Contemporary tools and approaches to urban shrinkage management

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Abstract. The paper deals with the issues of managing urban shrinkage, gives a brief description of the concept of urban shrinkage, notes the peculiarities of shrinkage in cities, as well as the shortcomings of the negative attitude to managed shrinkage from the policy and management system. Management tools of urban shrinkage in the Russian scientific and special literature have not been given due attention so far. The paper presents two approaches to the structuring of such tools, including the author's one based on the development of the concept and program of managed shrinkage in the urban-type settlement of Nickel, Murmansk region. The necessity to perceive managed urban shrinkage as an investment project with its own payback and positive social effect is emphasized.

Key words: urban shrinkage, managed urban shrinkage, spatial change management, management tools

The phenomenon of physical (developmental) urban shrinkage has been a subject of scientific interest since the last quarter of the 20th century, despite the fact that the phenomenon itself, of course, was observed much earlier. Gradually, it begins to gain the attention of both public policy and public administration in various countries. At the same time, for a long time, urban shrinkage was considered, rather, as a process which is a characteristic of rural areas. However, since the second half of the 20th century, it affects and transforms many cities around the world - large industrial centers in the recent past as well as small and medium-sized cities. At the first stages of the study on the issue of shrinking cities, the focus was mainly on the industrial cities of the United States (the so-called "rusty belt"), which is not surprising, because it was the industrial cities of the United States (and almost immediately after them ones of Western Europe) that were the first to face the consequences of the transition to a post-industrial economy. Later, as this transition began to affect an increasing number of countries, and the process of urban shrinkage of industrial cities captured most of the world's macroregions, the interest of researchers and politicians in this issue, and the significance of the research itself began to grow. It is clear that the transition to the post-industrial era is not the only reason for urban shrinkage, and industrial cities are not the only type of shrinking urban spaces. Generally speaking, it can be argued that urban shrinkage is associated with the non-competitiveness of the territory, which can be determined by various factors [1]. Urban shrinkage usually
refers to a city's development trajectory that is opposite to the desired growth. It is usually a combination of two factors: a long-term sustained population decline and deterioration of city economy. In the case of different directions of changes in these two factors, the determining factor is the dynamics of the population [1, 2]. The multidimensional nature of urban shrinkage forces us to resort to many theoretical concepts in order to get an idea of mechanisms, patterns and effects that this process triggers on a particular territory [3]. Determining the causes and consequences of urban shrinkage is complicated by the fact that the term "shrinking city" itself does not yet have a single definition, although it is used very often. An important characteristic of urban shrinkage is the change in the urban environment, or rather, its degradation. Empty buildings, unused infrastructure, marginalization of the environment - these are all characteristics of a shrinking city. Urban shrinkage processes are usually characterized by terms such as "degradation" and "crisis". This is due to the lack of theoretical conceptualization and integration of the term "urban shrinkage" in a broader urban context: the acknowledgement that urban shrinkage is often as logical, natural and systematic as urban growth is very difficult not only for politicians and managers, but for specialists and researchers. In fact, the topic of urban shrinkage is of particular importance for Russia, where most of the settlements are undergoing shrinkage. As of 2018, about 70% of Russian cities have lost their population compared to 1989, which is especially noticeable in small and medium-sized cities. Nevertheless, to date, state policy and expert discussion have focused mainly on finding mechanisms for the development of territories with a focus on the formation and development of urban agglomerations. Based on the results of studying the urban planning documentation of a number of shrinking cities in Russia, M. Gunko, Y. Eremenko and E. Batunova rightly note that neither territorial nor strategic planning often reflects the objectively existing process of shrinking and reacts to it [5]. This circumstance, however, seems to us extremely important, as well as from a practical point of view. Silencing (ignoring) the shrinkage is just as ineffective as the desire to "reverse" the situation by investing disproportionate means and efforts to turn the shrinkage of territories without competitive advantages into their urban growth, contrary to objective laws. The acknowledgment of the process objectivity allows us to concentrate on solving more realistic tasks of managing the process of urban shrinkage and, at the same time, more important for shrinking cities and their residents.

Unlike the phenomenon of a shrinking city itself, which attracts more and more specialists (in particular, in the field of economic geography) in Russia too, the issue of management tools for such cities is still very rarely studied, what is also due to the lack of empirical material. The available rather scattered experience of cities undergoing shrinkage processes with certainty indicates only one thing: there are no simple and equally successful mechanisms for overcoming the negative consequences of this process. The tools used to manage urban shrinkage depend on many factors, both objective (for example, the distance to the nearest large cities) and subjective (from the awareness of the shrinkage process itself and its perception by the authorities and residents, and ending with the activity of all actors). The process of urban shrinkage does not always have a negative connotation; in some cases, the ability to see certain positive aspects of urban shrinkage can help to choose the right tools for managing urban shrinkage. As noted above, in Russia, the practical experience of managing urban shrinkage is very limited; therefore, the authors who have studied it, in many cases, rely on the example of Vorkuta, which has essentially become a classic one, as well as a number of old industrial cities. The authors of this publication have taken an active part in the development of tools for managed shrinkage in the urban-type settlement of Nickel, Pechenga District, Murmansk Region. The selection of the urban-type settlement of Nickel was determined by the fact that, firstly, it is a typical example of a monotown, and, secondly, a typical settlement undergoing a shrinkage process. Moreover, due to the closure of the city-forming enterprise at the beginning of 2020 and the dismissal of workers, the settlement has moved into the category of monotowns with the most difficult socio-economic situation (the classification was approved by the order of the Government of the Russian Federation of July
29, 2014 N 1398-p "On approval of the list of monotowns"), and the tendency to shrink, which has been stable for 30 years, according to forecasts, will only intensify in the near future.

Taking into account the established approaches and practices, leading Russian researchers formulate a number of tools that can be integrated into three groups.

1. **Optimization and the most efficient use of resources preserved on the territory to preserve and maintain the quality of life for residents who remain on the territory** [1, 6]

   It is important to note in this regard that the management of shrinkage is not aimed at a radical change in the situation (transition to a growth trajectory), but specifically at the shrinkage and conservation of the territory with the highest possible level of comfort for people, both those who are willing to leave the territory and those who want to stay on it, at the formation of the necessary and sufficient volume of urban economy, at the most environmentally friendly reclamation of the territory, as well as at the adaptation of the social structure and lifestyle to new conditions. The reasonable management of shrinkage, if successfully implemented, will provide the population with the necessary set of social and public services, and, in general, a more comfortable and friendly social and urban environment. In brief, this is a strategy for adapting to existing reality. The essence of such a policy is to accept the effects of shrinkage and to mitigate the negative effects.

2. **Development and design of a high-quality system of recreational and public spaces, reorientation to development of tourism infrastructure and development of tourism in various forms: leisure, sports, cultural, business tourism, new construction of landmark facilities, development of cultural potential, transformation of a city into a trade and transport&logistics center**

   A similar approach, described by N. Zubarevich [6], can hardly be attributed to the management of shrinkage, since it is still aimed at attempts to ensure the development of a shrinking city. Let us specify at once that in our opinion, such tools can certainly be used, but the effect of their use is possible only in cities with the so-called underestimated (but demanded by society, economy) resources. Like N. Zubarevich, I. Starodubrovskaya (in relation to the so-called old industrial cities) notes that urban shrinkage management projects are inseparable from the rehabilitation of the urban environment, new urban planning initiatives and the development of the leisure industry [7]. Since this group of tools is proactive, sometimes their use means an attempt to counteract shrinkage. When opposing shrinkage, resources are often wasted with unobvious development prospects. Such a policy often turns out to be an ineffective diversion of resources from more promising projects (including directly related to shrinkage management).

3. **Support for population migration to territories that are more promising in terms of economic activity and ensuring the quality of life, and closure of a settlement or city using a guided resettlement model as an extreme shrinkage management tool**

   The tools of this group are distinguished by many authors [1, 6, 8], who describe them as a controlled reduction of the city's population to the optimal size (through migration), taking into account the state of the urban economy while providing social guarantees to residents who remain in the city. In this case, the management is aimed at the transition from gradual to accelerated shrinkage and is accompanied by measures to form the necessary and sufficient volume of urban economy, to adapt the social structure and lifestyle to new conditions. Resettlement (both complete and specific categories of people: for example, families with children [1]) as a tool is applicable, rather, to small rural settlements than to shrinking cities.

   In our opinion, urban shrinkage management tools can be classified depending on the functions and infrastructure of the city. This helps to shape local and regional policies in specific areas of urban life. So, for the urban-type settlement of Nickel, based on an analysis of the current situation, demographic and economic forecast, study of the relevant experience of other shrinking cities, the authors, together with other project participants, formed packages of measures for shrinkage in the housing stock and urban environment, social and public utility infrastructure, and adaptation of the economy. In particular, in relation to the housing sector, the scenario of managed shrinkage involves preservation of valuable
buildings, demolition of dilapidated and sparsely populated houses with a high level of wear and tear, new construction of low-rise buildings, and renovation of a part of industrial buildings. The preservation of valuable buildings includes measures for the repair and reconstruction, partial dismantling and renovation (reducing the number of stories of buildings, in some cases, reducing the number of entrances) of the corresponding buildings. Among the proposed measures there is also a program for the purchase and / or simplified transfer of housing to municipal property, resettlement of residents, demolition of buildings with subsequent reclamation of territories, measures for thermal shielding of buildings, for diagnostics of heat loss, etc.

The set of measures for the adaption of public utility infrastructure to the shrinking of a city includes: in the field of water supply and wastewater disposal - measures to reduce the capacity of water intake and treatment facilities, replace reservoirs and main water pipelines with those corresponding to the current and projected volumes of water consumption, measures to shut down/ preserve/ dismantle intra-quarter networks leading to demolished buildings; in the field of heat supply - implementation of projects of individual heating points serving each building, including high-rise buildings and buildings of social infrastructure; modernization of existing heating points and other measures.

A separate package of measures was developed for the social sphere as well. They include both measures to bring the material infrastructure in line with the decreased and decreasing population, and measures to improve the quality of life of people who remain in the settlement. The implementation of the concept of a compact city, which underlies the scenario of managed shrinkage, presupposes optimization of the network of social facilities (including with the use of measures for partial dismantling and reconstruction of facilities), improving of the quality and increase in the variety of services in the spheres of education, leisure and culture, improving the level of medical care, significant increase in attention to the elderly population (including the expansion of a range of services and measures for social support), strengthening of interaction between the residents and the authorities, as well as the physical shrinkage of the urban environment. Measures for the adaption and development of the urban environment include the creation of covered public spaces suitable for year-round use, as well as a system of open green and landscaped public spaces in the settlement. Measures for shrinkage of urban infrastructures inevitably affect the existing road network, urban lighting and landscaping systems, and lead to the emergence of urban voids. Therefore, urban solutions for a shrinking city must take into account the relevant processes and contain the necessary measures.

In conclusion, we note that the development of a shrinkage management scenario from the point of view of the prospects for the functioning of the city should be considered by public authorities and key stakeholders of the territory as an investment project. From an economic point of view, the basis for making a decision about managed shrinkage is the high costs of maintaining redundant and inefficient urban infrastructures in working order; moreover, the fewer residents remain in the city and the higher the wear and tear of fixed capital assets will be, the higher these costs in the long term will be. The logic of the project for managed shrinkage is that at the first stages, rather large investments are required to optimize and improve the efficiency of urban infrastructures - despite the fact that in the future, savings will be achieved from budgets of all levels for the maintenance and functioning of the city as a whole. In addition, the shrinkage project implies an improvement in the quality of life of residents who remain in the city, and with the help of measures to modernize the housing stock, public utility infrastructure, reconstruction of the urban environment and reform of the social environment; the attractiveness of the city as a place of residence for the remaining residents and, potentially, for residents of surrounding territories will increase.

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