

THE IMPACT OF GLOBAL CLIMATE CHANGE ON URBAN DEVELOPMENT

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Abstract: *This article provides a comprehensive analysis of the impact of global climate change on cities and urbanized areas. In particular, it examines how factors such as increased temperatures, extreme weather events, sea level rise, and increased air pollution will affect urban infrastructure, public health, energy, and transportation systems. The article also analyzes climate adaptation strategies, green infrastructure, and urban approaches to sustainable development. The results of the study offer practical recommendations for making cities more resilient and adaptable.*

Keywords: *Global climate change, urbanization, urban development, environmental security, sustainability, green infrastructure, climate adaptation, environment.*

Global climate change is a process that includes factors such as temperature increases, extreme weather events, and sea level rise, which significantly affects the development of cities and urbanized areas. Cities are home to the majority of the population and are the main centers of economic activity. Therefore, the impact of climate change is widely distributed through cities. This article examines the impact of climate change on urban development, existing problems, and proposals for their elimination.

It is known that natural geographical processes and phenomena in cities differ significantly from rural areas and natural landscapes. Climate change in cities is certainly associated with natural geographical processes. In cities, infrastructures built by man - various buildings and structures, roads, parks - almost completely occupy the city area. Engineering structures used for various purposes in cities, human economic activities affect the climate, creating and releasing specific climatic features. Such climatic features can be clearly observed in the level of air humidity, wind movement, solar radiation and albedo. It is known that changes in the climate of cities are primarily related to climate. Because the state of the air there is one of the most important factors influencing the formation and development of cities.

Climate has a high impact on the formation and development of cities, especially the most important elements of climate, such as air temperature and humidity, wind regime and direction, and atmospheric precipitation. Cities, as a rule, have impermeable surfaces and vegetation cover in small areas, unlike the natural and agricultural lands surrounding them. Global climate change in cities causes and produces a number of economic and social problems. This has a negative impact on the development of the city, its economy, industry, and all production sectors. In the development of cities, not only the influence of natural geographical factors, but also the influence of anthropogenic factors is of great importance. Therefore, most cities in the world are developing and implementing plans to adapt cities to the latest innovative requirements, to ensure the long-term preservation of the city and the prosperity of this city over time, while enduring the passage of time.

Climate change in the world cannot but have a huge impact on the urban areas of cities. For this reason, climate change suggests that some of the problems of cities should be discussed and resolved. Today, global climate change cannot but affect the flora of cities and their surrounding areas. The impact of global climate on the development of cities, such as sunlight, relief, air masses, atmospheric precipitation, seismic events, and volcanic processes, can be studied in detail on cities and urbanizing areas. For example, as we know, the number of cities in the world is increasing day by day. Along with the increase in the number of cities, these cities also face a number of tasks. Of course, finding solutions to this and solving these problems first raises the issue of solving the negative problems that arise in cities and finding solutions to them and further developing these cities.

When building and developing cities, we must study the laws of nature and their impact on the future. If we build a city in that area without studying the impact of climate on the development of cities in the world, this will lead to the disappearance of the city in the future. It is no secret to anyone that since ancient

times, when building cities, the climate of the city being built is thoroughly studied and analyzed. When building cities, from the point of view of urban planning, the influence and importance of the relief of the place, climate, surface and underground water sources are very great. One of the factors of global climate change is solar energy. When building cities in regions with high solar energy, it is advisable to take into account wind directions, build heat-resistant buildings and build cities that create comfort for the population. To do this, we must study the impact of climate on the city, study the work being done in each city, and then study the feasibility of building new industrial enterprises there.

Cities around the world have emerged in different places. Some cities are located on the banks of rivers, while others are located on continental, that is, land areas. These two groups of cities differ sharply in terms of climate and urban development. Cities located on the banks of rivers develop faster than continental cities. Cities located on the banks of rivers are distinguished by their high level of air quality and uniform precipitation compared to continental countries.

At a time when global climate change is taking place all over the world, another problem in some regions is the occurrence of floods, which cannot but affect cities. Cities are one of the unique ecological hotspots of our planet. The word “hot” used here should be understood in the correct sense. Due to the density of buildings, various emissions from enterprises and vehicles remain in the atmosphere above cities near the ground surface. They create a greenhouse effect, raising the air temperature in the urban area and its surrounding areas by several degrees compared to the surrounding area. That is why scientists call cities heat islands. Heat islands are areas in the center of a large city, for which the air temperature is higher than that of the surrounding area. The effect of the urban heat island is most noticeable in the evening and at night, especially in spring and autumn. At such times, the temperature difference between the city center and its surroundings can reach 10-15 °C. The heat island effect is becoming more pronounced in large megacities, as temperatures on our planet increase. We know

from personal experience about the urban heat island: on hot summer days, it does not prevent us from walking around the city in light clothing in the evening. In the suburbs, even in the hottest summer month, at the same time, we feel cool even in a light jacket. This is due to the slower cooling of air near the surface of the earth in urban environments. It is heated by the heat reserve absorbed by the walls and roofs of buildings during the day.

Global climate change does not have good consequences for cities around the world and our country. This causes a number of problems in cities. The sharp changes in the economy and social conditions of most cities in the African continent due to global climate change cannot but affect the development of these cities. This places a huge burden on the capitals of such countries. Sharp climate change is characterized by the emergence of an unfavorable environment for the population to live in cities. Climate change in cities has a huge impact on every sector of this city. For example, from the economy to all the household services that are convenient for the population to live, it also has an impact on the buildings of the city.

The formation of cities in Surkhandarya region and Kashkadarya region varies depending on the climate. The level of urbanization in our city, Koson, Nishon, Kasbi, Mubarak, is very low. There are several reasons for this. The lack of fresh water in the city and the opportunity for the population to live there are some difficulties. Such problems are also common in our city, Kashkadarya. There are cities where the population has a high need for fresh water. These include Koson, Nishon, Mirishkor, Kasbi, Mubarak and other cities. The population's need for water also includes the urbanization process of cities. Atmospheric air, precipitation, solar radiation, volcanic processes, and tectonic structures of individual cities also have a great impact.

Global climate change is having a significant impact on urban development. Factors such as rising temperatures, extreme weather events, and declining water resources are negatively affecting urban infrastructure, public health, and economic

activity. To address these challenges, strategies such as green infrastructure, sustainable transportation systems, water-saving technologies, and social adaptation approaches are needed.

Reduce the heat island effect and improve air quality by increasing the number of green zones in urban areas - parks, groves, green roofs and walls. Introduce sustainable urban planning concepts

Every new urban development project should be climate-resilient and include energy and water-efficient technologies. Reduce harmful emissions from urban transport by expanding electric buses, bicycles and pedestrian walkways. Use environmentally friendly, heat-retaining and recyclable building materials in the development of urban infrastructure. Each city should have its own climate adaptation and protection plan.

Conducting extensive educational work on climate change and its impact on urban life through schools, higher education institutions and the media. Strengthening awareness-raising campaigns among urban residents on saving water, electricity and proper waste separation. Introducing smart systems (smart city technologies) in urban infrastructure to automate resource use and increase efficiency. Updating and maintaining urban emergency services in readiness for rapid response in the event of extreme weather events (storms, floods, droughts). Actively using international experience and financial assistance (grants, technical assistance) for sustainable urban development.

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