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URBAN PLANNING POST-PANDEMICS: VISION AND DIRECTION

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Abstract

The principles of the urban formation have always been built on socialization, the construction of public spaces and the systematization of the huge human masses' interaction. Of course, in the formation of urban space there are objects that allowing you to feel solitude, but still the city has always been a place of interaction. But the COVID-19 pandemic has changed modern views of the urban environment.

The article discusses the relevance of urban development in a pandemic situation. Examples of city development after pandemics in human history are given. It is considered how the COVID-19 coronavirus has changed the understanding of the organization of urban space and human housing. Possible options for changing the conditions of the urban area are analyzed. This research tries to review developed factors of the urban area under the influence of epidemics and their consequences, among which there may be changes in the organization of public spaces on a scale from specific urban are to global solution.

Keywords: pandemics, urban design, COVID-19, micro markets, vertical forest, distance park.

ГРАДОСТРОИТЕЛЬСТВО ПОСЛЕ ПАНДЕМИИ: ВИДЕНИЕ И НАПРАВЛЕНИЕ

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Реферат

Принципы градостроительства всегда строились на социализации, построении общественных пространств и систематизации взаимодействия огромных человеческих масс. Конечно, в формировании городского пространства есть объекты, позволяющие ощутить уединение, но все же город всегда был местом взаимодействия. Но пандемия COVID-19 изменила современные взгляды на городскую среду.

В статье рассматривается актуальность развития городов в условиях пандемии. Приведены примеры развития городов после пандемий в истории человечества. Рассмотрено, как коронавирус COVID-19 изменил представления об организации городского пространства и жилья человека. Анализируются возможные варианты изменения условий городской территории. В данном исследовании предпринята попытка рассмотреть сложившиеся факторы городской среды под влиянием эпидемий и их последствий, среди которых могут быть изменения в организации общественных пространств в масштабе от конкретных городских до глобальных решений.

Ключевые слова: пандемии, градостроительство, COVID-19, микрорынки, вертикальный лес, дистанционный парк.

Introduction

The detection and spread of the coronavirus pandemic in all countries of the world since the beginning of 2020 has not only destroyed many lives, but also changed the perception of many images in various fields and sciences, and for one thing led to numerous shortcomings, including a crisis of governance and an economic crisis in cities. The big problem is that all these shortcomings manifested themselves sharply in settlements and cities, where architects and urban planners faced great challenges.

The coronavirus pandemic, which has affected almost all spheres of life of modern mankind, has become an occasion to rethink the strategy and tactics of social development. Urban problems are one of the topical directions of subsequent changes. These include challenges addressed to experts, administrative and management structures, and the citizens themselves.

Main part

Historical background: There are enough examples in the history of mankind of how epidemics and pandemics can change our habits and the environment that surrounds us. Street widening, zoning, the creation of parks and gardens, sewer systems, water supplies and public spaces are the most common answers to questions posed to urbanists and urban planners.

The plague epidemic in 1771 in Moscow showed the importance and necessity of competent development of urban space. The high population density and outdated sewerage system caused an outbreak of cholera in 1854 in London, which claimed the lives of more than 10 thousand inhabitants. In France in 1834, the poorest segments of the population suffered the most from cholera due to unsanitary conditions and a dense population. At the same time, parks were laid out in the cities of Europe and America - not only as an important element of a comfortable urban environment, but also as a way to make the air cleaner.

Over the past 20 years, there have been six major epidemics in the world: outbreaks of pneumonia, ebola, bird and swine flu. The COVID-19 coronavirus has spread rapidly around the world. Humanity has entered the era of pandemics, therefore, the living environment and the world around us must change to meet new needs. The coronavirus that causes a new type of pneumonia is spread around the world, covered 114 countries until March 2020 and was characterized by WHO as a COVID-19 pandemic. As of October 2022, over 627 million cases of the disease have been registered worldwide; over 6.5 million people have died and over 607 million have recovered. The COVID-19 pandemic has become a truly global problem, changing people's lives, causing social and economic upheaval. Numerous sports, religious, political and cultural events have been postponed or cancelled. Educational institutions were closed in 172 countries, affecting approximately 98.5% of the world's school and student population. The borders of many states were closed and emergency security measures were introduced. It is probable that all subsequent decades of our century will be a period of adaptation of cities to these conditions. Statistics on the spread of coronavirus showed that the largest number of diseases occurs in megacities.

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Urbanization and pandemic situation: Active urbanization and the growth of cities lead to mass congestion of people in enclosed spaces. Vertical construction has become one of the main trends in the development of world architecture. Some specific technologies are being developed for vertical construction like as: vertical gardening, technologies for super-high-speed elevators, and design features of skyscrapers. And now the pandemic will become an occasion for arguing the negative aspects in the adoption of such concepts. How vulnerable are the inhabitants of mega- and gigapolises, where crowding leads to an increase in the number of infections now, we know firsthand (not by hearsay). Today, isolation is one of the main ways to fight the spread of infection. People living in small towns and in private country houses are in a winning situation. Does this mean that in the future we will see a significant outflow of population and increasing demand for private construction?

It is impossible to accurately predict whether the decentralization of cities will actively occur. However, urbanists undoubtedly face the task of finding fundamentally new architectural solutions for residential buildings and complexes in which people can easily communicate and lead their usual way of life. Even high-density structures can be created comfortable, with a well-balanced balance of private and public life and with all the services necessary for life [1].

Urban and architectural solutions: Currently, architects and designers are actively discussing and working on projects that update the main anti-epidemiological principles in urban planning and not only, but the main aspect will be the need for social distance, which leads to the creation of urban space. The modern epidemic is already beginning to affect the infrastructure of cities and other elements of the life of citizens. Sidewalk and commercial interior markings are already ubiquitous and changing the emotional environment of cities. In many countries, a disinfection system is being introduced at the entrances and exits of public buildings; elevators are being installed in which the buttons are replaced by pedals; and systems for issuing goods without contact with visitors have been developed. All these seemingly minor changes can change both the appearance of the city and the vector of development of the urban environment in the coming decades. Changes in urban spaces are already underway around the world: the expansion of sidewalks, an increase in the number of bike lanes, the exclusion of auto traffic from the central areas of cities, i.e. literally turning the city into a pedestrian or bike zone. We could number three main factor of urban structure which effected, transformed and redesigned during pandemics: streets, open and green spaces.

Based on the experience of 2020, it can be said that the pandemic is hitting hardest in large, densely populated cities and metropolitan areas, where maintaining social distance is becoming a serious task for citizens and representatives of management structures. It seems we need to change the functional, organization and spatial structure of cities. This puts urbanists in a new framework for urban planning and the organization of public spaces. Therefore, engineers, architects and urban planners must look for new solutions using modern practices.

Living conditions that involve walking and shopping close to home prove the need to develop pedestrian spaces and change the structure of service, focusing on 15-minute availability. It is believed that residential buildings with public service elements will again be in demand, when it will be possible to live comfortably for a long time without leaving from your home [2].

Of course, one of the most heated discussions is that the house is acquiring a new function - a workplace, or an office. During the pandemic, people were forced to switch to a remote work system. An interesting fact is that many employers saw a significant benefit in this solution and made certain conclusions. Already, many of them are expressing the opinion that after the lifting of quarantine, they will not return to the previous system of work. Thus, more attention will be paid to the layout, planning and equipment of the workplace in the house. This will require a change in spatial organization.

Office blocks and business centers will be transformed from places where people work, to become places - where they hold meetings and conferences. After the COVID-19 epidemic, residents will largely perceive the city and its spaces as a place for work combined with leisure. The boundary will be erased not only between the office and work in a remote format, but also between the home desktop and a park bench. It is significant that in many countries of the world, the issue of switching to a 4-day work week is being discussed.

It is assumed that *public places* will be actively developed on the outskirts of cities in order to relieve the center. The spaces of the former factory buildings, industrial clusters are being transformed into creative workshops, centers of contemporary art, educational centers, which corresponds to the concept of a post-pandemic city [3].

Significant changes may also affect public spaces. During the pandemic, online services of completely different categories of services received a huge boost for development. The question immediately arises - whether there will be a need for shopping centers and whether their reduction will occur. It is rather difficult to unambiguously predict the fate of shopping centers and some other public spaces. But here we can definitely note that the architect faces a new task - providing minimal contact of the user with the architecture for moving in space. This can be achieved through maximum automation. Some technologies will come to the aid of architects: automatic opening and closing doors, voice control in the elevator, fully automated check-in, etc.

Thanks to information technology, it became possible to create virtual spaces of social interaction. According to experts, the coronavirus pandemic has accelerated the development of wireless data transmission technologies, and also ensured their transition to a more advanced level - 5G and Wi-Fi 6. Statistics show that investment in improving these standards is growing rapidly compared to the previous year.

The revision of urban policy in the context of pandemics also means the dispersal of the service system, the modernization of important services and a network of small enterprises for the delivery of food products within walking distance.

Realization and design samples in urban area: Among the main trends in changing the urban area we could nominate the request for greening of living space and the use of roofs, balconies and walls. This technology is a concrete example of a new approach to the formation of a “green structure” of the city. Probably, our traditional ideas about the park in the post-pandemic time will change. A fundamental factor in the development of park space will be the achievement of a balance between buildings development and green space. The creation of the design of the park and its functions as a public space must be carried out in compliance with the rules of social distancing.

Shift architecture urbanism argues for micro markets that operate on a hyper local scale during pandemic shutdowns. They keep the food market traders and the whole supply chain behind them in business in order to provide fresh food in a safe way to the self-quarantined inhabitants of the city. Their hyper local character limits the amount of travelling through the city and their products on offer release the pressure on the supermarkets that have a hard time reducing the contamination risk (Pic. 1, a).

During the pandemic, the “Distance Park” which presented in Vienna Austria, allowed citizens to take walks along the landscape object while observing the distance. The layout of the space is reminiscent of a labyrinth, the pattern of which is similar to a fingerprint. Such scheme of the park allows you to organize routes about 600 m long, reaching the center, making a loop there and returning back. The walk averages about half an hour. At the beginning and at the end of the tracks, special modern devices are installed that allow you to control the number of visitors. Pedestrian areas are separated by a green fence of different heights. Thus, when visiting the park, people stay at a safe distance from each other (Pic. 1, b).

A Milan project called “Vertical Forest” is designed to purify oxygen in the city. This building is a unique architectural object and enlivens the face of the city. A distinctive feature of the project is a huge number of plants located on the roof, balconies and even indoors. The architectural bureau Stefano Boeri set a new trend in vertical gardening, thanks to which residential buildings with plants on different tiers and level began to appear around the world (Pic. 1, c).

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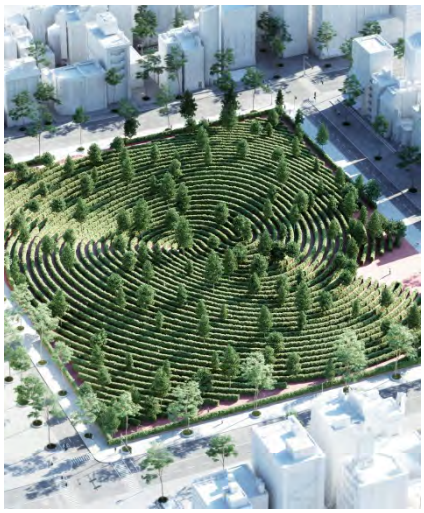
a. Project Micro market – Rotterdam, Netherland



b. Project Distance Park – Vienna, Austria

c. Project vertical forest – Milan, Italy

Picture 1 – Some design samples after pandemic COVID-19

Conclusions

The unexpectedness with which the pandemic entered our cities did not allow specialists to make any forecasts. The only thing that most of them agreed with is that the virus will go away, and cities, despite the fear of them, will remain, because in the history of civilization they have shown their importance as spaces of social interaction, centers of economic and political life.

Among architects, urban planners, engineers and designers, there have long been discussions about green and sustainable city, architecture and building. But the last pandemic experience shows us such a concept has still remained in its infancy and is used pointwise. Review different literature about cities suggests that the first step is to rethink the densification of cities. Either their decentralization will take place, or new innovative solutions will be taken to ensure security even in multifunctional complexes, and their automation. Architecture should shape the quality of our environment and promote health and well-being.

Regarding a good experience during COVID-19, some criteria of urban design should be revised more than before. These criteria consist of: new design concept for urban planning; urban environment quality; comfort and safety for residence (populations); infrastructure, transport and media development; policy and management.

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