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CITIES ADAPTATION TO THE CONSEQUENCES OF CLIMATE CHANGE

Adaptation to climate change is a set of actions aimed at reducing the harmful effects of climate change. As a rule, these actions are based on pre-conducted studies of the damage caused by these changes and are focused on minimizing the actual or expected consequences. While mitigation itself is a step aimed at reducing the number of sources of greenhouse gases.

In recent years, the vulnerability of cities to climate change has become clear, and the need to adapt to new challenges has become urgent. In order to limit the negative effects of climate change, measures are being taken worldwide to reduce greenhouse gas emissions. However, mitigation strategies have proved inadequate and considerable efforts are needed. According to the Intergovernmental Panel on Climate Change [1], adaptation is a necessary strategy at all levels to complete efforts to mitigate the effects of climate change. Climate change is becoming an ever greater urban problem as population growth and urban land increase the vulnerability of cities. In addition to the physical risks caused by the increasing frequency and intensity of extreme weather events, cities need to address problems related to certain socio-economic and cultural conditions [2]. Adaptation to climate change has expanded its concept by moving from management of the immediate manifestations of the dangers of climate change to risk-oriented approaches. This includes assessments of vulnerability and ability to adapt to hazards.

For example, from [3], we can see a certain number of cities from different countries of the world with relatively similar problems. These are mainly: large greenhouse gas emissions, floods, problems with the protection of wild animals. After analyzing these problems, the authorities came to the decision to adapt these cities to climate change by "greening". Thus, an increase in the number of trees and park areas should help not only animals to adapt to new climate changes, but also people. Animals will get more space to live in, and cities will start to clean the air better and there will be a natural protector from floods.

Today, most of the world's population lives in cities and it is projected that by 2030, the share of people living in them will reach 60% and more than 2.5 billion people will live in areas close to urban areas. It is well-known, that about 90% of this growth will occur in still developing countries, such as Asia or Africa. This will all happen due to the fact that with the increase in the development of the

country, the needs of people in it also increase. These people, in search of self-realization and satisfaction of their needs, will move to cities, equip their life, buy various luxury items, including cars, and use more energy resources. This, in turn, leads to the release of greenhouse gases, and this leads to climate change and natural disasters. In order to adapt to such consequences of an increase in the population in cities, the following solutions were proposed: upgrade sewers; raising people's awareness of the risks posed by climate change; decentralizing community services; improving energy efficiency; reducing different types of emissions; mitigating the consequences of natural disasters.

Thus, in Ukraine, most of the same harmful climate changes are observed as in other countries. Our country also has a tendency to concentrate its population in large cities. Only in them alone, the total percentage of the population reaches 75-80% of the total population in the country [4]. This combination of the deleterious effects of urbanization and climate change entails problems not seen in other types of human populations. The main negative consequences of climate change in Ukraine: floods, reduced quality of drinking water, reduction of animal species in urban and suburban green areas, non-thermal weather events, increased number of allergic diseases, overloading of urban energy systems.

Factors affecting the sensitivity of Ukrainian cities to climate change: The predominance of artificial surfaces, a critically small number of green areas, outdated urban infrastructure, insufficient awareness of the population about upcoming natural disasters.

After analyzing these factors we can conclude about the solutions that should help to adapt to climate change:

1. Regular and one-time technical solutions that will help to cope with the consequences of climate change.

2. Structural solutions, which will require a large amount of time and resources for construction, but will have a strong positive effect in the future.

3. Analysis and informational solutions that consist of planning, predicting various events based on the available facts, monitoring and evaluating adaptation measures.

4. Economic solutions are the most important types of solutions that help you quickly launch other types of solutions that may be needed in a particular situation and also serve as a "safety cushion" in case of unforeseen situations

The adaptation of cities to climate change is already an urgent topic for research and every year, as the world's population increases, the importance of this topic increases exponentially. Adaptation is not just a reduction in environmental pollution, but a way to live with the changes they bring and adapt to them.

LITERATURE

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