Main Principles of Comprehensive Approach to Formation of Comfortable Urban Environment

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Abstract. Under increasing competition for high-quality human resources crucial for contemporary civilization development, the requirements for the quality and comfort of living spaces undergo drastic changes. The purpose of this article is to give some ideas about the comprehensive approach principles for the formation of a viable urban environment. Based on the sustainable development theory, economic theory, as well as project and structural approaches, the authors propose a system of principles for the formation of a viable urban environment. Their novelty is in the consideration of the cyclic dynamics of urban development processes in management, facilities, and resources; the comprehensive use of the structural approach; the focus on the achievement of long-term benefits from the results of the transformation of the urban environment, etc. The use of the suggested comprehensive principles will help support a significant acceleration of urban development processes.

1. Introduction

The modern city is a complicated system comprising material and non-material elements of people’s lives: architecture and space, nature, as well as spiritual, informational, financial, industrial, social, cultural, and utility aspects. They are included in the economic streams and reserved but they also form a complete and structured space irrespective of their type and functions. According to the UN data, about 55% (4.2 billion people) of the world's population live in cities, and by 2050, this figure will grow to 68% [1]. This rapid growth of urban populations intensifies the competition for development resources, including high-quality human resources. Research [2] shows that people prefer the quality of the environment to salary levels when choosing a permanent residence location. As a result, cities with a better environment receive a multiplier effect: along with the improvement of their environment, the quality of human resources also increases, and that, in turn, indirectly provides the city with extra resources for further development.

The urban environment, its quality and comfort are studied by both individual researchers [3,4] and entire teams of the authors in Russia and abroad. The relevant areas of contemporary research of spatial economics include quality assessment for urban life as a component of the city’s appeal to residents and businesses[5]; the use of bridge-funds as a new instrument for the development of urban environment [6]; the analysis of sustainable development problems and their evolution in cities [7,8].
The comprehensive discussion and study of cities produced a classification based on several various evidence-based indicators that help make a rating of cities, for example, the City Sustainability Index [9], Sustainable Development Rating of Russian Cities [10], Environmental Rating of Russian Cities [11], Digitalization Index of Municipal Economies in IQ Cities [12].

One should note that currently, municipal authorities have assessment tools that help them understand their cities’ development level and controversies, identify and determine priorities for existing problems, etc. However, the majority of authorities have no idea how they could solve the pressing problems in advance and with a forward-thinking approach, which pushed the authors to develop the existing approaches towards the provision of comfortable city life conditions with a view to newly-forming development trends and the accumulated foreign and domestic experience. Before developing a full-scale comprehensive approach to the formation of a comfortable urban environment, it seems feasible to identify the main principles that can serve as the basis for further research.

2. Materials and methods

The developed comprehensive approach to the formation of a comfortable urban environment (Figure 1) is based on the following:

- sustainable development theory viewed in cyclic dynamics. The stages of the economic cycle of development can be characterized by the features of selecting and using special tools for the development of a comfortable urban environment, which should definitely be accounted for in the relevant content, composition and structure requirements;

- bases of economic theory that help correlate the circulation of capital with sustainable production growth in both real estate and urban space in general. In economic phenomena, capital is addressed in both material and non-material form, both of which are characterized by the specific features of turnover that should also be accounted for;

- project approach formats that unify all the stages of the development of a comfortable and viable urban environment from the development of project documents to the improvement of specific territories in the city.

With a view to the above said, the study of a comprehensive approach to the formation of a comfortable urban environment includes the following blocks:

1. Theory, including the analysis of the terminology structure, urban environment properties, and formation processes.
2. The methodological framework for problem analysis lies in the identification of main challenges, as well as the classification of urban development goals and bases, assessment tools, along with the study of the approaches to the assessment of the urban environment and the analysis of its compliance with the sustainable development principles.
3. The modeling of the sustainable development of the urban environment stipulates for the development of methodological approaches to sustainable development management in cities under transformation.
4. The practical application of the approach stipulates building a development path for a viable urban environment based on case studies.
Figure 1. The framework for the comprehensive approach to the formation of a comfortable urban environment.

To achieve the first goal of the research, it is necessary to formulate the basic principles of the comprehensive approach during the first stage (Theory). This will facilitate the development of a proper toolset for the formation of a comfortable urban environment.

3. Results and discussion

Authors’ suggestions largely rely on the following basic comprehensive approach principles for the formation of a comfortable urban environment:

1. Legislative recognition in territory planning and urban development documents of the standards and regulations for the formation of all components of a comfortable urban environment at any stage of their life cycle.

   The implementation of the first principle implies the obligatory compliance with standards and regulations, which requires amendments to be made to strategic planning and urban development documents pertaining to design, project implementation, operation, and liquidation. First of all, the full coherent formation cycle for the comfort and quality of the urban environment must be assured by way of approval and implementation of basic documents.

2. Structuring, prioritizing, and accounting for the components of the urban environment at all of the management cycle stages, including forecasting, planning, financing, implementing, assessing, control, and adjustment.

   The preceding research works were based on the classification of component composition with further quality indicator listing for the living environment [13]. The application of the level structure method helps take into account the multilevel space of living environment quality indicators. Special attention must be paid to the study of microdistrict (quarter) units as urban micro-spaces. Here we must solve the problem of protecting residential areas from wrong and unpromising development decisions that can aggravate the living conditions due to the excessive buildup density, the decrease of green areas, courtyard spaces, etc. The structuring and accounting of all urban environment components will help calculate a probable combined effect of the implementation of specific actions [14,15].

3. Keeping the balance of interests of all urban development entities involved in all life processes in urban space (environmental approach).

   The increasing demand from the society to change values leads to the realization of the imperfections of the urban environment being created [16,17], which in the long-term leads to the stagnation of cities and the loss of their quality labor resources, thus leading to a general economic
downturn in the country. Experience shows that it is impossible to make a perfect environment without balancing the interests of the key investment and construction parties that create the ecological well-being, workplaces, safe space, social setting, public communications space, service sector elements, etc.

4. An engaging and comprehensive accounting for resource types available to the city that are necessary to form and develop an urban environment.

Contemporary contexts of urban development still need financial, material, engineering, and labor resources, yet at the same time they increasingly put the focus on the engagement with non-material development resources like the new organizational mechanisms to support business, such as coordination centers, innovations, cluster development, etc; information portals and platforms; educational projects, etc. Their economic feasibility has been many times confirmed in practice [18]. Due to this, it is necessary to engage all urban resources for effective elaboration, operation, and development, as well as effective liquidation and scrapping of obsolete real estate properties [19,20]. The rates of development and the extent of changes in city territories are limited by the budgets of various levels and types. Structuring territories and preparing development models for each of them will help support the economically feasible allocation of the resources available to the city.

5. The application and adaptation of the best and promising practices and cases from Russia and abroad to develop the urban environment in terms of economic feasibility.

The analysis of the best practices for the transformation of the urban environment showed that apart from future commercial efficiency, it is necessary to consider their budgetary and social efficiency. The speed of the development process change requires proactive decisions and long-term benefit assessment. In this case, there will be an opportunity to forecast future tax income for budgets of various levels. As a result, municipalities will be able to analyze project solutions suggested by different developers and select those that will ensure the best social and economic effect in the long run. It will also help take timely action to maintain the balance of interests between all economic entities involved in the formation of an urban living environment.

6. Institutionalization of urban development processes to assure the technical uniformity of urban development project preparation, support, and implementation.

The goal of institutionalization is the alignment, formalization, and standardization of urban environment development processes. Taking into consideration the requirements of the 5th principle, it is necessary to adapt the positive experience and to account for the development features of the alternative. It is important that the institution created embraced the continuity of development of various urban life formats and provided for the development of an advanced sustainability strategy for environmental modernization.

7. The responsibility of all urban development parties for the results of urban environment formation, operation, and upgrading works.

The clear understanding of which party is responsible for specific elements of the urban environment will help reduce the problem-solving time in the city, improve the distribution of budget between municipal authorities, and simplify the interdepartmental interaction in urban development. To implement this principle, it is necessary to prepare a responsibility matrix for the key parties in urban environment formation that would specify the key elements of the urban environment and those responsible for their design, financing, construction, operation, as well as authority, the business community and social organization reconstruction (by level).

8. Continuity of urban environment upgrading at all management levels and all life cycle stages.

In practice, the upgrading continuity principle is manifested in the preparation of the cyclic dynamics parameters for urban space quality and viability indicators as the basis of adjustments made to regulatory documents for urban development. This principle is also important for the implementation of actions to support positive growth trends and searching for methods of mitigating negative impacts.
9. Synchronizing sections, projects, and actions in urban development programs for transport, engineering, and social infrastructure, rehousing people from decrepit and dilapidated dwellings, etc.

This principle is implemented by coupling project and action implementation schedules, their resourcing, and contractor loads. It is vital to understand that project and production capacities of construction companies, resource providers, vendors, as well as the investment opportunities have rational restrictions. If an urban development program stipulates for accelerating or eliminating the disproportion in real estate, the associated processes must not be desynchronized as it may result not only in stranded benefits but also in direct losses.

10. The changing of the subject matter, composition, and structure of urban environment assessment criteria depending on the changes in the current and forecasted level of consumer preferences.

The level of comfort and quality of the urban environment can be measured during its moral and physical obsolescence, simple reproduction rates, and expanded reproduction parameters, as well as by the preference changes of the key users of the environment and consumer behavior models. The lifestyle dynamics of the dominant environment user must also be taken into consideration. It means that the criteria have to be volatile and the faster the changes are introduced to the evaluation instruments, the more viable and relevant is the urban environment created.

11. The full implementation of administrative resources at all levels of hierarchy.

With respect to the federal and regional authorities, municipal authorities, play a special role in modern development practices. They can produce the best assessment possible for the preferences of the city residents, as well as their expectations and causes of their dissatisfaction. The municipal level accumulated the powers necessary to initiate and implement changes in the city. Being a non-material resource, administration plays a key role in today's Russia [21]. It must be engaged and used effectively.

4. Conclusion

The suggested principles fully take into account various aspects of urban life, as well as the interests of the main participants of urban development, the availability of resources, and the existing legal restrictions. The formation of a comfortable environment from the development of basic city-building documents to the operation and update of specific amenities will help support a significant acceleration of urban development. The requirements formulated by the authors represent a default composition of principles. They need practical testing to help create evidence-based filters for inefficient management decisions. The development of a comprehensive approach to the formation of a comfortable urban environment using the basic principles proposed in this research will help develop correct theoretical bases for the approach suggested and start full-scale development of the methodological framework of the research.

5. References

[1] Miklashevskaya A 2018 Two-thirds of the world's population will live in cities Kommersant
[2] Bokov A V 2019 Environment: yesterday, today, tomorrow Construction expert
[3] Park R E 1915 American journal of sociology 5 577–612
[4] Kuznetsova O P and Yumaev E A 2010 Journal of the Ural State University of Economics (Izvestiya Uralskogo gosudarstvennogo ekonomicheskogo universiteta) 3 113–18
[5] Castanheira G and Bragança L 2014 The Scientific World Journal ID 491791
[6] Yaskova N Yu 2013 Proceedings of Irkutsk State Technical University (Vestnik Irkutskogo gosudarstvennogo tehnicheskogo universiteta) 10 380-82
[7] Simon D et al 2016 Environment and Urbanization 28 (1) 49-63
[8] Li B, Chen C and Hu B 2016 Environment and Urbanization 28 (2) 515-34
[9] Bobylev S N, Kudryavtseva O V and Solovyova S V 2014 Economy of Region 3 101–10
[10] Sustainable Growth Management agency 2012 Rating of sustainable development of cities of
the Russian Federation (Moscow: Sustainable Growth Management agency) p 46
[11] Ministry of Natural Resources and Environment of the Russian Federation 2013 Ecological rating of cities of the Russian Federation (Moscow: Ministry of Natural Resources and Environment of the Russian Federation)
[12] Ministry of Construction and Housing and Communal services of the Russian Federation 2019 IQ Index of Cities of the Russian Federation (Moscow: Ministry of Construction and Housing and Communal services of the Russian Federation)
[13] Sarchenko V I and Khirevich S A 2016 The Economics of Construction 4 23–31
[14] Sarchenko V I and Khirevich S A 2016 Problems of modern economics 2 182–86
[15] Aghaabbasi M, Moeinaddini M, Zaly Shah M and Asadi-Shekari Z 2017 Journal of Transport and Health 5 97–112
[16] Sarchenko V I 2015 The Economics of Construction 2 36–41
[17] Ibanez E L 2011 Environment and Urbanization 23 113-17
[18] Viktorov M Yu and Kazansky N V 2019 Public Administration 6 72-77
[19] Yaskova N Yu 2014 Real estate: economics, management 1-2 52-61
[20] Kusch-Brandt S 2020 Resources 9 38
[21] Kamenetskii M I and Yaskova N Yu 2015 Studies on Russian Economic Development 2 124-31