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MODERN PROBLEMS OF ANTHROPOGENIC LANDSCAPES

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Abstract:
What is "landscape design"? Is it conceptual art or merely landscaping and beautification? What role does creativity play in the professional activities of landscape designers and landscape architects? This article explores the challenges related to modern landscape types—residential, anthropogenic, and cultural. It also examines renovation methods, strategies for creating a sustainable biosphere, and secondary reconstruction of disturbed anthropogenic landscapes. Finally, the study discusses pathways toward "green architecture" as an integral part of ecological urban planning.

Keywords: Park architecture, landscape design, anthropogenic, renovation, sustainability, green architecture.

Introduction

Landscape design, as a form of human creative activity (though not originally a technical term), began to develop in Uzbekistan in the early 20th century. The term *landscape architecture* appeared much later, although in the United States it was first formally introduced in the second half of the 19th century (in 1860) in connection with the establishment of the first national parks.

Today, three primary terms are commonly used in the literature: landscape planning, landscape architecture, and landscape design.

Objects of landscape architecture are formed through a specific combination of natural and artificial components, taking into account the vertical planning of the territory and its geological survey. Artificial landscape components include introduced elements of geoplasty—modifications of terrain such as the creation

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of streams, lakes, waterfalls, hills, and more. It can be confidently stated that the works of landscape architecture—and its direct descendant, landscape design—are the inheritors of historical garden and park art, representing a synthesis of science and the arts.

Due to its artistic and conceptual nature, landscape design has inherited the ability to integrate innovations from various fields of human activity into the structure of garden-park culture. Landscapes altered by humans are referred to as cultural landscapes, whether in the form of parks or agricultural lands. Another dimension of cultural landscape—linked to the transformation of its structure through human action—is classified as anthropogenic or technogenic landscapes. These include industrial quarries, mineral extraction sites, production facilities, and urban construction zones.

A park or garden is essentially an artificial world created by humans, based on their knowledge, skills, and worldview at a given historical moment. That worldview has been shaped by great geographical discoveries, religion, scientific advancements, the development of the arts, as well as wars and revolutions. All of these have found reflection in landscape concepts—in how space is structured within each style, in the selection of plants, materials, and architectural forms.

The etymology of the word *design* implies synthesis—of arts, metaphorical thinking, structural logic, and scientific-technological knowledge. In landscape design, this includes an understanding of geology, tectonics, soil formation, and climate processes.

Thus, landscape design can be understood as a creative activity aimed at shaping artificial environments using natural components—plants, surfaces, small architectural forms, and water. By incorporating elements of sculpture, music, painting, and architecture, alongside natural materials, landscape design can create a multisensory experience, engaging human senses of smell, sight, touch, and hearing.

The urban or residential (selitebnïy) landscape is also a type of cultural landscape. It represents a unity of natural and anthropogenic components, including residential areas, industrial zones, and recreational or resort districts. Its purpose is to provide a comfortable and livable environment for urban inhabitants.

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A recreational landscape refers to a natural environment adapted for mass public leisure. For example, a nature reserve may include a lake, a beach, and a ski base—thus forming an improved and functional environment. However, maintaining ecological balance requires that visitor load per unit area be controlled to ensure the sustainability of the natural complex. The sustainability of a landscape depends on its capacity to withstand recreational pressure without losing its ability for self-recovery.

For instance, a grove of 80-year-old plane or walnut trees on moist soils can sustain up to 9 visitors per hectare, whereas a pine grove on dry sandy soils may not withstand more than 2 visitors per hectare [1].

The work of a landscape designer is grounded in scientific data, climatic conditions, and a strong artistic concept.

Main Part

It must be acknowledged that truly virgin (untouched) landscapes have virtually disappeared in the modern world. Today, all landscapes are typically classified as: cultural, anthropogenic, urban-residential (selitebny), natural, and recreational.

A natural landscape refers to a territory that has not been transformed by human activity and possesses the capacity for self-regeneration and autonomous development. These may include mountainous, foothill, or lowland areas found in suburban zones or river valleys.

In contrast, an anthropogenic landscape is characterized by the significant influence of human activity on its formation. Examples include construction, agriculture, and industrial development. In Uzbekistan, illustrative examples of anthropogenic landscapes can be found in industrial cities such as Almalyk, Angren, and Ahangaran, where economic activities are closely tied to surface mining and extraction operations (see Figure 1). These types of landscapes are referred to as technogenic landscapes.

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Figure 1. Example of a limestone quarry in the vicinity of Akhangaran**.**

Quarries are artificially created and exist only as long as their functional purpose is not exhausted. From an ecological perspective, quarries are considered negative landscape phenomena. Their development results in the destruction of the soil cover, deforestation, disturbance of groundwater regimes, and disruption of the local biocenosis. Explosions and machine noise drive away wildlife, and dust settles on surrounding vegetation, leading to plant stress and suppression.
However, paradoxically, rare plant species often begin to grow in limestone and sand quarries. These species typically cannot withstand competition from other plants but thrive in environments where dominant vegetation cannot survive (see Figure 2). Since quarries are rarely visited by people and—provided they are not turned into landfills—they can become potential areas of interest for landscape designers.

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Figure 2. Technogenic landscape in the vicinity of Akhangaran.

One of the most compelling project-based solutions to the problem of reclaiming technogenic quarries is a proposal developed at TACU (Tashkent Architecture and Construction University). The project involves the creation of a quest park with thematic routes for sports and adventure games within a limestone quarry. These games evoke associations with the well-known television show *Fort Boyard* or resemble real-life versions of computer game quests.

The project was developed in accordance with the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan, titled *"On the approval of a program of measures to strengthen the material and technical base of culture and recreation parks and to further improve their functioning"*, dated December 29, 2020.

In today's world, intellectual recreation is attracting an increasing number of people. The main goal of the project is to broaden the potential usage of exhausted quarry sites, turning them into reclaimed and creatively repurposed spaces for youth activities. This is achieved by applying a secondary use model for technogenic areas, in which lightweight architectural structures are constructed within the quarry environment—particularly limestone quarries. This strategy qualifies as a reclamation method for creating spaces such as quest parks (see Figure 3).

A quest park is a sport-intellectual recreation area consisting of multiple themed scenarios. These might include: escaping from a labyrinth, overcoming obstacle

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courses using technical equipment, or solving puzzles under time constraints. Smartphones, tablets, and other digital devices must be left outside the play zone, encouraging participants to immerse themselves in real-world challenges and logic-based tasks.

This reclamation approach includes: leveling the quarry floor, constructing retaining walls, installing lightweight architectural elements, preserving drainage and ventilation corridors, and creating water bodies. The essence of the project lies in its integrated aim to simultaneously address social, communicative, recreational, and landscape-ecological challenges.

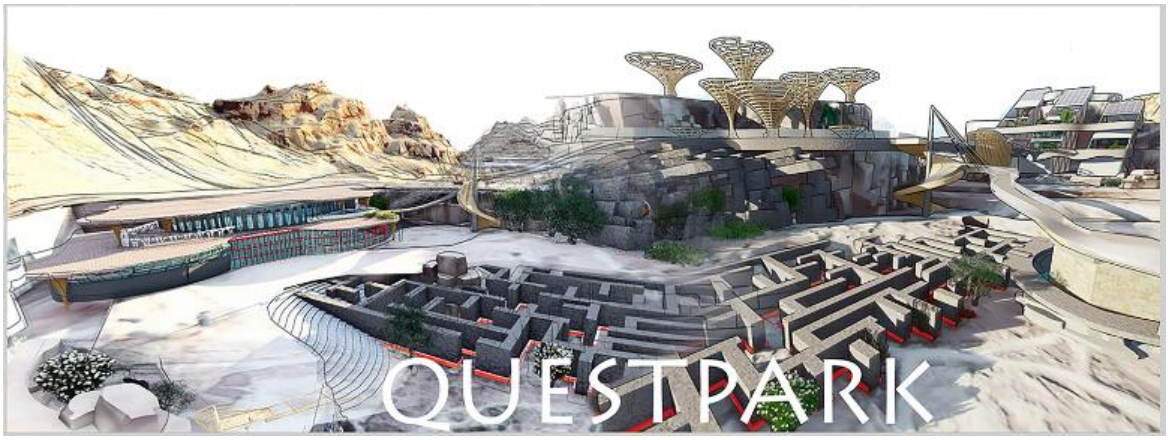

Figure 3. Conceptual design of a youth quest park in an abandoned limestone quarry.

One of the design objectives emphasized the importance of achieving a harmonious balance between natural and artificial components within landscape environments. Sustainable development of a natural complex within a technogenic setting is possible only through their optimal integration and interaction.

Artificial landscape elements created for conceptual purposes should exhibit structural, chromatic, and symbolic coherence with the existing quarry forms in the designed environment (see Figure 4).

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Figure 4. Example of a quest activity: racing on industrial transport vehicles.

Core Scientific Concepts

Based on the discussion above, it can be concluded that landscape design is a multidisciplinary creative activity aimed at shaping the object-spatial environment through the methods and tools of landscape architecture, artistic design, greening techniques, and the formation of cultural landscapes.

Figure 5. General view of the proposed quest park in a limestone quarry.

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Landscape design within anthropogenic environments has emerged as a field for the development of a new form of park art (see Figure 5). The renovation of technogenic landscapes is directly associated with the transformation of nature that was previously altered by human activity. Modern landscape design inherently incorporates elements of historical garden and park art, which serves as its cultural and aesthetic foundation.

Conclusion

In the past, masters of landscape art created magnificent palace and park ensembles, but these projects were largely commissioned by and designed for the privileged elite. There was no institutional structure dedicated to organizing landscapes for large-scale public sites—such as regional areas, suburban recreation zones, residential developments, and industrial territories.

The natural landscape emerged as a result of long-term natural processes, while the anthropogenic landscape arose from the transformation of natural systems under the influence of human activity and intervention. Within anthropogenic landscapes, a distinction is made between cultural and acultural types. A cultural landscape is one that has been modified for human needs, is maintained in a stable condition, and is capable of regenerating its lost qualities over time.

By contrast, acultural landscapes are defined by degradation caused by irrational land use or harmful industrial impacts. These landscapes have lost the ability to regenerate a healthy environment. Abandoned and unreclaimed quarries serve as prime examples. Despite these distinctions, the term *"garden and park art"* is still used by designers as the historical root and main branch of modern landscape design.

Many techniques of historical landscape design—particularly those developed in classical parks—remain in use today. Modern landscape designers now employ a wide array of scientific and technological tools, ranging from light, sound, and media effects to the decorative and functional properties of construction materials. Moreover, they increasingly apply inclusive design principles, such as:

- tactile paving materials for path navigation,
- acoustic signals marking path boundaries for the visually and hearing impaired,

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- accessible paving and ramps for wheelchair users.

These adaptations reflect evolving norms for organizing landscape spaces, ensuring both functional relevance and ecological sustainability. In this way, landscape design creates spaces that are not only practical but also support the development of resilient biocenoses [2].

Landscape design is a multifaceted and multi-layered process. However, the general public often equates it solely with beautification or "greening," failing to distinguish it from the technological processes of planting and construction works involved in landscaping projects.

The main goal of landscape design is to create a comprehensive, human-centered environment that possesses essential functional, ecological, and aesthetic qualities. By designing a thoughtful and well-directed system for transforming various types of landscapes, it is possible to create a sustainable environment with an integrated and resilient biocenosis.

Communications. When designing landscape architecture within urban environments—where everything is interconnected via underground water supply and sewage systems—it is crucial to recognize that such infrastructure must be installed prior to the start of surface construction. In non-urban areas, this issue is addressed on a case-by-case basis.

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