ANNALS OF THE UNIVERSITY OF CRAIOVA

Series: ✓*Biology*
✓*Horticulture*
✓*Food products processing technology*
✓*Environmental engineering*

Vol. XXX (LXVI) - 2025

WATER UTILISATIONS IN LANDSCAPE APPLICATION IN CRAIOVA CITY

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Keywords*: Craiova city, landscape, water utilisations.*

ABSTRACT

Water is one of the most important components in natural landscapes and occupies an important position in the design or creation of green spaces, especially parks. Rivers, lakes, all this enriches the landscape making it particularly versatile and picturesque combined with vegetation.
The formation of compositions park water mirror separates as one of the leading details. Composition importance of water surfaces is so high that in the absence of natural water mirror is necessary to examine the possibility of construction of artificial lakes and reservoirs and fountains. Water surface is irresistibly appealing decoration of any garden, and is one of the most important natural components. The water like no other element in the garden, imports in the space particularly attractive changes that reflect the environment, sounds and movements.

INTRODUCTION

Water is an essential substance which creatures depend on for existence. It is the link between human and nature with strong plasticity. It has become an indispensable link in landscape design, which plays an irreplaceable role. Water makes natural environment generate animation, makes people more willing to get close to it, and makes it more harmonious between environments and human. The water influences and enriches human's realm of spirit, the highlight of which is landscape effect, which is a spiritual resource stimulating human's sense organs and making people peaceful. As one of the landscape elements, the water is always beautifying environment and injecting fresh blood into environment.

The water has features of being flexible and utilizable, which not only ensures daily life demand of living and production water consumption, but also fully considers human's behaviour features via design, creating landscape to view water and get close to water to meet human's basic physical and mental demands. Over the years, with the development of society and improvement of people's life, people raise higher and higher claims to natural environment, such as configuration of plant and design of water landscape. There into, as one of important ways to beautify environment in landscape design, water element is more and more applied to landscape design.

MATERIAL AND METHODS

The main purpose of this study was to reveal the current situation of using water in the landscaping of Craiova city.

This study was conducted for Craiova area, located in Southwest of Romania (44°20′N, 23°49′E).

The landscaping in Craiova was visited. On this occasion, the inventory of the ornamental constructions made using water (waterfall, artesian fountain, ponds, lake, fountain, etc.) was carried out.

RESULTS AND DISCUSSIONS

In California and much of the American West, water is a critical yet limited resource. Growing populations and climate change will only exacerbate this scarcity. As a result, water conservation is and will continue to be, a crucial issue (McCammon et al. 2009). Residential areas account for over 50 % of urban water use (Gleick et al., 2003), and as much as 70 % of that water goes to maintaining landscape plantings (McCammon et al., 2009; St. Hilaire et al., 2008; Haydena et al., 2015).

Despite significant benefits of green spaces (Gonzalez et al., 2010; Harper et al., 2005; Kaplan & Kaplan, 2003), the world is faced with big challenges in water supply due to increasing water demand, more frequent droughts and mismanagement of water resources. Nearly 25 % of water resources in urban areas are used for watering landscapes and gardens (Welsh et al., 2007).

Urban areas are at the forefront of water demand, and with the increasing strain on water resources, the implementation of sustainable water practices has become imperative. This section delves into two key aspects of sustainable water management in urban areas: Water Efficiency Measures and Green Infrastructure.

The advancement of technologies plays a pivotal role in optimizing water usage in urban settings (Evans & Sadler, 2008; Bouramdane, 2023). Smart water meters, for instance, enable real-time monitoring of water consumption, empowering both utilities and consumers to identify and address inefficiencies promptly. Additionally, sensor technologies integrated into irrigation systems facilitate precise watering based on weather conditions and soil moisture levels, reducing water wastage (Işık, et al., 2017; El-Naggar et al., 2020).

The integration of artificial intelligence (AI) and data analytics in water management systems allows for predictive modelling, optimizing distribution networks and identifying potential leaks before they escalate (Kamyab et al., 2023; Jenny et al., 2020). These technological innovations collectively form a robust foundation for enhancing water efficiency in urban areas.

CLASSIFICATION OF WATER LANDSCAPE DESIGN

Water Park Craiova – an oasis of fun.

This is the only **water park** in the city, functionally throughout the year, with indoor and outdoor pools and indoor and outdoor slides. There are a variety of attractions, including sauna, fitness room, swimming lessons, hydro-kinesiotherapy, etc. (Figure 1).

Lakes and Ponds

Lakes are larges bodies of water. In Craiova, the most famous lakes are: ”Lacul Mare” in Nicolae Romanescu Park, (Figure 3), ”Lacul Hanul Doctorului” in the East area of the city, ”Lacul tanchistilor” in the North area of Craiova.

The pond is one of the most common water landscapes, which always locates in the core area of traditional gardens and forms the central landscape of the whole garden. The forms of pond are divided into regular ones and irregular ones. The regular ones often appear in geometric shape, which are often used in western gardens. There is a clear middle axis in the garden, and there is pond and fountain on the middle axis, the form of water landscape is abundant, generally square, round. There are big and small ponds, and small ponds can provide striking key points landscape, often serving as visual centre. Mountains can be built over the pond to form pond mountains, which can be individually set or combined with other facilities, always in special shape and serving as visual focus of the space. Large-scale water surface can form controllable artificial lake landscape, often appearing in living environment. The forms of pond shore are various, straight or curving, highlighting composition and formal beauty via artificial shape, matched with footpath, corridor and plant, setting off the leisurely ecological atmosphere, so beautiful.
The most famous ponds are found in Botanical Garden. (Figure 2).

Waterfall

Waterfall in landscape design often refers to artificial waterfall imitating nature, generally landscape formed of lot of water falling down from high combined with artificial rocks. It is mostly represented with modern design methods and shows strong artificiality. The viewing effect of waterfall is more abundant than flowing water, and it can show the feature of water source in landscape most. It can show the momentum and innervation of water, making viewers relaxed and happy, and it often serves as visual focus in outdoor environment layout. The waterfall often consists of five parts of water source, falling open, waterfall body, waterfall-pool and outfall, and its water flow features depend on flow quantity, flow rate, altitude difference and condition of edge of outfall. When processing design, carefully research the edge of falling water, and different edge forms represent different water falling effects. (Figure 4, Figure 5).

Artesian Fountain

Artesian fountains are special constructions that use water to create spectacular and aesthetic effects. They can be found in public parks, gardens, squares or in front of important buildings. They are often considered tourist attractions.

There are a variety of types of artesian fountains, each with their own characteristics and spectacular effects. Here are some of the most common types of artesian wells:

- Single or vertical jets: these are fountains that project a vertical jet of water into the air. Jets can vary in height and create different patterns, such as a single vertical jet or multiple jets arranged in an artistic arrangement.
- Cascade: this type of fountain consists of a sequence of steps or levels on which the water cascades from one level to another. Waterfalls can be made of marble, stone or other decorative materials and can create an effect of fluidity and continuous movement.
- Fountains synchronized with music: these are fountains that are choreographed and synchronized with music or other sound effects. The water jets rise and fall to the rhythm of the music, creating a special multi-sensory show.
- Fountains of mist or steam: these are fountains that project water in the form of mist or steam, creating a mysterious and unreal effect. The water is finely sprayed and turns into a cloud of mist, adding an element of magic and enigma.

- Fountains with lighting: some artesian fountains are equipped with special lighting systems, which add an impressive visual effect. The water can be illuminated in different colours and shades, creating a play of lights and shadows.

The most famous artesian fountain are: ”Fantana lelelor” nearly ”Piata Mare Market” (Figure 5), Musical Fountain - Mercur Area (Figure 7), ”Ciuperca” roundabout, ”English Park”,

Flowing water

Flowing waters have the remarkable ability to stand out in the urban space through the naturalness and vigour they bring to the landscape.

Figure 1. Water Park Craiova

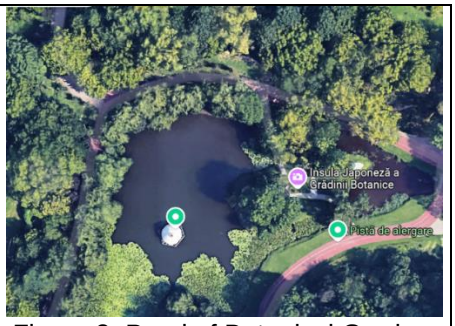

Figure 2. Pond of Botanical Garden

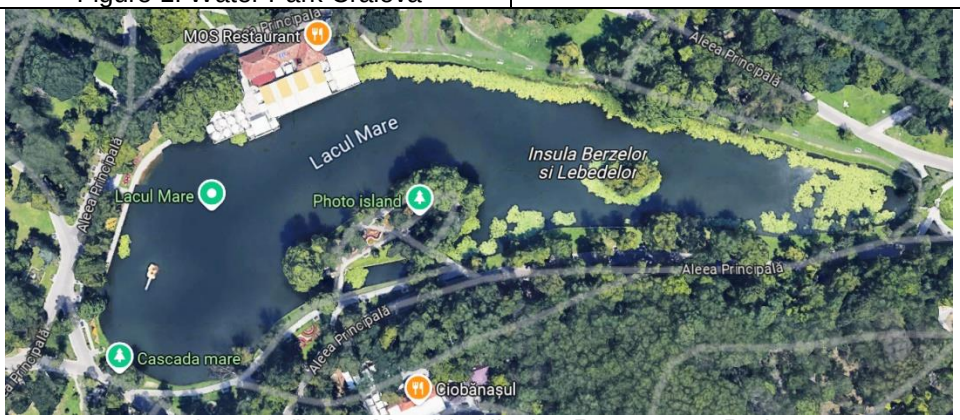

Figure 3. ”Lacul Mare” in Nicolae Romanescu Park

Figure 4. Waterfall Nicolae Romanescu Park

Figure 5. Waterfall ”Pedagogic” Park

Fig. 6. ”Fantana lelelor”

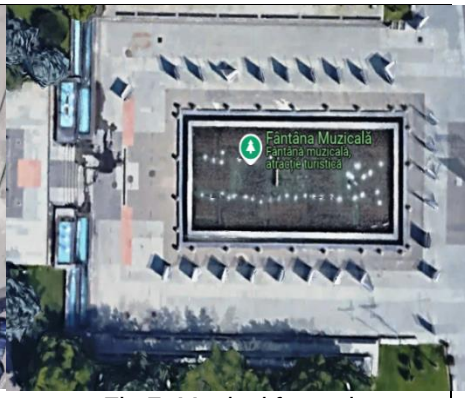

Fig 7. Musical fountain

CONCLUSIONS

Building a water feature in a public space requires expertise and experience.

Green spaces where water is present are attractive poles for visitors.

Water moistens and cools the atmosphere, so the presence of water gives the landscape special features.

In landscaping, water can have a triple role, ornamental (lakes, ponds and waterfalls), technical (for irrigation) and consumption (potable water for drinking).

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