EMERALD POINTS

# THE RUSSIAN URBAN SUSTAINABILITY PUZZLE

## How Can Russian Cities be Green?

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# INTRODUCTION

**P. Ermolaeva**

Nowadays Russian cities are facing a wide range of socio-economic, environmental, and technological risks. Many of them have taken several decades to develop, including severe air and water pollution, the "double transition" process (Yanitsky, 2018b), the redistribution of private property, changes in geopolitical situations, and the energy crisis. On a micro level, retrospective analysis shows the reinforcement of old social and environmental risks and the appearance of new ones; these include the waste crisis, air pollution, environmental injustice, citizens' low ownership of urban and environmental policymaking, and environmental conflicts. At the same time, further positive developments have been observed in cities' green infrastructure, public transport, rapid digitalization, a tendency toward the routinization of environmental values, and at a much lower degree, environmental practices.

There have been studies on these processes individually, such as the analysis of sustainability development goals for Russia (Bobylev & Solovyeva, 2017; Gurieva & Dzhioev, 2016), waste issues and practices in Russian cities (Y. Ermolaeva, 2018, 2019b), climate change (Dronin & Kirilenko, 2011; Richler, 2019), environmental activism and grassroots (Henry, 2010; Yanitsky, 2012, 2018c), Russian environmental politics (P. Ermolaeva, 2014; Korppoo, Tynkkynen, & Hønneland, 2015), and digitalization of Russian cities (Boykova, Ilina, & Salazkin, 2016); however, holistic studies of Russian cities' sustainability are very poorly investigated and critically understood by researchers. While there have been extensive studies on sustainable cities in Europe, the USA, and Asia (see for example, Al-Zu'bi & Radovic, 2018; Cohen, 2017; Caprotti & Yu, 2018, among others), the situation in contemporary Russian cities is totally unknown. However, Russia is one of the world's largest major emitters of greenhouse gases, as well as a leading global supplier of fossil fuels.

Despite some studies on the assessment of "greening" in Russia's cities, mostly written in the Russian language (see for example, Korotkov,

Trubyanov, Zagainova, & Nikonorov, 2015; Medvedeva, Kozenko, & Komarova, 2015, among others), there is a shortage of comprehensive studies performed in a qualitative paradigm. Such studies would, in addition to index assessment and generation of mathematical models, explain complex causal relationships and processes within a city, as well as identify the factors affecting the process of environmental decision-making from the perspectives of different urban stakeholders. This book addresses these gaps, offering a comprehensive empirically grounded interdisciplinary three-year study of the social-environmental situation and sustainability issues in Russian cities according to the international standards of a "sustainable" city.

The research, in the form of a case study of Moscow and Kazan, used a mixed methods approach. The rationale behind choosing the cities of Moscow and Kazan is based on their similarities and differences. They are the largest urban centers in Russia with a rapid innovative development and higher than average levels of education and income in comparison to other similar Russian cities. However, there are also differences in terms of geographic locations, the different structure of industrial and employment consolidations, and the different levels of environmental pollution and eco-conflicts. In both cities, a large number of innovative local initiatives led by municipalities and/or civil society aimed to improve the environment by reducing air and water pollution and providing efficient waste management and sustainable transport. Both cities have undergone significant recent urbanization and have higher than average levels of infrastructural advancements in comparison to other large Russian cities (P. Ermolaeva, Ermolaeva, Kuznetsova, Basheva, & Korunova, 2020). In both cities, civil society stands actively for the environment, including independent air pollution monitoring, protection of green and blue zones, protests against incineration plants, and initiatives around sustainable food consumption, cycling etc.

Desk research was used in the first stage to analyze the cities' profiles and their ecological, economic, technological, infrastructural, and social features linked to the "sustainability" agenda to assess the relevant sustainability ratings and statistics of both cities. The desk research also identified an initial group of stakeholders for the interviews while other stakeholders were identified through snowball sampling.

The analysis of mass media discourse allowed us to study how environmental discourse is portrayed and framed in the Russian mass media across two cases and identify the main claim-makers. To do so, we analyzed 10 national Russian online media which represent different perspectives: official (RIA Novosti, TASS, Rossiskaya Gazeta, informational agency RBC, Izvestya, Kommersant) and alternative (Meduza, Vedomosti, Mosckovsky Komsomolec, Novaya Gazeta).

All of the abovementioned newspapers are ranked among the most popular in Russia according to their audience numbers. The regional press is represented by six e-journals: M24.ru, RIAMO, mospravda.ru, Business-Online, Tatar-inform, Vechernya Kazan. The given newspapers were chosen because they have varying circulation figures and target audiences. The items from online media were studied from September 2017 to December 2018.

Purposive sampling, based on theoretical saturation, enabled the selection of 60 professionals for semi-structured interviews, including urban professionals, representatives of environmental non-governmental organizations (NGOs) and grassroots, academics, and regional proponents. The questions addressed the experts' in-depth assessments of the key features, challenges, and tendencies of sustainability transitions in selected Russian cases. The quantitative component of the study employed multi-stage stratified sampling to select representative samples of the Kazan and Moscow population aged 18 years and above ($n$ = 1,500). The samples were representative of the cities' population with regard to gender, age, and geographic location. Interviews with professionals were conducted in 2018, and the survey was carried out in 2019.

The mixed methods approach allowed us the triangulation of "thick" contextual data and generalizable representative statistics to critically reflect on the behavioral, technological, and economic "readiness" of different groups of Russian citizens for transition to "sustainable" city standards, new environmental values, behaviors, and technologies.

**Chapter 1. Russian Sustainable Cities: "Putting the Puzzle Together"** opens with the authors' conceptual and methodological perspectives for studying sustainable cities in Russia. It provides an analysis of the historical, social, economic, and political contexts of their development. A critical analysis of the existing methodologies for measuring the sustainability of Russian cities is introduced as well as the key indicators that will be further conceptualized by the authors in the form of a puzzle.

**Chapter 2. Puzzle 1: Air and Water Quality** portrays the population and stakeholders' assessment along with hydrological monitoring on the quality of the air and water in Russian cities; it identifies the key problems and solutions.

**Chapter 3. Puzzle 2: Sustainable Transport and Mobility** provides critical reflections on the sustainability of transport and mobility systems in the post-soviet Russian landscape. The author portrays both positive and negative trends in the Russian transport system and its shift toward sustainability, including the cancellation of trolleybuses and tram routes, on the one hand, and the introduction of electric buses, new cycling trails and car-sharing programs, on the other.

**Chapter 4. Puzzle 3: Energy Efficiency and Energy Consumption** discusses the energy system of Russian cities, which was modeled on a centralized and affordable basis for every citizen and is controlled by state structures to ensure relatively low electricity consumption tariffs compared to Europe. The author shows citizens' attitudes and practices toward household energy consumption, key trends in the renewable energy market and acknowledges the major barriers to sustainability energy transitions such as energy justice and energy poverty issues, the infrastructural barriers, undeveloped "green" technologies, and the legal base.

**Chapter 5. Puzzle 4: Waste Management** provides a debate on the most controversial and urgent environmental issue for Russian cities– the problem of waste. The authors argue that for the last 20 years the waste management system in Russia has been in stagnation because there is a conflict among various groups, which try to lobby certain waste management technologies. The chapter also analyzes household waste consumption practices and the key challenges and "waste" conflicts in cities.

**Chapter 6. Puzzle 5: Green and Blue Zones** covers the issues of the "green" and "blue" infrastructure such as green spaces, rivers and lakes, stand condition and stability of plantings in the urban environment, accessibility of parks for citizens, creating parks and squares in residential areas, and providing care for them. Although these issues have become a priority for municipal authorities in the framework of urban development programs, citizens acknowledge certain problems which the chapter discusses.

**Chapter 7. Puzzle 6: Environmental Governance and Politics** demonstrates how grassroots groups and professional ecologists try to impact municipalities in situations of environmental "deinstitualization". It argues that the population has a high interest in environmental issues and uses various instruments to voice their concerns including social media, meetings, and petitions; however, the outcomes are uncertain.

The **Conclusion** section summarizes the main findings of the book and suggests strategies on how to promote sustainable cities in Russia based on the recommendations from key stakeholders' groups as well as the future prospects of the research under the new socio-economic and epidemiological risks.

# 1

# RUSSIAN SUSTAINABLE CITIES: "PUTTING THE PUZZLE TOGETHER"

**P. Ermolaeva, V. Korunova, O. Basheva, and Y. Ermolaeva**

In the early 1990s, the Sustainable Cities Program by the UN is being established. It implies the creation of "sustainable cities" through the means of powerful local governments and the active participation of all parties concerned. In 1999, the UN published guidelines on the creation of institutes for eco-friendly city management (UN-Habitat-Nairobi, KE, United Nations Human Settlements Program, & UNEP-Nairobi, KE., 1999). The incremental reappraisal of capitalist values and economic recession also provided the impetus for the search for alternative forms of socio-economic development of the society. The concept of a sustainable city appeared, one of the most common sustainable urban development concepts nowadays (Pickett et al., 2013). A sustainable city adheres to the strategy of a long-term and balanced social, economic, and material-and-technical development, where natural resources are used efficiently and acceptable levels of the human impact on the environment are established (Hamman, Anquetin, & Monicolle, 2017; Karlenzig, 2007). The main concepts of sustainable urban development are "Garden City," "Ecocity," "Compact City," "Low Carbon City," "Green City," "Sustainable City," and "Smart Sustainable City"(Caprotti, 2014).

Because of the drastic changes in the social order of Russia and critical states (wars, changes in the forms of social production), no single development pathway of a sustainable city concept could form in the Russian science and practices. Many of the Russian scientists' ideas were borrowed from their Western colleagues, but it is also possible to track the development of original concepts distinctive to the Russian context. Researchers have noted (Yanitsky

& Usacheva, 2017) that almost none of the sustainability concepts were implemented fully by Russian city planners for various reasons (resource issues, organizational troubles, etc.).

In Russia, sustainable city concepts stem from Vernadsky's concept of a noosphere (Vernadsky, 1991). Scholars and practitioners of environmental protection looked for more efficient approaches to the optimization of natural resource use, from modeling the management of complex regional and global processes of transition to the noosphere to developing resource-efficient and low-waste technologies. They were looking for eco-friendly approaches to urban development in the areas of management, education, technologies, and construction. Still, as territories and economies grew, such approaches were becoming increasingly difficult to implement. This is why the only significant results of a comprehensive ecologization were achieved at the level of rare individual enterprises and their subordinate settlements in the USSR (Basheva, 2017).

In Russia, before the revolution of 1917, Howard's garden city concept was applied when designing suburban residential and dacha settlements commonly deprived of an industrial zone. This concept found its realization in such towns as Chaykovsky in Perm Krai, Slavutych in Kyiv Oblast (built for the evacuated personnel of the Chernobyl Nuclear Power Plant), resort towns, scientific centers (Zelenograd, Pushchino), and closed towns with little production other than constructions and municipal services. In Russia, a garden city concept was perceived as an opportunity to create green and well-adjusted to the environment suburban residential settlements with low-rise dwellings. Several projects of such garden settlements were developed, even though the most outstanding of them remained unfulfilled. In the Soviet era, Howard's ideas were first supported, but by the end of the 1920s, they underwent ideological criticism and prohibition because the concept of a garden city turned out to be incompatible with the institutional and management doctrine of the Soviet authorities (Meerovich, 2009).

Among the Russian concepts of ecologization, combining both theoretical and practical aspects, Ecopolis Program of Pushchino is the best known (1980–1985, Ekologiya malogo goroda, 1981; Safroshkin, 1991). A special committee was formed to develop a program of comprehensive urban ecologization called Ecopolis. An "ecopolis" is a new-generation city practising the conjugated development of the nature and the society The intended result was the creation of an ecologically and psychologically optimal environment consistent with the needs of a human as a biological and social being and permitting the existence of natural ecosystems in the city and nature (Safroshkin, 1991). For a city, the main principles are represented by

environmental upbringing and education and eco-oriented practices of the population and authorities.

In the early 1980s, the concept of a Biotic City developed by Tetior was proposed (Tetior, 2016, 2017). Settlements are supposed to feature favorable conditions for the existence of all living beings, including flora, fauna, and humans. The all-inclusive development of flora and fauna in a city is considered essential for the comprehensive development of a human as a representative of the living world and nature. Tetior outlined the principles of biopositivity, or ecologization of human activity, such as negentropy, homeostatic equilibrium with the environment, equivalent substitution, biosphere compatibility, deep bio-analogy, ecological support, environmental restoration, beauty, harmony, and proportion with nature (Basheva, 2017).

Since the mid-1990s, as part of the "Environmental Cities of the Future" project, efforts have been made to ecologize historical Russian cities, such as Tobolsk, Kirishi, Tikhvin, etc. The ecologization concept inherent in the project overall matches the global tendencies implying the transition toward the sustainable urban development (Grigoriev & Ogorodnikov, 2001). The project unites several programs aimed at the ecologization of the said cities and tackling a wide range of city-planning and social matters, such as immediate city-planning issues, the issues of land-utilization, urban environmental monitoring, urban landscape renovation, waste removal, energy-saving, utilization of alternative energy sources, purity of air and water, transportation, public participation in the ecologization of the city, managing legal aspects, and developing eco-friendly businesses.

In 1996, Russia officially confirmed its participation in implementing the global sustainable development concept. In Russia, the principles of sustainable urban development are found in numerous strategic documents, federal and regional laws, the strategic development plan of the country and its territories. They serve as the key component of Goal 11, "Make cities and human settlements inclusive, safe, resilient and sustainable," of the United Nations Agenda 2030 for Sustainable Development. However, there is no systematic or consistent implementation of the principles of the sustainable development of Russian territories with laws and regulations. At the governmental level, sustainability is perceived to satisfy the need of the government and the society in the economic well-being and development and the realization of smart, sustainable city goals in the digitalization of the urban environment.

The main provisions of this concept were reflected in the most comprehensive way in the National Environmental Action Plan of the Russian Federation for 1999–2001 that did not receive sufficient legal power. The Federal Environmental Protection Law and the Ecological Doctrine of the

Russian Federation enacted in 2002 include the principles of transitioning to sustainability, and goals, objectives, and areas of focus based on the environmental policy principles. Besides, the Environmental Doctrine also attributes particular importance to the sustainable development of regions, which served for the development and enactment of the Federal Target Program "Sustainable Rural Development in 2014–2017 and for the period until 2020" in 2013. However, the mechanisms intended for the solution of the issues listed in these documents are not compliant with the sustainable development requirements.

The complexity of finding a compromise between the ecologization of life and ensuring the economic development of the country serves as the main reason for the absence of an approved strategic document stipulating the transition to sustainable development, work on which began after a corresponding Presidential order in 1994 (Shelekhov, 2002). Instead, the Environmental Security Strategy of the Russian Federation until 2025 was accepted in 2025. It includes such public policy objectives as environmental preservation and restoration and ensuring the high quality of the environment for the well-being of people and sustainable economic development (Kremlin.ru, 2017). Later, the quality of the urban environment was also referred to the possibility of performing open remote management, or smart management, reflected in the smart city concept enacted in 2018 (The Center for Strategic Research "North-West", 2018).

The goal of this project is the development of a smart, sustainable city where the system of informational and communicational technologies ensures high living standards through the establishment of smart energy and mobility systems and smart solutions in the areas of medicine, education, construction, safety, environmental protection, etc. In compliance with these requirements, the project enacted in Russia is aimed at increasing the effectiveness of the urban environment comprehensively, including the creation of a competitive, manageable, technologically advanced, safe, and comfortable infrastructure (Ministry of Construction, Housing and Utilities of the Russian Federation, n.d.).

But the stipulated objectives feature fewer comprehensive solutions. Thus, according to the analytical report on implementing smart technologies in Russian cities, the majority of projects realized nowadays are characterized by strict localization (The Center for Strategic Research "North-West", 2018). It is mostly reflected in placing greater focus on the smart resolution of the issues of basic computerization, public security, and transportation and its energy efficiency, as over 80% of all projects implemented in Russia are aimed at tackling these matters. In comparison, the share of projects aimed at