

15th International scientific conference “Underground Urbanisation as a Prerequisite for Sustainable Development”

## Integrated management of underground space center of Moscow based on the development of metropolitan objects

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### Abstract

Examines distortions of spatial development of the city of Moscow and the resulting urban planning, transport, social problems of the Centre of the metropolis. It is concluded that the efforts made by the Government of Moscow measures may be insufficient without strategic direction orientation of integrated urban underground space utilizing the potential of the city and especially its central zone. Reviewed the background and direction through the development of urbanization of underground objects. Provides suggestions for the justification and the preparation of a new master plan for the city, improve other instruments of urban management. Also provides specific recommendations for the optimization of the underground transport network in the central part of the city by embedding new stations on existing radial lines and justify slopes of underground, taking into account the geological conditions (with the creation of 3D models for this purpose). The basis of urban planning should become a principle of consideration of underground space as an integrated resource land. Proceeding from it, on an example of underground objects (like infrastructural skeleton of the city) are creating a spatial direction underground-ground systems, as well as improving their energy efficiency and utilization of recoverable materials. It is concluded that, despite the complexity of the tasks, their solution (with proper organization in the system of State Administration) is possible. It significantly will contribute to the achievement of the declared goal of sustainable development of the Russian capital.

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Peer-review under responsibility of the scientific committee of the 15th International scientific conference “Underground Urbanisation as a Prerequisite for Sustainable Development”

**Keywords:** potential geo-city resources, integrated and systematic development of underground space, optimizing the network of subway, sustainable development.

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## 1. Introduction

In Russia the centripetal trends significantly contributed to growth in the resettlement of residents of Moscow-the most populated cities in Europe. In the capital of Russia has more than 12 million people, and, taking into account the immediate suburbs, more than fifteen. While labor and, particularly, the administrative and business activities, as well as the cultural, commercial and entertainment activities and tourism are concentrated in the historical core of the city, which occupies only 3% of the area of the city (attached). So in the central administrative district of Moscow are major political, cultural, financial, and trade and business functions, more than 80% of all workers in the city, and the day population can exceed a quarter of a million people. At the same time, the majority of Muscovites live in high-density peripheral areas of the city of Moscow. Many people come to work in the Centre of the capital from the suburban areas. Pendulum labor migration in the monocentric radial-ring structure and insufficient transport infrastructure density of Moscow led to critical transport situation and environmental problems. Development Centre of Moscow is also serious difficulties owing to the shortage of public spaces, recreational, as well as some social and engineering services, lack of storage facilities and private car parking lots, green spaces. The problem is complicated by the concentration of the majority of objects of cultural heritage here, requiring protection by prohibiting or restricting development.

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Awareness of the disparities of territorial development have led to the adoption in 2012, at the federal level, the decision to join the Moscow large in area adjoining little built-up Southern and South-Western Territories in area of almost 1.5 times the size of the "old town". However, this decision was purely administrative in nature and is not substantiated by a document of strategic development and spatial planning. It did not take into account available resources, spatial development, in particular the development opportunities of the underground part of the territory of the city.

At the same time in the city program "Urban policy" stated about changing the paradigm of spatial development in the transition to the model of the polycentric city of Moscow with the unloading of its Center. However, hastily management measures (limiting the development, the introduction of payment for parking in the city centre) were insufficient and cannot give the radical and rapid solution to the problem. Furthermore, in the view of some modern urban planners and economists, under market conditions, elimination of spatial disparities of Moscow not only involves the creation of new employment centres on the periphery of the city, but also an increase in "healthy" population density in the city centre, providing a comfortable urban environment-oriented pedestrian accessibility of services of daily life. Motivation to researchers is that the higher the population density provided the necessary functional diversity of urban space, the less time is spent in traffic jams, the less the load on the public transport network. It is obvious that the possibility of extensive building construction in the center of Moscow.

With regard to transport issues in recent years, the situation in the center of Moscow ground public transport structure for years completely changed. In the historic part of the city in many urban Interstates tram and trolleybus routes were eliminated, some bus lines. This has led to a decline in walking, step load size on the movement of people on foot. To meet this challenge by developing the land transport modes technically and organizationally is extremely difficult due to overload of the motor road network.

## 2. Underground direction of development as a strategic way to solve the problems of the city center

How do you resolve the problem? By applying the methods of analysis of the evolving problem situation and best practices, we can conclude that the strategically correct to focus on fuller utilization of the potential of underground space. World practice, for example, shows that the implementation of a high capacity urban Central territories of cities in such circumstances, can provide it is integrated and balanced development of the underground part of the territory. generally, it is based on the development of Metropolitan objects (Tokyo, Montreal, Helsinki, Paris, London, etc.). Unfortunately, the underground construction in Moscow is done outside of the special plan, dot and in small amounts. Independently and with a large backlog develops until the subway network. For example, the density

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