions of ethnic republics, where the birth rate is still high, is crucial for the following reasons:

- 1) a share of the economically inactive population grows, which increases demographic and budget burden in municipalities;
- 2) ageing decreases potential migration;
- 3) demand for social facilities for children decreases with the simultaneous increase of the request for social facilities for elderly.

There are examples from the international experience (Japan, Canada or Netherlands) (Martinez-Fernandez et al., 2012; Pallagst, Wiechmann and Martinez-Fernandez, 2013), when a city had to adapt its social and transport infrastructure to the changing population age structure. That means a need for the development of common principles for the adaptation of social infrastructure, transport system and public spaces that meets the needs of an older population, but also for more flexible use, which could be changed with a fluctuating demographic structure.

Small cities depend more on both external influential factors and actors.

Shrinkage is most evident in peripheral and small and medium-sized cities (Fol and Cunningham-Sabot, 2010; Martinez-Fernandez et al., 2012) as they are seldom independent economic actors being a part of global networks of production and consumption; while their resources are insufficient, such cities are often dependent on big business and state subsidies. One-sector orientation often characterises economic development in small and medium-sized cities. Diversification of the economy is limited naturally by the population size and focuses on one sector; on the one hand it increases a city's competitiveness, but, on the other hand, makes it less resistant to the changing market conditions. Depopulation dynamics in small and medium-sized cities is usually higher than in larger ones (that is similar in other contexts), and the probability of population growth by in-migration is lower due to the reduced attractiveness of small and medium-sized cities. Accordingly, for SMSC, it is much harder to provide their policy or to argue with the decisions of big investors' on an area's development and the local municipalities are ready to satisfy any need of a potential investor even to the detriment of some self-interest.

The empirical evidence drawn from two case studies, demonstrates well a relation between small and medium-sized cities and investors. In Kotel'nikovo, the municipality, instead of profiting from the investor's appearance regarding the improvement of the existing urban environment, simply provided new land plots for the construction in the suburban area. Such decisions are surely not sustainable. Dependence on the economic performance of a single enterprise and new infrastructure construction at the expense of the investor, in the future, will increase burden on the municipal budget and, in a case of the business' collapse, will lead to the

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city's economic collapse and inability to maintain the newly created technical infrastructure. In another example, the city of Mikhaylovsk, represents an even more complicated case. The investors there, attracted by the Mikhaylovsk closeness to the regional capital, used the city's location for profitable housing construction and did not create any benefits for its economy, infrastructure or urban environment. Short-term investments in the increase of housing construction led to a short period of economic activity in the city, but at the same time led to the significant increase of the burden on urban infrastructure, and, accordingly, the city budget for its construction and maintenance without job creation. The city earns from the selling of the land, but later loses much with such short-sighted policy.

The presented examples, as well as the examples from the other countries, such as the USA, Germany or UK, demonstrate that the construction of policy for a single small city is unlikely to be effective without a comprehensive view of the wider area of development and consideration of such cities as an element integrated into a larger regional structure. In this case the experience of the European countries with a more comprehensive approach and consideration of the cities in the regional context (transformation of the Ruhr area in Germany (Martinez-Fernandez et al., 2012) or the French project of recycling brownfield sites in the areas surrounding Paris) (Pallast et al., 2009) could be more suitable for the Russian context than policies implemented in American shrinking cities with the attempts to make interventions in particular declining parts of the cities (e.g. Philadelphia or Detroit) (Ryan, 2014) or attempts to confront shrinkage consequences through citizens' participation and bottom-up projects (Youngstown or Detroit). Surely, such tools also should be used, but with the realistic perception of the local specificity and without overestimation of the capacity of local authorities and people's activism. However, the regional strategies should also not be too optimistic in orientating to the European experience: they should be adapted to the low population density, lack of infrastructure and financial resources.

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The presented results raise the following additional **demands** for the spatial planning from the necessity to consider and address depopulation issue:

For researchers: Better understanding of national, regional and local context regarding the issue of shrinkage. Deeper investigations of population change drivers from the regional to the local level. Wide comparative analysis and classification of the cities and regions according to the population change drivers for more certain problem addressing. Defining areas, regions, and cities that require specific planning policies according to their demographic problems. Investigation of the current ageing trends at different levels: national, regional and local. Development of the models and projections predicting future population structure in cities. Determination of new requirements for social facilities in accordance with the population age structure. Study of the weaknesses and strengthens of the small and medium-sized cities, threats and opportunities for their future development. Justification of the necessity of specific strategies and plans developed for the inner regional areas according to the particularity of the settlements network function. Development of the new indicators system for the improvement of the statistic data quality regarding depopulation and ageing processes. Formulating guiding principles for the assessment of the current and future demographic situation and its drivers.

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For planners and policy-makers: Stronger regional planning and individualization of the regional law on spatial and strategic planning. Increasing awareness of the nature of depopulation, expected demographic development, realistic perception of the current and future demographic situation. Evaluation of the demographic development of a particular city in the context of the regional and national situation with the consideration of the surrounding rural areas. Monitoring of the demographic situation at the local level and more realistic demographic projections. Determination of the areas that could become demographic resources for a city. Definition of priorities in policies according to the case's specificity. Preplanning studies helping to narrow a range of possible solutions. Use of the detailed projection of the future population age structure when planning; identification of weaknesses of the existing social facilities, urban transport infrastructure and urban environment as a whole regarding its fitness to the needs of ageing population. Use of flexibility and integration principles in social facilities design. Better integration and coincidence of the local planning with the regional strategies, plans, and programs. Use more efficiently state support and subsidies. The more active claim of the local particularities when participation in the regional and national strategies, plans and programs. Development of the horizontal cooperation with the surrounding municipalities (when possible), better coincidence with their planning intentions. Stimulating the participatory planning.

5.1.2. Research question: shrinkage effects already affecting the cities of southern Russia and expected future consequences.

Initially, the research question was formulated regarding negative effects of urban shrinkage due to two main reasons: a common perception of urban shrinkage as a negative phenomenon and the appearance of planning responses after the emergence of its negative consequences. After the end of the research process, I would, first, change that evaluation and rather refer to just “effects,” because in some cases they become negative due to the wrong expectations and policy and could be avoided with wiser planning. Second, I discovered that many negative processes currently happening in the cities of southern Russia, which, as I expected, were the direct consequence of depopulation, in reality, are observable even in the cities where population is growing. It is quite difficult to separate the real causes of those negative effects as they might refer to different processes, but expressed in a similar way. A comparison of socio-economic and spatial transformations in depopulating and growing cities of southern Russia, given in Chapter 4, helps to understand both commonalities and differences in trajectories of urban development in cities, affected by several global and local processes and to come closer to awareness of casual relationship between depopulation and appearing issues of spatial transformations. However, of course, a clear understanding of that casual relationship is a complex issue.

The possible effects of depopulation on cities' spatial transformations have been defined for the investigation through the urban shrinkage literature (Rink, 2012) and available data for the cities-case studies. Since the quality of the existing data does not allow for an evaluation of the influence of population decline on the cities' financial resources, it was possible to estimate only some aspects of cities' economic development and influence of population decline on cities' physical fabric. An important and even surprising observation drawn from the empirical study is that both growing and shrinking cities have many similarities in the transformation of their physical environment. Features usually attributed to shrinking cities can also be observed in those with a growing population as well. Vice versa, some expected negative effects of population

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decline were not found in shrinking cities. Another important observation is that in all cases segregation and specific transformation of the particular neighbourhoods caused by depopulation were not observed: the societies studied in small and medium-sized Russian cities are still relatively homogeneous due to the low dynamic of the in-migration process, weak attractiveness for external investors and low dynamic of economic development. However, in those cities, where business investments in the construction of new housing, trying to develop new urban districts separate from the existing urban fabric and different from the old city creates the preconditions for such negative transformations.

The spheres, in which the impact of depopulation was evaluated, were defined on the basis of urban shrinkage literature and were usually the most affected by the physical aspects of depopulation. Those spheres, discussed below, are land use and urban environment, social infrastructure, housing and technical infrastructure.

Land use and urban environment.

Starting from the most notable shrinkage negative effects, described in the literature (Rink, 2012), such as abandonment and vacancy, which transform city's image significantly, it is possible to confirm the greater influence of socioeconomic transition and globalization than depopulation in the chosen case studies. Thus, no one city demonstrated the presence of abandoned houses or vacant land in residential areas. On the contrary, all cases continue to grow with the construction of new housing (yet, with different dynamic) and extensive territorial development. Abandonment is observed in industrial zones, areas of agricultural production (which are presented especially in SMSC) and social facilities of both growing and shrinking cities. There are brownfields in each city case studies, and their spread depends on the city's profile: the larger was the share of the industrial sector in its past economy, the greater the number and area of brownfields. Obviously, the current economic situation influences significantly the presence of brownfields. For example, in Timashyovsk, still an actively functioning industrial centre, the level of abandonment in industrial areas is much lower than in the cities that lost their importance in that economic sector (such as Gorodovikovsk). Importantly, those brownfields are not the results of depopulation, but of the general process of economic transition, which is not a specific Russian feature and is observed in other countries characterising by post-industrial development (Rink, 2012).

There is also another important aspect of the analysed case studies: being small and relatively recently founded cities, the expressed territorial division of different functions and mainly peripheral location of the industrial areas characterises all of them. Accordingly, centrally located brownfields that could be interesting for renovation due to their advantageous location and are almost vacant. Despite the brownfields currently contributing most to the visual presence of decline, their re-development or sanitation meets severe financial barriers. Local budgets of small and medium-sized cities do not have such resources and they unlikely will have them in the future. There are many examples of how the brownfields have been redeveloped in other cities as e.g. Berlin or Hamburg, but similar strategies hardly can be implemented in small cities, which are not able to attract big investors. Such aspects, with the consideration of the dilapidated urban fabric observed in all of the cities, leaves little opportunities to alter the situation. More likely, the brownfields might be turned into natural or agricultural areas and normally does not require significant efforts for land cleaning or remediation due to the absence of dirty and dangerous industries in small and medium-sized cities. Accordingly, the experience of the

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American cities in the implementation of “greening” strategies, urban agriculture development and right-sizing strategies (Schwarz, 2012) seem to be promising policies in the context of southern Russia, considering the semi-rural character of its SMSC and high presence of agricultural activities in their economies.

In shrinking cities in Russia, the negative physical effects might be predicted on the basis of the experience of American and European cities. Accordingly, some preventive measures can be done, such as, e.g., implementation of Land Bank analogue for the optimisation of the land use.

Social infrastructure.

The second visible physical sign of decline in the cities-case studies is the social facilities network reduction, abandonment of those facilities and their dilapidation. Again, from the analysis given in Chapter 4, it is seen that those effects are presented in both shrinking and growing cities because of a sharp drop in the birth rate in the 1990's and a continuing population ageing. The analysis of the national strategies and programs responding to demographic changes, presented in Chapter 3, demonstrates that the issue of the social infrastructure surplus was reflected in the program of the social infrastructure optimisation and resulted mainly in the closure of the health care and educational facilities and reduction of their capacity. It does seem a natural consequence of depopulation and ageing and the reductions and closures are registered in all nine case studies.

However, a significant challenge for planning and policy-making is that the process of population age structure change is not linear and follows a complex trajectory, which is the outcome of the past demographic transformations. Thus, the dramatic reduction in the children age group after the USSR collapse resulted in the significant decrease of social facilities network in the 1990's, which is now once again in demand due to the growing number of births. Responding to this demand, the national government now finances a program for the construction of new facilities all over the country without consideration of the current population structure, which will result in a new decrease in the number of children in the near future. It is an excellent illustration of unreasonable and inefficient spending of public funds caused by the absence of specific projections and planning based on the detailed investigation of the demographic issue. The cases presented in Chapter 4 demonstrate similar changes in social facilities network: without exceptions, in both the groups of growing and depopulating cities, the number of social facilities has reduced, and now there is a deficit of the facilities of pre-school education in most of the investigated cities.

The more detailed analysis and projection of the demographic situation, presented in some cases (e.g. Alagir, Mikhaylovsk), demonstrate an expected future decline in childbirths. That means that educational facilities for children constructed today according to the current requirements will be underused in the future. At the same time, local authorities do not plan social facilities for elderly, because their planning refers to the responsibility of regional authorities, which do not consider the particular situation in every city. Still, the demand for special services for the elderly will grow and the number of health care facilities and personal care facilities in small and medium-sized cities are minimal.

Here an important issue appears. On the one hand, maintenance of the unused or underused social infrastructure is a heavy burden for the local budget; on the other hand, closure

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of social facilities leads to increasing out-migration and degrading of the nearest neighbourhoods. In Russia, the perception of the reduction of social infrastructure is extremely negative and very often, especially for the small settlements, a closure of a school, for example, leads to the subsequent settlement's demise.

All the current Russian standards on the design and construction of social facilities are too rigid, obsolete and growth-oriented. However, there are examples from the literature on adaptation of social facilities to the changing population age structure by clustering services of different areas in so-called multiple facility buildings, flexible use or re-use of the existing buildings, implemented, for example, in Netherlands or Czech Republic (Rink, 2012; Martinez-Fernandez et al., 2012; Pallagst, Wiechmann and Martinez-Fernandez, 2013). Unfortunately, such examples are rare, and in most cases, underused social facilities in shrinking cities are simply closed (Rink, 2012), but in regard to Russian cities with the lack of facilities, the strategy of their transformation might be more required. However, the current rigid regulations and standards are significant barriers to such strategy implementation.

Housing.

Evaluation of the depopulation influence on housing in Russian cities is limited by the absence of appropriate data: the information systems regarding housing conditions now in municipalities are in the process of their forming, and they refer to the residential apartment buildings, consisting of many private properties. However, in small and medium-sized cities in southern Russia, the major part of the housing is represented by the individual single-family houses, of which there is no information about their conditions and use. Moreover, the official statistic data on the share of dilapidated and emergency houses does not represent adequate information: municipalities try to not include houses in these categories because in that case, they should be responsible for the reconstruction or demolition of such houses. Often the visual observation provides different information from the impression given by the statistical data. For example, in Akhtubinsk the total share of old houses is less than 1% according to the official data, while a personal observation demonstrates a significant presence of poor conditions in the city fabric and housing.

Despite the lack of data on actual use of housing, field work helps to conclude the absence of or very little presence of abandonment and vacancy in residential areas in the cities of southern Russia. Continuing housing construction, confirmed by the statistical data and the appearance of newly constructed residential buildings, even in the fastest depopulating cities, confirms the existing demand for housing. The combination of many factors explains the situation, from the initial extreme shortages of housing in the Soviet period and limited opportunities to improve living conditions in the past, increasing incomes since the beginning of the 2000's, a wider supply in the housing market due to the private business appearance, change in family structure and model, etc. (Rink, 2012; Novak and Nowosielsky, 2008). For cities such as Mikhaylovsk, housing construction has become the main driver of population growth and, simultaneously, the worsening of its economic situation. In other cities with quite successful economic development, such as Timashyovsk or Kotel'nikovo, the dynamic of housing construction was not so intensive and sometimes even slower than in some shrinking cities (e.g. in Novoanninsky). However, two cities among the case studies – Gorodovikovsk and Zverevo – demonstrate the worst depopulation dynamic and significant slowdown in dynamic of housing construction. Moreover, the existing information on the price of one square meter of housing floor area in the Rostov

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region by municipalities shows the lowest cost to be in Zverevo, which is even lower than in the surrounding rural areas. Those factors signal the unhealthy situation in the city's economic and population development that has already resulted in a decrease of housing demand and existing housing dilapidation. The low house price is one of the main negative effects of urban shrinkage on the real estate market (Rink, 2012). This has been observed even in the Russian case, where the housing market is still characterised by a shortage in most cities.

The demolition of dilapidated housing in Russia mainly was introduced in the major cities with Moscow, the national capital, as the brightest example, where a long-term regional program was implemented in 2011-2014 and was aimed at the dilapidated houses of the first period of mass housing construction (the 50-60's). In the case of Moscow, such programs resulted from the highly attractive land cost and extremely profitability of developing companies due to the attractiveness of Moscow's real estate market. Accordingly, the mechanism of such programs is different: instead of demolition to maintain property prices, demolition in Moscow was a way to gain profit from the constantly growing housing prices in the city, which resulted from the high polarisation of the regional development in Russia. No one region or city in Russia has implemented a similar program of the same scale, even in cases with high abandonment, due to the lack of regional/local financial resources and absence of national government's support, which is oriented towards the forced construction of housing and not the balanced development of the real estate market.

Since in small and medium-sized cities supply in the housing market is still limited, segregation in residential areas is not observable in most cases. However, in those cities, where the real estate market has become attractive for the investors (e.g. Mikhaylovsk and Kotel'nikovo), such segregation appears due to the construction of new residential districts, isolated from the "old" city. In the Russian case, the newly constructed residential districts are often characterised by a lower quality compared to older housing due to developer's attempts to create an affordable offer, which in the condition of shortage and low income meets demand. Also, the state policy defines housing floor area as the only one quantitative target indicator, ignoring any qualitative requirements of the newly constructed housing. Development of new residential areas of low quality with the simultaneous lack of investments into the existing old ones has led to the worsening of the quality of the urban environmental and eventually to a significant future reduction in housing price.

However, it is tough to forecast the future conditions of the housing market due to the lack of any studies in this field, especially in small and medium-sized cities. There is no data on changing demand due to the household structure transformation or mortgage influence on housing purchases: surely such investigations are needed since expected housing construction currently defines cities' territorial development in Russia.

Technical infrastructure.

The existing information on technical infrastructure and its conditions in the case study cities are contradictory and fragmented, which makes any evaluations of its dependence on depopulation difficult. The main characteristic of the investigated small and medium-sized cities is the initial lack of technical infrastructure in residential areas formed by single-family houses and high level of physical deterioration of the existing infrastructure. It was not possible to make any conclusions based on the official statistics because they do not coincide with the real situation:

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the statistical data presents a much more positive picture. However, the statistics on the new technical infrastructure construction demonstrates a very low dynamic and inconsistency with the amount of housing construction. Moreover, most cities signal high levels of technical infrastructure deterioration and lack of financial resources for its renovation. In some cases, new housing construction might be limited by the capacity of the existing technical infrastructure (e.g. Zverevo) or, in a case of high demand for housing, it creates an additional burden on infrastructure, which it was not designed for (e.g. Mikhaylovsk). Such a situation might lead to a system wide collapse as private development companies are freed from the need to build citywide engineering networks and the municipalities, being responsible for their construction, do not have appropriate financial resources to construct them. The biggest problem in all small and medium-sized cities is the total absence of or poor conditions of water and wastewater mains and facilities (especially in wastewater systems), which influence environmental conditions. It, surely, aggravates the pre-existing conditions for the continuing out-migration in depopulating cities and also will provoke out-migration in growing cities due to the worsening technical infrastructure provision and its functioning. On the other hand, the shrinking cities in Russia might benefit from the lack of infrastructure. While Western cities have to find solutions for the infrastructure management in perforated urban fabrics (Leipzig) and right-sizing strategies (American cities) to cut services selectively, which is a very complex issue in practice, Russian cities have an opportunity to implement from the beginning the solutions, which could be easily adapted to a shrinking population and urban fabric.

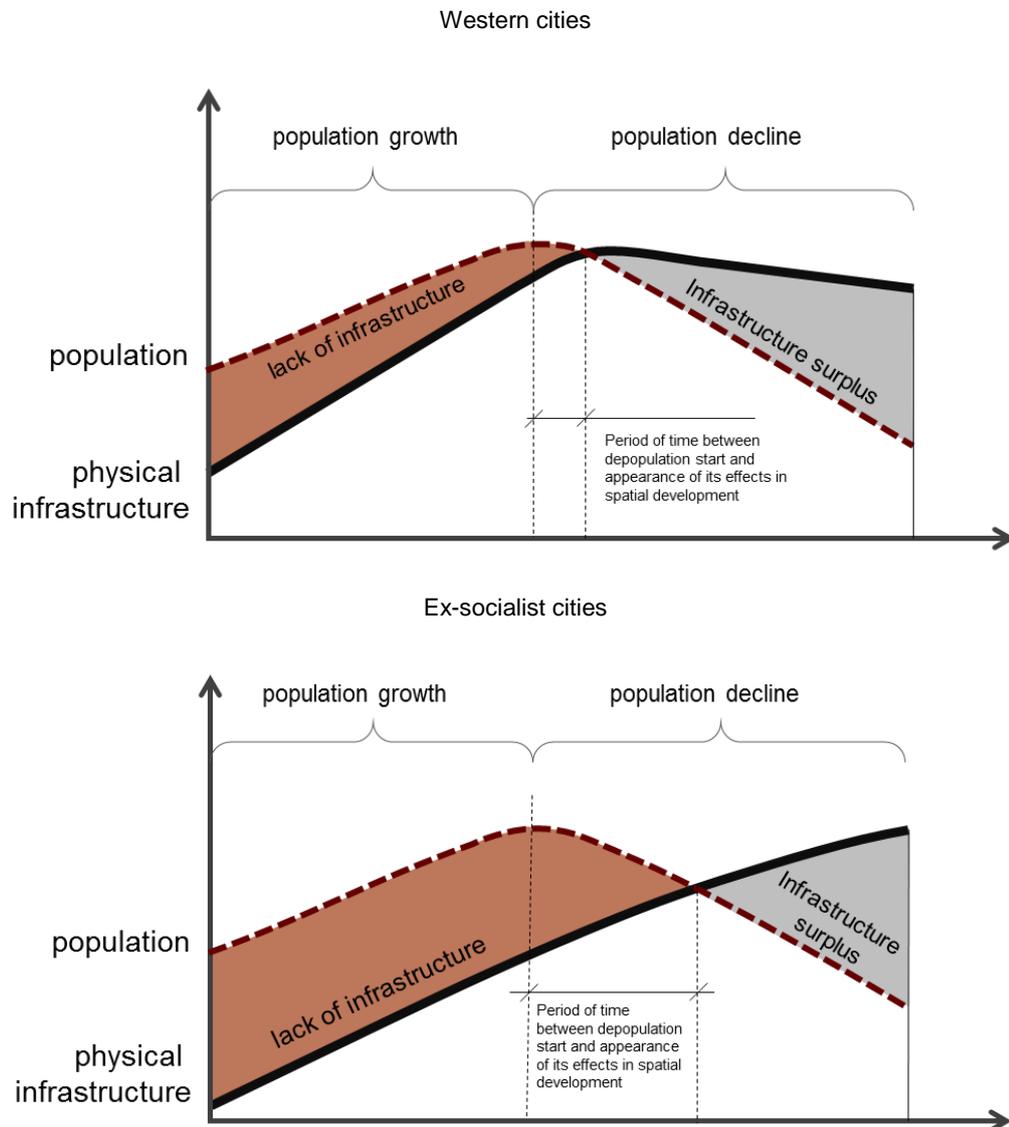
The following figure 5.1.1 demonstrates the difference between the appearance of effects of depopulation on infrastructural development in Western countries and post-socialist countries. The previous infrastructure shortage causes the time-lag in the cases of post-socialist countries.

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Figure 5.1.1.

The difference between effects of depopulation on infrastructure in developed cities and in ex-socialist cities.



Comparing the influence of depopulation on the use of infrastructure in developed countries and post-socialist countries, we may observe a longer time gap between the start of the depopulation process and a moment when the population decline results in an infrastructure surplus. This time gap is an advantage that allows to implement preventive measures and adopt planning to the new conditions of population decline.

To generalise, one can conclude that processes of spatial changes and negative urban transformations in small and medium-sized cities in southern Russia mainly result from the socioeconomic transition and not depopulation. The presence of brownfields; dilapidated housing and technical infrastructure and reduction in social facilities characterise both growing and depopulating cities. However, growing and shrinking cities represent different trajectories of those aspects of development and, accordingly, require a differentiation in approaches and tools for planning. It is important to not label the described aspects as positive or negative only:

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e.g. a slowed down dynamic of housing construction stabilises the burden on the existing technical infrastructure and concentrates on the improvement of the existing urban environment without unnecessary urban sprawl. Moreover, currently, the depopulating municipalities positively use their decreasing population number as an indicator of housing floor area provision per capita, which is used by the national government for the evaluation of the local authorities' effectiveness, thereby increasing ranking without new housing construction. Obviously, for using depopulation for the improvement of the current situation a deeper understanding and better prognosis of the future situation development are needed.

*_*_*

The following **demands** for the spatial planning in the conditions of depopulation, appearing from the findings on shrinkage negative effects:

For researchers: Evaluation of the environmental risks for the existing brownfields, physical conditions and value of the remaining buildings and the opportunities for the re-use for commercial, residential or public use. Creation of methodologies and exemplary solutions for the brownfields renovation. Development of mechanisms for a private-public relationship for more efficient real estate use. Formulation of new standards and regulations providing opportunities for more flexible use of the existing social facilities, more flexible design of new ones, methods of adaptation to the new needs and the combination of different functions in social centres for both national and regional levels. Development of tools for adaptation of the regionally and nationally formed regulations and standards at the local level. Wide investigation of the housing market trends and its perspectives in Russia in national scale and regional context. Investigation of the transformation of housing needs and requirements to the housing quality and characteristics depending on the set of different factors related to the economic and demographic development. Development of new housing standards, considering a broad range of features in contrast to the actual orientation to the only one indicator of housing floor area per capita. Introducing appropriate solutions and technologies for providing services and technical infrastructure in potentially shrinking areas (using autonomous or easily transformed or replaced system).

For planners and policy-makers: Inventory of the existing brownfields, the creation of database including adequate information concerning property rights, physical conditions, environmental situation or possible use. Inclusion brownfields into the plans of future development as the internal territorial resources. Assessment of capacity of the existing social facilities and possibilities for their flexible use. Development of organization, planning and architectural solutions for the redesign of the existing or design of new social facilities. Inventory, monitoring and adequate assessment of the actual housing use and its physical conditions at the municipal level. Planning technical infrastructure considering depopulation patterns, introducing right-sizing strategies as a preventive step for the future shrinkage negative effects development.

5.1.3. Research question: policy responses at different levels of governance to the emerging challenges caused by shrinkage.

The current Russian system of governance and planning has many drawbacks regarding the possibilities to introduce special planning policies for the conditions of shrinkage.

As observed in Chapter 3, the Russian planning system is still in transition and trying to create new regulations appropriate to the new socioeconomic conditions, at the same time keeps many features of the old Soviet planning system without having the same comprehensiveness,

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tools, and resources for planning solutions' implementation. Strong belief in the market's ability to regulate development brought the Russian government to the long-term "no-planning" period, which resulted in losing the capacity to plan effectively while recognising the process as being systemic in character. The absence of experience in planning in market conditions led to the inability to form a long-term strategic view and for long-term planning in general. Low quality of the strategies of socioeconomic development, documents of territorial planning and numerous state and municipal programs and initiatives are caused by the transitional status of planning and legislative systems, little experience in planning in a market economy, existing contradictions in approved law and regulations and system's poor managerial abilities. Moreover, planning in Russia does not require any licenses or permissions, which together with the lack of public control and system of tenders, in which low prices carry the most weight, leaves the planning decisions in the hands of private companies developing planning documents. Lack of methodological tools and clear requirements to the documents provided by the government, lack of high skilled specialists in municipal administrations (especially small ones) create the situation, in which "planning" turns to the formal creation of the required by the regulations documents, the content of which is not important and which will not be used as a real planning tool. For the development of planning documents, the old obsolete methods are usually used, oriented to the planned constant growth of cities and extensive territorial development. Moreover, planning at the local level reflects a habit of making decisions at the higher level and a low capacity for self-governance. That is why the attitude and perception of the demographic issue are often borrowed from the regional or national policies.

Strong delineation of the responsibilities between levels of government provokes fragmented planning solutions, which are not integrated into a systemic state policy. A municipality, which is not allowed to provide any proposals for planning the facilities or infrastructure, the responsibility for which is defined at the upper level (for example, regional roads or health care facilities) is deprived of the opportunity to develop a comprehensive strategic view for its future development. Vice versa, the upper levels of governance do not well consider local interests and those advantages or disadvantages that could be discovered through a joint planning. The same strong delineation of responsibilities also exists in the horizontal communication of the state structures, which is resulted in sectoral planning implemented by different ministries, when, for example, the planned transport infrastructure at the regional or national level does not respond to the needs of the economy or system of settlements.

The planning regulation also provides a sectoral approach with a strong division between socio-economic and territorial planning. Both types lack the components, which could provide a comprehensive vision and solutions: socio-economic planning ignores territorial aspects in most cases when territorial planning often does not consider economic constituent and social factors, which significantly reduces the value of such planning as a management tool. Recent changes in the law and regulations, described in Chapter 3, demonstrate attempts to strengthen a correlation between different types and levels of planning legislatively. However, those attempts are the first steps in a long way of the planning system optimisation.

Another significant disadvantage of the Russian planning system is a weak presence of scientific basis in the planning process and lack of interdisciplinarity. While in the development of law, regulations, and methodologies scientific organisations partly participate, they are nearly excluded at the stage of planning itself. As previously mentioned, the sectoral approach has

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resulted in planning carried out by the specialists from the same field with the narrow perception of the existing problems. The specialists involved in spatial planning often experience lack of knowledge on social or economic processes, among which urban shrinkage takes a special position due to its recent occurrence in history as a widespread phenomenon.

It is necessary to note that the current Russian planning system is developed on the basis of the models from abroad (e.g. using American model of zoning) and in many aspects, it does not work in the national context. Further search and development for the system optimisation are required, which should start from the data quality and access improvement.

Population decline is recognised differently by the policies at national, regional and local levels.

The results of the analysis of the national, regional and local policies and spatial planning documents in Russia, presented in Chapters 3 and 4, show a different perception of the depopulation issue from the various levels of government. Thus, the strategies and policies provided by the national government confirm their perception of depopulation mainly as a demographic issue, which is rooted in the dramatic drop in the number of births due to the socio-economic transformations in the 1990's. Accordingly, the national strategies are oriented to the demographic, family and social policies, aiming, first, for an increase in the birth rate and a simultaneous reduction in mortality. Approved in the 2007 Demographic policy concept of the Russian Federation has become a basis for many following strategic and planning documents. The period of the demographic policy implementation coincided with the entering of the numerous population of the 1980's into childbearing age, which provoked a notable increase in childbirths. For this reason, the demographic policy seems very efficient to most policy-makers, while experts in demography evaluate differently the positive changes in the current demographic situation. Obviously, the demographic policy had very positive effect: the death rate has decreased and increased life expectancy, total fertility rate also increased notably.

However, on the background of the positive change in quantitative indicators, the qualitative aspects, characterizing the demographic situation, have been changing negatively: population ageing and increasing demographic burden, sex disproportion in population structure, high level of mortality from external causes and high mortality among the working-age male population, increasing morbidity and the number of disabled people. Thus, it is not an easy task to define, determining which factors have which weight in the current demographic situation. Importantly, the national demographic policy is not differentiated according to the particular situations in the regions: it is equal for any subject of the Russian Federation. It also does not consider territorial aspects of demographic development – namely the population's spatial distribution. However, eventually, it seemed that the national government began to recognise the danger of a high spatial polarisation and the importance of different territorial development for the demographic situation in regions and municipalities and sustainable existence of the state. That recognition can be seen in the newly appeared initiatives in regional development (big events, Far-Eastern hectare program) and attempts to include spatial dimensions into the national strategic planning. Unfortunately, for now, those initiatives and attempts are the first steps, taken blindly, which will not necessarily lead to the positive changes in the general approach. In those initiatives, there is a lack of comprehensive view and deeper understanding of the causal relationship of the current processes.

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It seemed that the regional policies should compensate for the limitations of the national strategies, plans, and programs due to the close relationship with locals and better awareness of the regional particularities. Notwithstanding, the regions are "weak links" in this hierarchical system of governance: they formally are independent to develop their laws, strategies, plans and programs, but in reality only several economically strong regions can provide their specific policies different from the national one. In southern Russia, all the regions contain the measures defined at the national level and almost do not specify actions for the demographic situation improvement or development of the particular areas according to their current and expected demographic situation. The significant differences in demographic development demonstrated by the southern regions are almost not reflected in the regional policies, as shown in Chapter 3. The perception of depopulation as the temporary result of the demographic crisis of the 1990's prevails in the regional policies as well as together with the orientation to the increase of the regional attractiveness for in-migration (mainly from other Russian regions) through the implementation of economic strategies. The regions characterised by natural population growth (mainly ethnic republics) focus on job creation because increasing the population number provokes a higher unemployment rate. All the analysed regional strategies have the same disadvantages regarding comprehensiveness and consideration of the demographic issue and territorial aspects of development. The strategies represent collections of sectorial actions, which are weakly linked to each other. The population issue is mainly ignored and, if even sometimes is mentioned by a document, there are no responses included to the target goals, actions or indicators. In most documents, population is studied as labour force: some regions are preoccupied with the shortage of labour staff (the most economically developed), while the others are preoccupied with the high unemployment growing together with the population number growth. There were several attempts in the analysed strategies to classify settlements according to their significance, economic or population development, but it did not result in specific solutions for the concrete territories. All the documents ignore territorial aspects: the strategies operate by numbers and are spatially blinded. However, the disproportions in territorial development in some regions are so obvious, that it becomes a concern for the strategies' authors. However, such an appearance of the territorial aspect is likely an exception in the strategies of the socioeconomic development. Moreover, the following solutions are usually not linked to particular areas, but are used to offer general actions oriented to the improvement of the social and economic situation in a region as a whole.

The demographic policies in the regions lack a clear resource management and implementation, a unified approach to the definition of priorities and objectives and a uniform system of performance indicators. No single region includes the territorial characteristics and settlements' specifics in its regional demographic policy.

The analysis of the documents of spatial planning at the regional level surprisingly shows almost the same disadvantages as the regional socio-economic strategies. They also describe the current social and economic development of the region in general, almost without significant specifications of the particular areas, the regional resources (natural, infrastructural, demographic) regarding the functional use of the territories and some specific features for the certain areas. In some documents, the demographic situation is described with the linkages to the cities and settlements, but no one scheme of regional planning offers solutions according to the demographic issues. Most of the regional spatial plans do not correlate to the strategies of

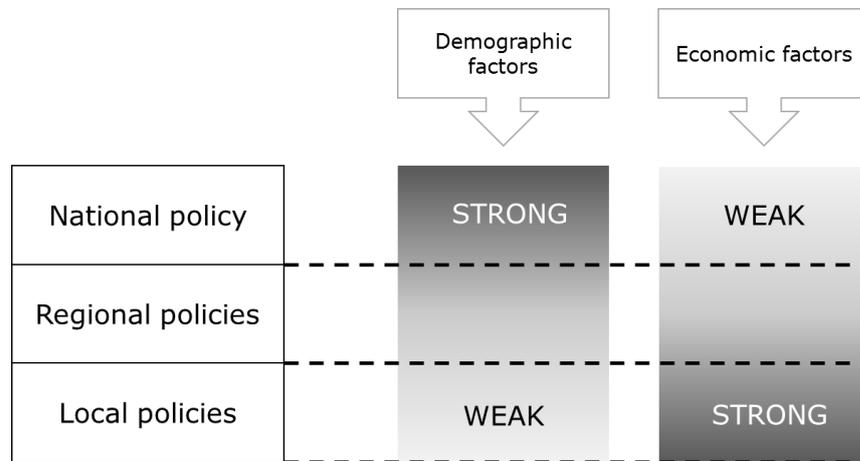
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socioeconomic development or correlate in few aspects. The planned actions and measures are not linked to each other.

At the local level, cities’ administrations do not demonstrate awareness of the nature of the process of population change. Depopulating cities consider economic drivers of population change only and do not pay attention to the excess of the death rate over birth rate. Such a perception orients their policy to the search for the investments (state or private) as a unique tool for the local situation improvement. Actually, at the local level, there is still no difference in the perception of the demographic issue by the administrations of growing and depopulating cities.

*Figure 5.1.2.
The perception of influence of depopulation drivers by the policies at different levels (on the basis of Southern Russia’s case).*



Thus, as figure 5.1.3 demonstrates, there is a contradiction in the perception of depopulation drivers by the different levels of governance and, accordingly, a contradiction in their policies orientation. Such differences are also based on power and fields of responsibility defined at each level of governance: local authorities do not have any opportunities for providing their demographic policies and the national government does not intervene on local economic development until it becomes dramatically negative. At the regional and national level, spatial aspects of population development are often ignored, while the local level does not consider socioeconomic factors and real resources for policy implementation. On the one hand, it seems quite reasonable, but on the other hand, the national level of governance lacks awareness of the regional and local diversities and needs specified approaches and tools, while the local level needs to better understand how much its situation depends on the general processes and how those processes result at the local level. The regional level should play a major role in mediation, providing necessary specifications and adapting national policies according to the local conditions.

At the beginning of the research, I assumed to find a difference in the perception of depopulation/demographic change depending on the degree of manifestation of the phenomenon. It was logical to assume that a city experiencing long-term depopulation has to plan its future differently from those that constantly growing. However, the analysis of the planning documents demonstrated the absence of such kind of correlation, at least in the chosen regions and cities: all strategies are conservative and growth-oriented. As it is confirmed by many

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authors (Pallagst, Fleschurz and Siba Said, 2017), shrinkage perception plays a crucial role in appropriate planning forming.

After a long socialist period characterised by the constant shortage of any consumer products, including real estate, construction business has become one of the important economic sectors in Russia, but also a determining factor of territorial development for Russian cities. This leads me to a conclusion that lack of housing and infrastructure currently are the main drivers for the territorial planning and urban extensive development design.

These drivers work almost equally for both growing and shrinking cities in Southern Russia. Providing by the national government policy, oriented to the increasing housing construction and including the surrounding territories into the cities' borders provokes extensive planning even in the most shrinking cities. Instead of improving living conditions, i.e. working on retaining existing residents (Hospers, 2013), through renovation and optimisation of the current infrastructure, all proposed planning solutions include new construction based on the needs of the “projected” or planned population number. Accordingly, all general plans (even those, which acknowledge depopulation) suggest extensive urban development – not only a significant increase of housing floor area but also a buildup of area, both total and residential. The most worrying tendency is that land plots for future construction are assigned in the green fields of the outskirts and suburbs of cities. Therefore, further planning for growth reinforces urban sprawl and fragmentation, while the results of the prior research (Haase, Kabisch and Haase, 2013) state that urban sprawl under the conditions of continuous depopulation reduces city's ability to confront challenges provoked by shrinkage. Unfortunately, there are some challenges, which can hardly be overcome and which are partly drawn from the previous paragraphs.

First, there are no limits for the development outskirts nor in physical nor in political terms: low settlements and population density usually means vast land resources used for the future urban sprawl. Second, the national policy does create conditions for such modes of development. Instead of implementing the European concept of the compact city, which in the conditions of depopulation seems a clever solution, Russian cities rather follow the trajectory of suburbanization. Moreover, it is possible to conclude that spatial planning itself provokes future negative effects of shrinkage by extending infrastructure. There is no tradition in negotiating with the real estate owners for the inner city's development in Russia. There is also a lack of the financial resources for the redevelopment of the brownfields. All these limitations create a serious barrier to changing the situation using the tools of the market economy (Piro, 2015). The example of Kotel'nikovo demonstrates that even big investors prefer to simplify their expenses through the construction of new urban settlements instead of coping with the problems of the existing city. Accordingly, urban planning serves the needs of the housing construction sector, instead of the city's adaptation to the situation of population decline, creates preconditions for the future shrinkage negative consequences' appearance or their aggravation. As it can be seen from the empirical study, only those cities located in mountain areas (Ardon and Alagir) are forced to search for internal land resources for their intensive development due to morphological limitations on the spread of their urban area. Accordingly, mountain cities might serve as laboratories for testing the compact city model.

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However, there is an excellent example of implementing housing renovation strategy in Russia –the federal program of housing demolishing in Moscow mentioned above. There are totally different mechanisms behind that program, but it allows testing the tools necessary for the property’s management. Considering the presence in the state's policy of such target goals as liquidation of dilapidated housing, increasing housing provision per capita and support of construction businesses, the Moscow experience might be implemented in the regions on the basis of state support (which is carried out anyway in one form or another) in order to transform inner urban fabric. In this case, the references to such implemented in other contest policies might be used: the governmentally supported demolition programs (such as Stadumbau Ost in Germany), the programs of renovation and reuse of the existing housing and facilities (such as implemented in many American or European cities) and the limitation of urban sprawl through the “compact city model” implementation (introduced in UK and other European countries). The compact city model applied to shrinking cities might avoid critique regarding densification of urban land use, because it will remain in the same parameters.

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Demands appearing from the investigation of the current policy responses to depopulation:

For researchers:

Planning system optimisation, search for the models better responding to the national context, including the creation of a basis for scientific approaches implementation. Development of the scientific basis for more comprehensive planning. Creation of methodologies and tools for better integration of national, regional and local planning policies. Formulation of requirements to the statistical database at different levels and to the other information systems, necessary for planning in the conditions of depopulation. Development of educational and training programs, increasing awareness of planning in the conditions of depopulation. Learning from the international experience in shrinking cities. Providing knowledge among planners and policy-makers about urban shrinkage as a multidimensional phenomenon. Creation of recommendations and methodological documents, allowing understanding the possibilities of different types of measures’ implementation in accordance with power and responsibilities of governance. Development of regulations for the urban sprawl limitations. Improvement of tools for negotiation with real estate owners and the redevelopment of inner urban areas. Creation of instruments for using depopulation as an opportunity to meet housing needs.

For planners and policy-makers:

More comprehensive planning based on integration into the whole system of documents from different levels and involvement of the specialists from specific fields. Inventory of the existing housing, creation of a database that includes adequate information concerning property rights, physical conditions, opportunities for renovation and planning interventions. Search for the models of housing renovation and reconstruction. Orientation to the usage of cities’ internal territorial resources when planning. Search for tools for land use intensification.

5.2. Spatial planning in a growth paradigm for depopulating areas: what can be learned from the Russian case?

Summarising the findings of the empirical study, the following section discusses the contributions the Russian case can bring into a general debate on urban shrinkage. Obviously, Russia represents a vibrant collection of cases, which differ significantly in causes of shrinkage, dynamics and effects on a city's spatial development. Moreover, this collection comes from the largest part of the post-socialist world, which, having a particular background in terms of its historical development and being currently in the process of a massive socioeconomic transformation, requires specific planning methods and tools. At the same time, it is under-examined. However, those methods, in turn, might become additional pieces in the puzzle of planning for depopulation/shrinkage/decline conditions.

Demographic issues, such as depopulation or ageing, itself are sufficient factors for spatial planning policy transformation: eventually, demographic processes will result in spatial changes.

Starting from an attempt to adapt the existing definitions of urban shrinkage to the context of southern Russia and then, using the evidence from the empirical study, I tried to understand if population decline itself is enough of a reason by itself to consider a city as shrinking. It was especially important in the situation of southern Russia, where the typically expected consequences of shrinkage include abandonment, vacancy or even infrastructure surplus are not observed. The findings allow thinking that (at least regarding small and medium-sized cities) in the condition of a demographic transition where population decline itself is a significant factor indicating a city's serious transformations, which will be sooner or later expressed in physical and economic aspects. Also, I found that some cities, marked as growing cities due to their increasing population have in fact negative changes in terms of qualitative population characteristics. Those changes itself influence urban spatial development: e.g. population age structure change transform the system of social facilities despite possible population growth. Moreover, the negative qualitative changes provoke, in the end, future population decline. Such qualitative change as population ageing have become a notable part of the urban shrinkage discussion (Martinez-Fernandez et al., 2012); however, the other qualitative characteristics influence spatial development as well. Consequently, in the context of demographic transition, urban shrinkage definition might include a wider set of demographic characteristics.

A city's geographic location is an important factor influencing urban shrinkage causes, but also policies, which can be efficient.

In their demographic processes and causes of depopulation, Russian cities are closer to the cases of European shrinking cities, in which demographic transition plays a crucial role. As in other European countries, Russian cities represent a variety of combinations of surplus in death rate and job-related out-migration. However, there are no cases of urban shrinkage caused by suburbanization. Moreover, unlike in Europe, where modern transport and communication technologies reduce the costs of peripheral location for the cities. In Russia, a city's geographic location significantly influences the dynamic of depopulation as well as the city's capability to confront this challenge, particularly in smaller settlements. The study of past Russian planning practices (during the pre-Soviet and Soviet periods) demonstrates their attention to the spatial aspects of demographic change and population distribution, which helped to prevent extreme polarisation in the regional development and to form a more sustainable national settlement system. The geographic factor is important in Russia, not only regarding the city's economic

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development, its accessibility and integration into regional/national/global network, but also regarding availability of demographic resources that a city might use to attract opportunities for municipal cooperation. The Russian case provides clear evidence of the necessity to study a shrinking city in a wider regional context (including all aspects of the socio-economic development of the particular territories) to be able to understand the process' nature and predict its further development.

Cities in the condition of depopulation obviously need planning even more than those growing due to the incapacity of market tools to manage development in decline.

In its recent history, Russia represented two extremely contrasting attitudes towards planning: from the Soviet centrally organised and strongly hierarchical planning it shifted to the “no planning” period with a strong belief in market regulatory mechanisms and a perception of planning as unnecessary. A high concentration of resources in several growth poles with the incomparable domination of the national capital and consequent polarisation of the regional development are the results of the “no-planning” period and market regulations. While for several cities, market mechanisms became tools for population growth maintenance, it came to be a dramatic consequence for the less successful territories, serving as demographic donors and slowly transforming into the anthropogenic desert. Various authors already confirm that urban shrinkage and urban growth are parallel processes, going hand in hand with globalisation (Piro, 2016). Accordingly, a balanced development is possible with coordinated planning at the local, regional and national level, which perceives issues emerging in a city in a systemic way as parts of wider processes.

For most Russian cities, urban shrinkage is unavoidable, which provokes the consequential meaninglessness of introducing growth-oriented strategies.

Due to the specificity of geographic characteristics, history, national integration into global economy, international and national policy, Russia represents a case of an urban system where the major part of urban shrinkage currently, and in the future, is an unavoidable process, which cannot be returned to growth through market-based instruments or wiser demographic policy. A common trend for most regions, with several exceptions, creates conditions in which demographic resources of the territories are very limited and in the migration competition, only the strongest economic poles will win. An overview of the demographic situation in Russia, its regions, and cities, shows that without a significant change in the national migration policy which might attract people from other countries and distribute them among regions and cities, the population number in most cities (especially small and medium-sized) will continue to decline. For now, the analysis of the national policy demonstrates the low possibility for implementing such intentions, even in a case of increasing immigration flows, their directions will focus on the largest cities, the strongest economic poles. For most small and medium-sized cities, a future population growth cannot be a real objective, but the slowdown of depopulation or termination of the process (which is less probable).

All over the world, despite the spreading discussions on urban shrinkage, increasing awareness of the process' nature, its wider acceptance by cities' administrations, growth remains the most desired trajectory for future development. In Russia, especially in small cities, this desire turns to be a “faith in a miracle,” which should happen due to the emergence of favorable external factors (e.g. big private or state investors, which will bring the city to its renaissance), resulted in

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unrealistic plans and projections for future development. However, the empirical study has shown that in the conditions of demographic transition, a positive economic development might be not enough to overcome depopulation. It is especially true for small and medium-sized cities, which have, in addition to the problem of unemployment, other disadvantages linked to the quality of the urban environment, access to social services, presence of leisure facilities, technical infrastructure, housing etc. Accordingly, acceptance of depopulation and urban shrinkage, inevitability, for many cities in Russia is a requirement for appropriate spatial planning. Small and medium-sized Russian cities have to become experimental fields for the testing of planning policies for the condition of unavoidable depopulation. Moreover, the experience and the evidence from other countries shows that such policies might be effective only if local and regional strategies are integrated to address different influential aspects of depopulation.

Urban shrinkage issue appears in the planning agenda when its influences cause notable dramatic consequences for spatial development, while the accumulated knowledge and awareness of the phenomenon's evolution allow the possibility to introduce preventive planning solutions.

The discourse on urban shrinkage could not have occurred without the manifestations of its negative effects. Most of the scientific works are dedicated to those frightening physical, social or economic transformations that appear in a shrinking city. Nevertheless, such transformations do not happen "suddenly". Long processes of economic and social changes anticipate the appearance of the visible effects. It is clear that 50 years ago it was not so obvious that the shrinkage phenomenon might spread so widely across the world. Now, when many experts predict an increasing number of shrinking cities in many countries, the continuing decrease in the birth rate and population ageing, not much has been done to develop preventive solutions. That is of particular importance in the new area of emerging shrinking issue – post-socialist countries, where depopulation occurs on the background of economic growth and intensive housing and infrastructure construction. Thus, the empirical study of the Russian cases demonstrates the meagre presence of depopulation consequences in the cities' physical structures and opportunities for planning a city, prepared for further depopulation by using the existing circumstances as a planning pre-condition. There is a strong need for the development of special tools for planning in depopulating areas, analogous to those created for growth managed through spatial planning.

Development of appropriate approaches and tools for the conditions of urban shrinkage depends on the evolution of the phenomenon's perception.

There is evidence from the international experience that changes in planning style for shrinking cities depends on the change of the perception of the phenomenon by planners and policy-makers (Pallagst, Fleschurz and Said, 2017). The perception of urban shrinkage as the exceptional temporary process is still prevailing despite growing evidence of its stability and spreading to many parts of the world. In some cities, this way of development is accepted, but usually, at the mature stage of shrinkage evolution and after many efforts to a turn to growth. Moreover, changes in the perception of shrinkage do not necessary mean fundamental changes in planning simply due to the absence of special approaches and tools. The general aspects related to the implementations of special policies for shrinkage conditions are relevant for the Russian context as well. However, the national specificity significantly complicates the change in the perception of shrinkage, which is almost impossible without the appearance of a city's important physical transformations and interested in a situation's change actors.

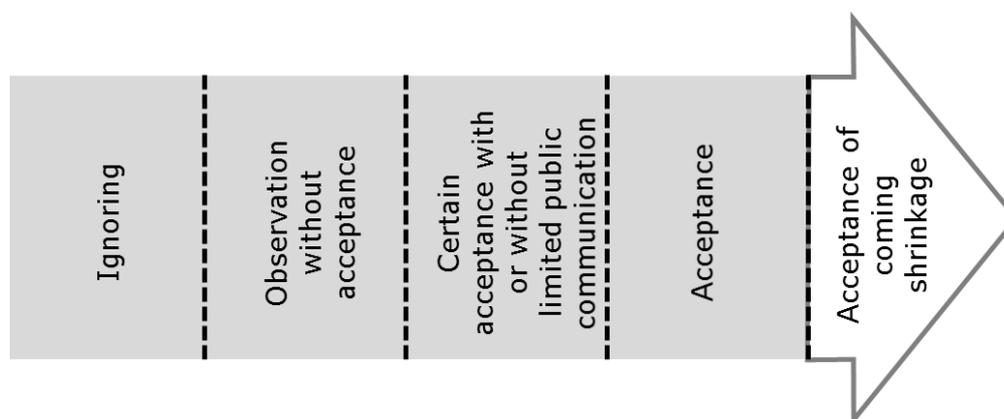
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To place the perception of shrinkage in Russian planning system into the scale offered by K.Pallagst, based on Farke, 2005, (see Chapter 3), we may say that its range in area from “ignoring” to “observation without acceptance” with the prevalence of “ignoring.” The described scheme includes four steps, where the last one is “acceptance” that means “planning for decline.” This stage introduces active strategies, oriented to the adaptation of the urban environment to shrinkage and focus on qualitative development. However, the case of Russia (and which may also be relevant for the other post-socialist countries) with its delayed reaction of physical cities’ environment to depopulation might include another step, such as “acceptance of coming shrinkage”, presented in the figure 5.2.1. This step means an adaptation of the existing urban environment to those transformations, which are not currently observed, but are expected in the future under the conditions of constant population decline and can be predicted on the basis of the international experience.

Figure 5.2.1.

The perception of shrinkage: a model based on Pallagst, 2017, with the additional step.



Such an approach is not as impossible as it might be initially considered. In a case of possible preventive acceptance, we do not deal with the costly liquidation of negative consequences, but plan for the future reduced needs of the population.

Depopulation and urban shrinkage in most cases cannot be addressed at one level of governance: the phenomenon always represents a combination of causes, which roots lay in the process of local, regional or global levels.

The Russian case confirms the importance of planning policies regarding shrinkage issue at different levels of governance due to the impossibility to adequately respond to its complexity at one level of governance. The Russian policies are inefficient due to the strong division of responsibilities between the governance level and their weak coincidence of one with another. Level aspects refers to the phenomenon causes as well as the governance level. It is known from the literature that urban shrinkage could be provoked by the global, regional or local factors and very often, it represents a combination of such factors. A difficulty appears here in the necessity to address an issue at the appropriate level, which is a problem due to two main reasons. First, when urban shrinkage is caused by the combination of processes originating from different levels, it cannot be effectively addressed by, for example, the local authority only. The only national government’s concern is not effective as well due to involuntary generalisation and simplification of the particular cases and tendencies to develop universal solutions.

5.3. Conclusion.

Developed on the basis of the literature investigation and the empirical research, the thesis represents an attempt to find an answer on how urban planning policies in small and medium-sized cities in southern Russia might be improved to more adequately address the emerging shrinkage issue using the existing global experience. The empirical study has confirmed that the signalised problem of contradiction between depopulation trends and the old growth-oriented planning is relevant for most cities in Russia due to the overall severe demographic problem and transitional condition of planning system. However, despite a common depopulation challenge, its importance is underestimated at all levels of governance. Population decline is not seen as a stable trend, in particular on the background of temporary improvement of the demographic situation described in Chapters 2 and 3. The development of special policies also faces significant institutional, organisational, financial, information, knowledge and ability limitations. It has become clear that “improvement” may be a soft word for the needed policy transformations. Currently in transition, the Russian planning system has many disadvantages and contradictions in general, irrespective of the issue of depopulation, which might be overcome with more fundamental changes than just an “improvement.” Nevertheless, considering the relevance of the depopulation issue, such changes should include new approaches and instruments taking into account the aspects related to the emerging new reality of urban development. Moreover, the current time lag in the appearance of depopulation’s consequences in the spatial development of cities due to the particularities of the post-socialist transition, creates conditions in which spatial planning itself provokes the future emergence of the negative effects of shrinkage through the planning of the extensive territorial development. Accordingly, the currently unobserved urban shrinkage is “designed” by approving planning documents and regulations instead of using the opportunity to prevent its negative effects by satisfying the actual need for housing and infrastructure through adaptation and transformation of the existing urban environment. The research demonstrates a strong need for knowledge on planning under shrinkage conditions and additional professional development for both planners and policy-makers.

Despite the research limitations mentioned in this chapter, the analysis of the national and regional trends given in Chapter 2 and chosen case studies presented in Chapter 4 provided an understanding of how wide a range of shrinkage drivers can be observed not only at the global scale only, but even within one region of one country. This fact, again, questions the possibility to develop a universal solution for Russian shrinking cities. Therefore, the current Russian policies addressing the demographic issue, developed at the national and regional levels, do not differentiate their actions according to the particularities of local development. On the other hand, local policies demonstrate a general ignorance of the current population trends and absence of understanding their nature. Meanwhile, the empirical study given in Chapter 4 shows the importance of the demographic issue for spatial planning in any scenario of population change: positive or negative. A positively changing city’s population number does not also guarantee a positive qualitative demographic development. In the current research, all the case studies, growing and declining, demonstrated population ageing and a significant reduction in younger population number.

The starting point for the Russian planning adaptation to the conditions of depopulation should be the development of an adequate database, appropriate for the deeper investigation of

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depopulation causes drivers and local conditions providing opportunities or limiting the implementation of spatial planning for shrinkage with the previous research on which data is needed. An important part of planning should be devoted to the population analysis and projections with appropriate information provision.

The current research has been carried out on the basis of the most favourable regarding the demographic situation of federal districts in Russia, characterised by the relatively stable network of small settlements. Accordingly, it represents the less dramatic cases of population decline compared to the other areas. Such a choice is explained by a desire to show the inevitability of depopulation even in positively developing regions. A wider investigation including cases from the different parts of Russia with those characterised by the dramatic out-migration and severe negative effects of shrinkage might help to create a complete picture of the depopulation influence on the urban environment and better understand the causal relationship in those negative effects on appearance and development. It also will help in analysing the factors that changes the policies coping with shrinkage. Moreover, a comparative study of planning policies of the cities from the different regions is needed to understand the change in perception of depopulation depending on phenomenon expression.

Another important direction of future research would be a comparative cross-border study on the post-socialist countries, with the focus on the ex-republics of the former Soviet Union since there is a notable gap in the urban shrinkage literature on the mentioned context where depopulation influences many of those countries. Moreover, the ex-Soviet republics are currently the main providers of demographic resources for Russian Federation in international migration. Accordingly, understanding their potentiality is an important task for the formulation of Russian migration policy. A comparative study, including cases from both ex-socialist and Western countries, will provide stronger knowledge on the particularity of the development of the phenomenon in different contexts and more efficient ways to adapt tested policies.

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Glossary of Demographic Terms.

Age-Dependency Ratio: the ratio of persons in the ages defined as dependent (under 15 years and over 64 years) to persons in the ages defined as economically productive (15-64 years) in a population.

Aging of Population: A process in which the proportions of adults and elderly increase in a population, while the proportions of children and adolescents decrease. This process results in a rise in the median age of the population. Aging occurs when fertility rates decline while life expectancy remains constant or improves at the older ages.

Age-Sex Structure: the composition of a population as determined by the number or proportion of males and females in each age category. The age-sex structure of a population is the cumulative result of past trends in fertility, mortality, and migration. Information on age-sex composition is essential for the description and analysis of many other types of demographic data.

Birth Rate (or crude birth rate): the number of live births per 1,000 population in a given year. Not to be confused with the growth rate.

Death Rate (or crude death rate): the number of deaths per 1,000 population in a given year.

Demographic Transition: the historical shift of birth and death rates from high to low levels in a population. The decline of mortality usually precedes the decline in fertility, thus resulting in rapid population growth during the transition period.

Depopulation: the state of population decline.

Divorce Rate (or crude divorce rate): the number of divorces per 1,000 population in a given year.

Economic Infrastructure: economic infrastructure includes the internal facilities of a country that make business and financial activity possible, such as communication, transportation, and distribution networks; financial institutions and markets; and energy supply systems.

Emigration: the process of leaving one country to take up permanent or semipermanent residence in another.

Emigration Rate: the number of emigrants departing an area of origin per 1,000 population in that area of origin in a given year.

Ethnicity: the cultural practices, language, cuisine, and traditions — not biological or physical differences — used to distinguish groups of people.

General Fertility Rate: the number of live births per 1,000 women ages 15-44 or 15-49 years in a given year.

Household: one or more persons occupying a housing unit.

Immigration: the process of entering one country from another to take up permanent or semi permanent residence.

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Immigration Rate: the number of immigrants arriving at a destination per 1,000 population at that destination in a given year.

In-migration: the process of entering one administrative subdivision of a country (such as a province or state) from another subdivision to take up residence.

Life Expectancy: the average number of additional years a person could expect to live if current mortality trends were to continue for the rest of that person's life. Most commonly cited as life expectancy at birth.

Marriage Rate (or crude marriage rate): the number of marriages per 1,000 population in a given year.

Migration: the movement of people across a specified boundary for the purpose of establishing a new or semipermanent residence. Divided into international migration (migration between countries) and internal migration (migration within a country).

Mortality: deaths as a component of population change.

Nativity: births as a component of population change.

Natural Increase (or Decrease): the surplus (or deficit) of births over deaths in a population in a given time period.

Net Migration: the net effect of immigration and emigration on an area's population in a given time period, expressed as an increase or decrease.

Net Migration Rate: the net effect of immigration and emigration on an area's population, expressed as an increase or decrease per 1,000 population of the area in a given year.

Out-migration: the process of leaving one subdivision of a country to take up residence in another.

Population: a group of objects or organisms of the same kind.

Population Density: population per unit of land area; for example, people per square mile or people per square kilometer of arable land.

Population Distribution: the patterns of settlement and dispersal of a population.

Population Increase: the total population increase resulting from the interaction of births, deaths, and migration in a population in a given period of time.

Population/demographic Policy: explicit or implicit measures instituted by a government to influence population size, growth, distribution, or composition.

Population/demographic Projection: computation of future changes in population numbers, given certain assumptions about future trends in the rates of fertility, mortality, and migration. Demographers often issue low, medium, and high projections of the same population, based on different assumptions of how these rates will change in the future.

Population Pyramid: a bar chart, arranged vertically, that shows the distribution of a population by age and sex. By convention, the younger ages are at the bottom, with males on the left and females on the right.

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Rate of Natural Increase (or Decrease): the rate at which a population is increasing (or decreasing) in a given year due to a surplus (or deficit) of births over deaths, expressed as a percentage of the base population.

Sex Ratio: the number of males per 100 females in a population.

Urbanization: growth in the proportion of a population living in urban areas.