

## THE ROLE AND IMPORTANCE OF JAPANESE GARDENS IN ENVIRONMENTAL PROTECTION

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**Abstract:** This article analyzes the role and importance of Japanese parks in protecting the environment and improving the ecological situation in cities. The positive impact of the construction of Japanese parks in urban areas, first of all, on the health of permanent residents and the development of the tourism industry was analyzed. The increase of green space in cities solves many important environmental problems, creates a favorable ecological environment for the population, as well as its positive impact on the social, political and economic situation of the country.

**Keywords:** Ecological environment, urbanization, Japanese gardens, landscaping, conifers and deciduous trees, microclimate, phytoncides.

### INTRODUCTION

The conservation of the environment, as well as the construction, development, and maintenance of a favorable ecological environment for urban populations, is a critical concern for the entire world. Green places (parks, botanical gardens, forests, vulva and squares, etc.) play a significant part in solving this problem. Parks are an identifying element that shapes the image of a city. As public spaces, parks play a key role in shaping the image of the city in the eyes of tourists and permanent residents. Climate change is taking place in Uzbekistan. This requires a greater focus on environmental protection. In particular, the role of parks in nature conservation is invaluable. Japanese parks play a leading role in improving the urban microclimate, protecting the environment and creating favorable recreational conditions for the population.

There is no scientific research on this problem in the field of landscape architecture of the republic. However, this topic was discussed by A. S. Uralov, K. D. Rakhimov in “Design of Landscape Architecture Objects” (Tashkent, 2015), A. S. Uralov, L. A. Adilova in “Landscape Architecture” (Tashkent, 2014) and A.E. Jonuzoqov, B.B. Scholars such as Mustaev have expressed their views in other publications.

### METHODOLOGY

**Research methods.** There is a comprehensive scientific approach to the problem, which includes the following specific research methods. The comparative analysis of the collected materials from the study of scientific and specialized literature on the problem involves the



**Figure 1. "Smog" is the appearance of a poisonous gas**

study and generalization of the role and influence of plants, especially Japanese gardens, in the formation of an environment conducive to environmental protection.

### MAIN PART

At present, issues related to the development of urban systems, directly to the ecology of urban and rural population punk, show its 88th. As a result, the increase in heavy industry, the shrinkage of green areas, the Society of mankind has a negative impact on the ecological state of the existing environment.

Due to the economic activity of a person, the composition of atmospheric air is more abundant in gas, dust, soot, solid particles than in urban villages. As early as the first century AD, the Roman philosopher Seneca writes: "I feel light spiritual exertion in myself with the abandonment of the bitter, heavy air of Rome." The fact is that wherever the Earth's surface is located, the city's air is heavy. At a later time, a comprehensive process of development is damaging nature, as a result of which humanity provides itself with various amenities .As the process of urbanization on earth grows very rapidly, new cities are emerging. The total area of cities in the world is 0,5 million square meters. address miles. ni is 0,3% of the Earth's surface area.

49% of the world's population lives in cities with a population of more than 100,000. There are many large cities in the world that are densely populated and have developed industry and transportation. For the next 100 years, the air of the world's largest cities will be monitored at meteorological stations, TV towers, on the roofs of tall buildings on the basis of daily observations and special photographic data from satellites. It turns out that in large cities, the temperature is higher than in the surrounding area, which creates a kind of "heat island".

Urban air pollution and increased dust levels reduce the transmission of ultraviolet light, which can lead to the growth of disease-causing bacteria in the air. In large industrial cities, sometimes the

lack of wind and the stagnation of polluted air for several days results in a "smog," a bitter haze of toxic gases and dust (Figure 1).

Various toxic gases in the city's air, especially anthropogenic dust, come from vehicles, heavy industry, heating, and construction sites. Due to poor air circulation in cities, dust with a diameter of 4-10 microns rises to a height of 1 km and spreads over an area with a radius of 10 km. Dust with a larger diameter (greater than 10 microns) does not rise very high, spreads around, flies at an altitude of 300-500 m, and then returns to the city as dust. [5]



As a result of the development of production, a lot of waste and harmful gases are polluting the city, affecting not only the population but also the environment. There is no solution to prevent diseases caused by exhaust fumes from vehicles and factories, which have a negative impact on human health and the environment. [4]

## RESULTS

The results of the study show that the environment of mankind and, in particular, green the negative impact on the areas is increasing. The problem of green spaces (gardens, parks, forests, botanical gardens...) is one of the most important environmental issues.

A necessary condition for solving these problems is, it is the formation, development and preservation of the ecological system of the green areas of the city. The city occupies a leading position in Japanese Gardens in the improvement of microeconomics. The flora and fauna of Japanese Gardens is very rich. The basis of Japanese Gardens is a plant of green tones. And this is important in the improvement of urban microeconomics (Figure 2).

Plants of green tones, as a system of restoration of the environment, perform such priority tasks as ensuring favorable environmental conditions for urban residents, reducing the gas content of air and its pollution, regulating the climatic characteristics of urban areas. Keeping the noise in itself is a source of aesthetic leisure for people. [1]

It is also necessary to organize green zones around the busiest streets of the city.

This is because the vegetation barrier absorbs poisonous gases coming out of the cars and sharply reduces the noise. Of great importance are these properties of trees, especially in cities in our hot climates. The importance of coniferous and broad-leaved plantations, which are widely used in Japanese Gardens, in the process of gas exchange in the air, is also very great.

Nitric oxide, sulfur, hydrogen fluoride, and acid vapor are also important in maintaining the balance of trees and shrubs. But the process of gas exchange takes place differently in all plants. This is especially true of deciduous plants, which are much faster than conifers. The climate of the Republic of Uzbekistan is characterized by strong dusting of settlements, especially in the hot seasons of the year, with a strong negative impact on the environment of the Garmsel and Afghan winds blowing in the desert. Under such conditions, the dust-retaining properties of trees and shrubs are used. The denser the trees, the larger the leaf surface, the more dust they retain. Especially when the leaves of the trees are at the beginning of the growing season, the intensity of dust retention is strong and decreases towards the end of the growing season. Studies show that conifers capture an average of 40 tons of dust per hectare per year, while broadleaf trees capture up to 100 tons of dust. [2]

### DISCUSSION

Creating large parks in the center of large cities is one of the most ecologically important tasks. Therefore, in the design of public buildings in cities and villages, especially educational institutions and public buildings, the formation of various complexes of trees and shrubs on green areas and the proper organization of the system of greenery, environmental health and ecological considerations. is of great importance. [1]The sanitary and hygienic properties of the trees and shrubs that form the basis of Japanese gardens are also characterized by the production of phytoncide, a substance that kills microorganisms that cause severe pain. Conifers, on the other hand, rank high in phytoncide production. 1 hectare of juniper produces 30 kg of bactericidal substances per day, spruce and pine 20-25 kg. This amount of phytoncides is enough to kill all the germs in big cities. Of the ornamental trees, white acacia, fake chestnut, common birch, Tatar maple, slate, etc. are the main sources of phytoncides. The phytoncide properties of trees are enhanced during the budding, flowering phase and under the influence of heat and sunlight. It is also very important that conifers act as a green filter in the biological purification of the atmosphere. For example, the amount of chemical trace elements such as zinc, cobalt, chromium, copper and molybdenum increases in the atmosphere due to poor air circulation, densely populated areas, transport and various wastes. Exceeding the permissible levels of these elements leads to environmental pollution. This can lead to various diseases. The establishment of afforestation in these areas will reduce the amount of harmful trace elements, especially in the reduction of iron and manganese in the atmosphere. In general, a complex of conifers and deciduous trees, green compositions made of them, is the best means of purifying the atmospheric air. [2]

## CONCLUSION

Emissions of dangerous compounds into the atmosphere, heavy metal saturation of the soil, pollution of water bodies, and destruction of green spaces all have a severe impact on the health of city dwellers. Human effect on the environment, particularly on green places, has increased in recent decades. One of the most serious environmental issues is the loss of green space. A necessary condition for solving these problems is the formation, development and preservation of the ecological system of green areas of the city.

Japanese gardens are based on green plants. This is essential in improving the urban microclimate. When we think of nature, first of all we think of lush vegetation, fresh air, cool and shady, unique and peaceful environment. These are all features of a Japanese garden. Even because it reflects a small copy of nature, people's interest and demand for it is growing. That's why we can find Japanese gardens in many countries.

The construction of Japanese parks in densely populated urban areas will have a positive impact on the health of permanent residents, especially young children and the elderly. The world of flora and fauna of Japanese gardens is very rich. The role and importance of Japanese parks in the formation of environmental education skills in the younger generation is great. The plants in the gardens awaken the love of nature. They will gain the knowledge and skills they need to understand how important it is to humankind. Japanese gardens help to respect nature and feel the need to respect it.

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