

Forerunners of the Study and Analysis of the Basics of the Typology of Buildings and Elements of Landscape Architecture of Modern Wellness Centers

Studi Awal Analisis Dasar-Dasar Tipologi Bangunan dan Elemen Arsitektur Lanskap dari Bangunan Pusat Kesehatan Modern

Makbura Makhamova¹, Dilrabo Azimova²

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Abstract: The research is dedicated to exploring the impact of landscape architecture on the quality of healthcare in modern wellness centers. The goal of the study was to conduct a literature review on the history of landscape architecture in medical facilities, analyze the findings of a study carried out at a sanatorium in Samarkand, Uzbekistan, and develop recommendations for establishing a favorable landscape architecture environment in healthcare settings. The analysis methods employed both qualitative and quantitative approaches. The research results demonstrated that landscape architecture has a positive influence on the quality of healthcare, contributing to patient relaxation and recovery, as well as enhancing the effectiveness of medical personnel. The authors' conclusions underscore the significance of landscape architecture in healthcare facilities and suggest that the development of new landscape architecture projects could substantially enhance the quality of healthcare by providing more comfortable conditions for patients and medical staff.

Keywords: *Ancient Hospital Architecture, Hospital, Yatreyia, Asclepeion, Portico, Propylon, Health Complexes, Wellness Center, Zonification, Scamper*

INTRODUCTION

The state strategy aims to create high-quality medical complexes that contribute to the preservation and improvement of the health of the country's citizens, as well as to the establishment of favorable conditions for raising a healthy generation. The history of medical institutions attests to their significant role in the public life of the population. From ancient times, even in primitive societies, people sought help from healers and shamans. During the Bronze Age, with the development of new tools and trade, the importance of medical institutions continued to grow. Temples emerged during this time,

Where religious healing rituals were conducted. The Egyptian civilization adopted healing methods from other ancient cultures more than 4000 years before our era. During that time, traveling healers gained great popularity in Egypt. One example of such a medical institution in Egypt is the Mansurius Kabir Hospital, built by Sultan Mansur Saif al-Din Qalawun.

¹ Architecture Department, Samarkand State University of Architecture and Civil Engineering, Samarkand, Uzbekistan

² Landscape Design Department, Samarkand State University of Architecture and Civil Engineering, Samarkand, Uzbekistan

Correspondence: mahamovamakbura@gmail.com

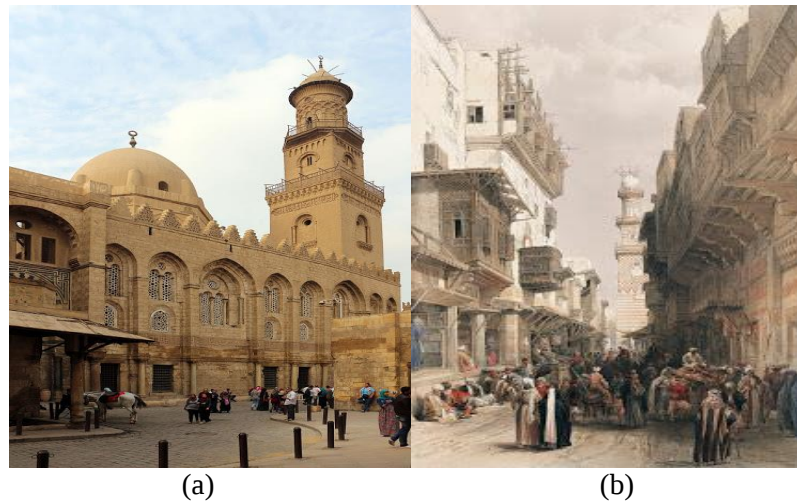


Figure 1. Mansuri Kabir Hospital In Egypt, Known as the Goloun Hospital, Built by Sultan Mansur Salfuddin Goloun. IV B.C.E. (a); Modern Appearance (b)

Studying the history of hospitals reveals that each era had its unique medical facilities that played a significant role in society. Throughout the aforementioned period, other medical establishments also held an important place in public life, as reflected in ancient manuscripts and books. The surroundings and courtyards of hospitals at that time attracted people's attention. Green lawns, trees, shrubs, flowers, healing pools, and fountains created an inviting atmosphere. From the perspective of landscape architecture and urban planning, hospital buildings over time became crucial elements of the urban landscape, playing a special role in city life. They became key structures in the city square, including promenade parks and public squares, which contributed to enhancing the urban environment.

The quality of healthcare is a crucial aspect of healthcare. It is determined by various factors, including the qualifications of medical personnel, the quality of equipment and medications, and the environment in which medical work is carried out. The environment in which medical care is provided plays a decisive role in its quality. It can influence the well-being and mood of patients, as well as the productivity of medical staff. Landscape architecture is one of the factors that affect the environment in which medical work is conducted. It allows for the creation of a favorable environment that promotes relaxation and recovery for patients, as well as enhances the efficiency of medical staff.

Several scientific studies demonstrate a positive impact. For example, studies conducted in the United States showed that patients treated in rooms with nature views recovered faster and experienced less stress. Another study conducted in Europe showed that healthcare workers in naturally lit spaces were more satisfied with their jobs and experienced less fatigue.

The research aims to investigate landscape architecture's influence on healthcare quality. The study addresses the following objectives: Literature review on the history of landscape architecture in medical institutions; Analysis of the research results conducted at the sanatorium in Samarkand, Republic; Development of recommendations for creating a favorable landscape architectural environment in medical institutions. Subsequent studies have shown that landscape architecture positively impacts the quality of healthcare. Greenery, fountains, and other elements of landscape design create a welcoming

atmosphere that promotes patient relaxation and recovery, as well as enhances the efficiency of medical personnel.

Based on the literature review and research findings, the authors conclude that landscape architecture has a positive influence on the quality of healthcare. The development of a new landscape architecture project for the Samarkand sanatorium and resort center will improve the quality of rest and treatment for patients and preserve the surrounding environment.

Therefore, landscape architecture plays a crucial role in creating a conducive environment for patients and medical staff. This can have a positive impact on the quality of healthcare, promoting relaxation and recovery for patients and increasing the efficiency of medical staff. Developing new landscape architecture projects in medical institutions will elevate the quality of healthcare and provide more comfortable conditions for patients and medical workers.

METHOD

The History of Medicine: from ancient practices to real science

Despite the scientific research and numerous books written on historical monuments and our material cultural heritage, there are still many areas of the history of public buildings that are unknown to science and insufficiently studied. One such poorly researched area is the formation of healthcare institutions, their placement in cities, their role and significance among the population, and the history of their architecture and construction.

It is expedient to study the formation of health complexes, their placement in cities, their significance and role among the population, the history of their construction, and also to create a modern image of a health center over the years, as the number of patients increases. Taking the Samarkand Urban Health Center as an example, a project can be developed and its ecological foundations studied. The history of medical establishments is an integral part of the overall history of mankind. Healthcare facilities from any period shape and define their place in the public life of the population.

By studying the history of healthcare institutions, we can see that they originated primarily from the time of primitive societies before our era. In ancient times, in the Eastern countries, there existed a system of medical institutions that provided medical assistance to the population. Medical institutions were established in the temples of the Zoroastrian religion in the Near East in the 6th century BC. Pharmacies were created within these temples as part of urban planning, followed by medical services for the sick.

The Zoroastrian religion places great emphasis on health and longevity. According to the divine text of the Avesta, Zoroastrians believe that people can improve and prolong their lives by performing good deeds. In Zoroastrian cosmology, the four elements - Earth, Water, Fire, and Air - are considered divine and must be maintained in purity. This led to the development among Zoroastrians of strict hygiene standards, which laid the foundation for early Eastern medicine.

Eastern medicine has a long and rich history. One of its most significant achievements is the hospitals that emerged during the Islamic era. The first hospitals in Islamic society were mobile field hospitals that accompanied the Muslim army on campaigns, and this tradition continued throughout the history of Islam.

In the year 706 AD, the first stationary clinic was founded by the Umayyad caliph al-Walid. The clinic provided medical care to patients with various illnesses, including the blind and lepers. Initially, these clinics were called "patient clinics".

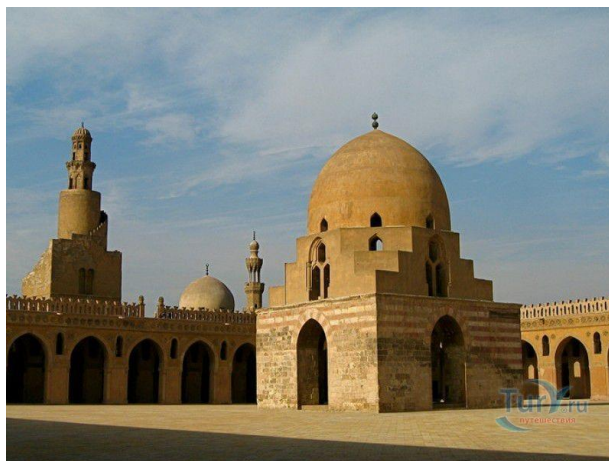


Figure 2. Ibn Tulun Hospital In Cairo

During the Islamic era, the great physician and philosopher Ulugtavib played a key role in the development of state clinics in Baghdad during the reign of Harun al-Rashid, Azudavla ibn Buwayh, and Nur ad-Din Shahid. In the year 872 AD, the first clinic in the Islamic world was founded in Fustat, a suburb of Cairo. It was built during the rule of Ibn Tulun, the ruler of the country from the Tulunid dynasty.

In the country, Emir Mansur Abu Yusuf of the Almohad dynasty built one of the most famous clinics in the Islamic world. The clinic was constructed in Marrakesh in the year 1199. It was surrounded by a garden where various fruit and decorative trees, flowers, shrubs, and vegetables were planted. The garden provided patients with fresh air and fruits, helping them relax and recover. Water circulated throughout the clinic's rooms, helping to maintain cleanliness and hygiene, which was particularly important for patients with infectious diseases.

In the center of the clinic's courtyard were four marble pools that were used for various purposes, including bathing patients, washing laundry, and storing medicine. The clinic was free and open to all, regardless of social status or religion. Mansur Abu Yusuf's clinic was one of the most advanced medical institutions of its time and had a significant impact on the development of medicine in the Islamic world.

The medicine of the ancient country was one of the most advanced medical systems of the ancient world. It was based on the teachings of Hippocrates, who is considered the "father of medicine". Hippocrates developed principles that form the basis of modern medicine, including diagnosis, treatment, and disease prevention. In the ancient country, clinics called "Asclepions" were established. Asclepions were dedicated to the god of medicine, Asclepius, and included a temple, clinic, baths, and other buildings. Information about them can be found in various sources, including literary works, artistic artifacts, and archaeological findings. The first medical institutions - hospitals - emerged in ancient Greek and Roman cities. Greek remedies were called "iatreia" and "Asclepion". Greek medicines were made from plants, animals, and minerals. Greek physicians used various treatment methods, including medication, surgical procedures, and diet.

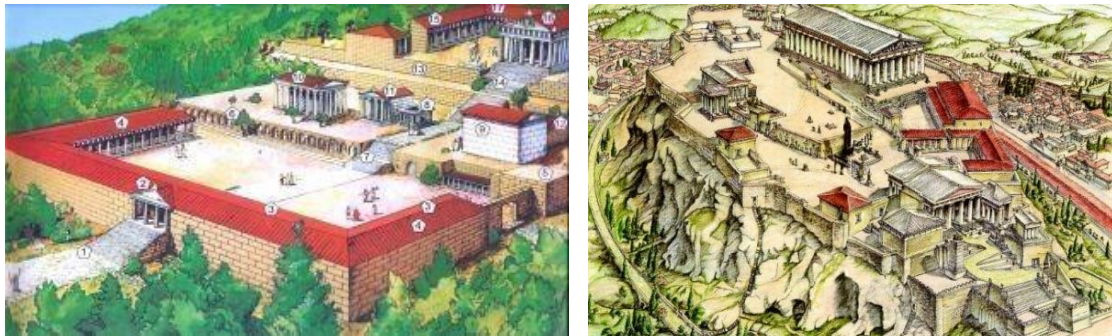


Figure 3. Place of healing in Ancient Greece are called "Oprela" and "Ascleplon"

Asclepius, the god of medicine, not only healed the sick, but also taught them medicine. Often, sculptures of Asclepius, the god of medicine, were placed near the buildings dedicated to him. In Pergamon, an ancient city in northwestern Asia Minor, there was a well-known healing center dedicated to Asclepius.

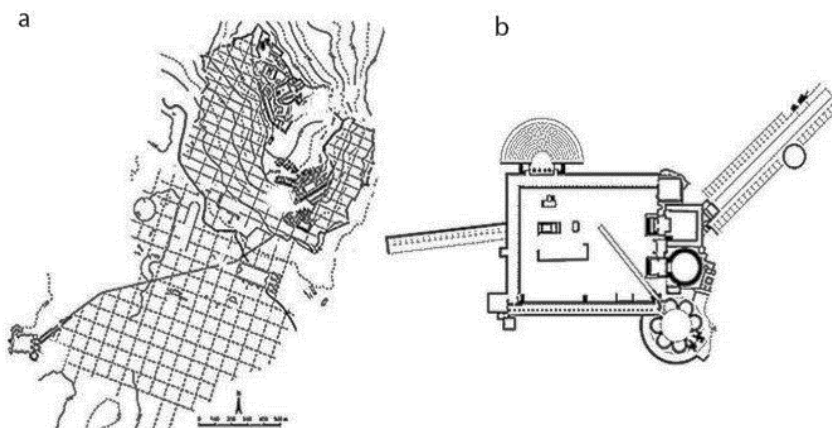


Figure 4. Ascleplon in Pergamum: The General Plan of City (a); The Layout of the Ascleplon (b)

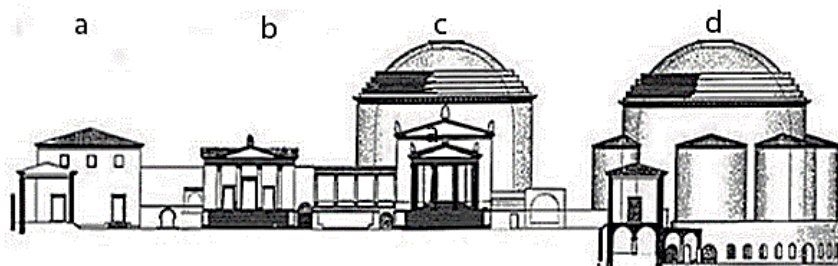


Figure 5. View of the Ascleplon in Pergamum from the East Side after Reconstruction: Library (a); Propylon (b); Temple of Asclepius (c); Medical Center (d)

The lower part of ancient Pergamon, located in the southwest part of the city, not far from the sacred road leading to the Asclepion, was one of the main religious and medical centers of Asia Minor. The physicians of the Asclepion believed that the physical and mental state of a person are inseparably connected. In line with this, in addition to traditional treatment methods, patients were offered various activities aimed at improving their emotional state. Therefore, patients had the opportunity to pray in the temple of Asclepius, visit the theater, read books in the library, or simply relax in the shade of an olive grove.

At the center of the Asclepion was the Temple of Asclepius, built in the 3rd century BC. The temple was surrounded by a portico that connected various buildings into a single complex, including: A monumental propylaeum serving as an entrance to the complex, A library containing medical treatises and works of ancient literature, A theater where religious events and performances were held, The Chapel of Asclepius, where the sick prayed to the god of healing, A recommendatory hall where the priests of Asclepius gathered, and A ward for treating the sick.

In the center of the complex were three pools with healing springs, the water from which was used for bathing and drinking. The Asclepion was one of the most advanced medical centers of its time. Various treatment methods were used, including medicinal compounds, surgical operations, and physical exercises. The Asclepion was also a significant cultural center where scientific research was conducted, and literature and art flourished (Valeryevna & Bahridinovna, 2022).

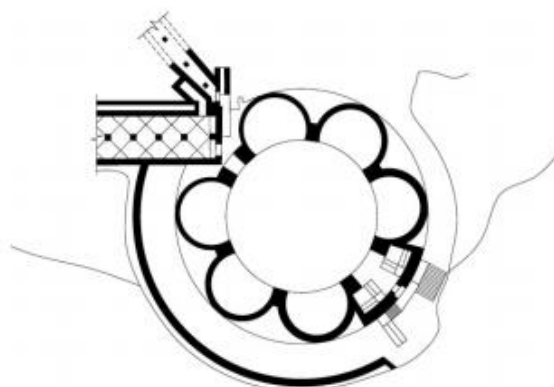


Figure 6. The Plan of the Asclepion Medical Center In Pergamon

In his treatise "Hippocratic Oath," written in the 5th-4th centuries BC, the ancient Greek physician Hippocrates (Hippocrates of Cos) noted that the development of medicine in the Ancient Country occurred in two directions:

The first direction was the growth of the practical medical profession. In this direction, healers established small, and later larger clinics, where they treated patients at home. These clinics were called "iatreia."

The second direction was the rise of religious medicine. Religious medicine was associated with religious traditions and rituals. In the development of Greek medicine, it played a lesser role than practical medicine. Hippocrates also noted that in the development of practical medicine, a key role was played by the so-called "iatroliptes." Iatroliptes were medical teachers who instructed students in the fundamentals of medical practice (Erkinovna & Sergeevna, 2021).

During a certain period of time, healers formed groups, and in some cities and communities on the islands, medical schools were opened. The most notable of these are the schools in Croton, Knidos, and Kos. In these schools, doctors were trained who paid special attention to practical medicine. They developed new remedies based on natural components such as sorrel, white clay, and garlic. (C.T. & Kulkarni, 2023) From this we know that medical students in those times understood how useful striped fossils and medicinal plants were for medicine.

Viewed from the perspective of landscape architecture and urban planning, hospital buildings have over time turned into a monumental figure that plays a special role in the life of the city. They play a role in the design and construction of dominant compositional structures in the city square: healing complexes include walking parks or squares for the public, enhancing the urban environment. Health complexes in the process of studying the object of planning, medical and health institutions stimulate the study of the historical development of landscape architecture. This topic is one of the current ones at the moment. Because "without history, there is probably no future."

Studying the structure of modern health complexes abroad



Figure 7. Maggie Sainsbury Cancer Wellness

Many scholars, philosophers, and psychologists note the mystical connections between the nature of the landscape and the customs of its inhabitants. This psychophysical fact has always served as a guiding axis when choosing a new place to live and, of course, becomes important when choosing a vacation spot. Research conducted at the Urmia hospital shows that landscape design visible from the window during recovery after cholecystectomy surgery influenced human health. After patients who had undergone surgery were moved to the treatment room, the room required less pain relief if trees were visible from the window, and it was shown that they returned home faster than patients whose window faced buildings. (Figure8). Many scholars, philosophers, and psychologists note the mystical connections between the nature of the landscape and the customs of its inhabitants. This psychophysical fact has always served as a guiding axis when choosing a new place to live and, of course, becomes important when choosing a vacation spot. Research conducted at the Urmia hospital shows that landscape design visible from the window during recovery after cholecystectomy surgery influenced human health. After patients who had undergone surgery were moved to the treatment room, the room required less pain relief if trees were visible from the window, and it was shown that they returned home faster than patients whose window faced buildings. A vivid example of a medical complex is the Maggie Sainsbury Cancer Wellness Center in the UK, designed by

architect Thomas Heatherwick, known as a "paradise for the soul" (Figure 7). The main goal of this healthcare facility is to provide emotional comfort for seriously ill patients, as well as to offer psychological support while remaining in harmony with nature.

A study conducted in Michigan showed that spending time in nature has a positive effect on mood and can help treat depression. According to the research cited in an article published on the American Society of Landscape Architects platform titled "Creating a Health Culture," it is stated that "urban landscape design can also influence crime rates." However, studies conducted in Philadelphia have shown that greening vacant lots reduces the likelihood of vandalism and decreases stress (Ahn & Kim, 2024).



Figure 8. Maggie Saint Cancer Wellness

The research was conducted by researchers from the Harvard School of Public Health and the Women's Hospital in Boston. The study found that the mortality rate among women living in the area was lower than among women living in the city (Figure 8).

According to research by scientists, women living in areas with higher green spaces had 41% fewer deaths from kidney diseases, 34% fewer deaths from respiratory diseases, and 13% fewer deaths from cancer compared to women living in other areas (Erkinovna & Sergeyevna, 2021).

In the modern world, healthcare is becoming increasingly challenging by the day. Daily stress and life concerns make the body function improperly. Therefore, it is necessary to give the body a rest to restore lost resources, boost immunity, and strengthen health.

To address this issue, the health center "Foros Wellness" was selected. Anyone visiting the health center can restore their health not only by resting on the seaside. This medical center stands out for its most beautiful and extensive garden-park landscape architecture.



Figure 9. Wellness Center "Foros"

The garden-park area of the wellness center is located away from the busy main road and is abundant in ancient vegetation. One side of this medical center is adjacent to the mountain, while the other ends at the Black Sea coast.

Looking at the origin of this unique landscaped health center, history tells us that in 1837, Alexander Kuznetsov, a tea merchant, fell ill with tuberculosis. Specialized doctors advised him to seek treatment in healthcare facilities in areas with monsoon air and a moderate climate in Crimea. Then Alexander Kuznetsov brought trees, shrubs, and flowers from various parts of Europe, Africa, and Asia over the course of 6 years of treatment. From year to year, the number of these plants grew, creating a beautiful and unusual garden (Bai & Onufriv, 2021).

Before the Second World War and after the death of Alexander Kuznetsov, this garden became a children's health resort. After the war, the entire city became a health center. Currently, we witness over 300 beautiful varieties of different trees and flowers in the garden-park of the wellness center. The influence of the Foros Garden on the human body is highly esteemed. The coniferous trees there emit essential oils which, when oxidized by oxygen, enrich the atmosphere with ozone. Releasing these volatile substances, pine, cedar, fir, and juniper calm the nervous system, alleviate fatigue from stress, and increase lung vitality. This air is beneficial for treating individuals with nervous conditions and insomnia. In the wellness center garden, a special therapeutic zone has been designated, where the growing trees increase the concentration of phytozones in the air. The mountain and sea air on the territory of the medical center harmoniously blend with climatotherapeutic treatment. This treatment includes aerotherapy (treatment with fresh air), heliotherapy (treatment with sunlight), and thalassotherapy (treatment with the sea). In aerotherapy, inhalation of sea air and phytoncides soothes the nerves, improves lung function and cardiovascular health. In heliotherapy, treatment with ultraviolet sunlight and fresh air lowers cholesterol levels and treats atherosclerosis.

Thalassotherapy involves bathing in seawater. Sodium, potassium, magnesium, and iodine dissolved in the sea water impact the skin and enhance the body's metabolism. The magnificent plant "juniper" covers 3 hectares of the wellness center garden. This is why the therapeutic zone is located in this area. Patients with respiratory diseases walk along the landscape therapy corridors of this zone and engage in aerobic exercises. This zone also includes an exercise area and resting spots. Sitting on benches or climbing the pilaster requires deep breaths, filling the lungs (Kaya, 2023).



Figure 10. Yalova Wellness Center

In Turkey, there is a health center called "Yalova". The natural beauty and healing properties of the water in this camp have made the sanatorium a paradise on Earth. The clean mountain and sea air in this location strengthens human health. Bathing in the water of the hot lake at the health center can help treat rheumatism, urological diseases, skin disorders, and much more. History tells that only sultans bathed in the water of this hot lake to restore their health. In our time, this lake is called "Sultan's Bath" (Figure 10).

The area surrounding the health center is designed with a dendrological garden, which integrates the garden with yew, minerals, water, and the Black Sea, emanating from various trees, shrubs, and flowers, forming a magnificent therapeutic complex. Minerals in the water, fresh air, and sea air soothe the nerves and serve as a remedy for inflammatory conditions.

In conclusion, it can be inferred at this stage that the human body is directly a piece of nature, down to every cell. Therefore, nature itself is the medicine for it. For each of the human sensory organs, there are specific and suitable plants. The aforementioned health centers have proven this in practice in their research, showing that uniformity is the medicine for a human being. Based on the results obtained, further growth and innovations in the field of public health and landscape architecture can be achieved by applying these methods in our own health centers.

Typological foundations and features of health centers

When designing the territory of a medical institution, the following task must be taken into account: improving sanitary and hygienic conditions - protection from wind, heat, dust, noise, and gases; enhancing air quality; providing therapeutic effects on patients and creating favorable conditions for their recovery through the landscape environment; landscaping and greening of areas for sun and air baths, physiotherapy sessions, and the organization of walking paths in the hospital garden; enriching the architectural appearance of buildings and the entire health area with decorative plants and vertical landscaping (Sher et al., 2023).

It is desirable for the medical facility to improve and green the territory so that patients undergoing treatment and hospital staff are in comfortable conditions and can restore their health. 70-80% of the territory occupied by medical institutions should be greened. Shade and coolness should be provided in practically all areas of greenery. Green plantings should create a system of open and closed green areas (Sher et al., 2023).

Adherence to norms and rules of landscaping and greening of the territory requires knowledge of the healing place and its development system. Special attention should be paid to the type of trees and shrubs; plants should directly influence physiological processes that contribute to the healing and relaxation of patients. The types of trees, shrubs, flowers, planting technology, greening of the therapy area, and types of landscape compositions enhance the healing potential of the health area. Based on the drawing presented in the textbook "Organization of Sanatorium and Resort Activities" written by Voynova, the health complex is divided into several forms.

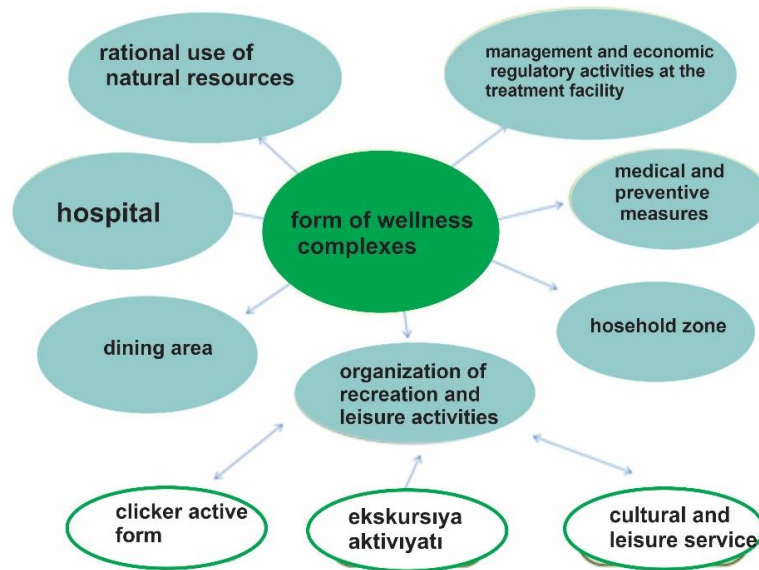


Figure 11. The Shape of Cluster Wellness Complexes

Health institutions are divided into zones with rational use of their territories (Figure 12). These include; Residential area 8%, Medical area 8%, Sports area 12%, Recreation area 10%, Quiet area 60%, Agricultural area 2% (Moholy-Nagy, 1962; Valeryevna & Bahriddinova, 2022). The medical area encompasses the health complex. It includes water-mud procedures, therapeutic pools, phyto-bars, massage, ignitotherapy, and paraffin therapy.



Figure 12. Zoning of Territories of Health Facilities

Sports zone - a combination of courts for active games (basketball, volleyball, tennis, etc.). Agricultural zone - the medical area is located on low terrain 30-40 meters away from the building area. In the territory of this zone, there is a central boiler room, diesel laundry, utility shed, vegetable storage, and a garage. A green border 50 sm wide and 40 sm high separates the farm zone from other zones.

Architectural-spatial means and principles of forming the landscape environment. In a health institution, there should be two separate entrance doors: the main entrance to the health facility and the gate serving the farm zone.

Landscape refers to the relationships between ecological and aesthetic systems, such as fauna, flora, soil, planet, and climate factors that impact humans as a therapeutic landscape. A therapeutic landscape is one of the most important elements in preventing psychosomatic diseases (C. T. & Kulkarni, 2023).

According to doctors, a therapeutic landscape is an excellent form of psychotherapy. It contains the following beneficial effects:

1. Therapeutic effect;
2. Prevention of mental illnesses.
3. Restoration of the human body through the influence of geographical and cultural landscapes.

The main goal of landscape therapy is to restore the altered functional and psychological state of a person (He et al., 2024). According to doctors, a therapeutic landscape is an excellent form of psychotherapy. It contains the following beneficial effects:

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The main goal of landscape therapy is to restore the altered functional and psychological state of a person (Liang, 2023).

Aromatherapy methods involve using trees, shrubs, and flowers that support human health (lemon, pine, juniper) and release aromatic substances that affect the mind (frankincense, myrrh) as well as beauty and youth (fragrant rose, neroli). In these methods, plants are used in the form of inhalations, in therapeutic baths, and as decorative flowers placed in rooms for relaxation and sleep. The aroma from flowers, shrubs, and trees positively impacts the nervous, respiratory, and digestive systems because they release therapeutic essential oils.

Therefore, there may be a need to develop a classification of trees, shrub, vine, and flower species that affect the human psyche used in the design of landscape areas in medical institutions in the Republic of Uzbekistan. In this classification, plants should be selected based on their type, choosing perennials based on their therapeutic efficacy and height, giving a dark hue, and adapting quickly to dry soil. Attention should also be focused on the more lively and calming colors of plants.

The formation of the landscape environment is carried out based on the evaluation of each landscape component (relief, watershed, and soil-vegetation cover) as a factor in its use in a specific recreation method. The presence of certain landscape areas is a condition for implementing health-preserving technologies.

In landscape architecture, the combination of smell, color, sound of water, and light sources when chosen correctly is an important practice in health centers because some individuals may be more sensitive to landscape therapy than manipulative therapy. The use of natural resources is an absolutely harmless treatment that does not require effort.

Based on the results obtained, further growth and innovation in the field of public health and landscape architecture can be achieved by applying these methods in our own health centers.

RESULT AND DISCUSSION

Project Proposal

The relevance of addressing one of the issues in landscape architecture lies in the conservation and rational use of natural resources, preserving historical natural landscapes throughout the country. A leading expert in this field is Dr. Varvara Yu Vedenina "today, those responsible for the preservation and development of historical urban or rural areas as a special type of cultural landscape face a complex task, on the one hand, to preserve the historical, cultural, and natural values of this place, and on the other hand, to create normal modern living conditions for the local community...". About what needs to be done and what needs to be done. Various types of specialized medical institutions existed in different historical periods. For example, in Ancient Greece, the first hospitals called "iatreia" were created. In Ancient Rome, "balnea", serving as both hospitals and baths, was built. Monastic hospitals founded at monasteries emerged in the Middle Ages. The first university hospitals were established during the Renaissance. Specialized hospitals, such as psychiatric hospitals, oncological hospitals, and more, appeared in the 19th century. Healing sanctuaries hold an important place in society. This was due to an ancient belief in the power of divine intervention in the healing process. Healing sanctuaries were often located in sacred places, such as temples or shrines. Hospital surroundings and courtyards were meticulously planned and decorated at that time to create a conducive atmosphere for patient recovery. Green lawns, trees, shrubs, and flowers were used to create a sense of comfort and tranquility. Healing pools and fountains were used for patient treatment.

The historical context influenced the choice of thematic research and the overall structure of the study, emphasizing the importance of understanding the evolution of landscape architecture in medical institutions. Delving into the historical development of landscape architecture in medical institutions, the study is aimed at extracting information from past practices to justify modern design solutions. In particular, the study delves into the historical context of the principles of Asclepius, which combined various objects such as theaters, libraries, temples, and hospitals into a complex. This historical model emphasized the importance of creating healing environments with special architectural and spatial features, such as healing pools and underground passages, to improve the well-being of patients.

This study explores the typological foundations and landscape architecture of a sanatorium located on the outskirts of Samarkand City. Research and architectural analysis showed that the sanatorium was intended for the rest and relaxation of employees of internal affairs entities. The area of the resort zone is 117,790.27 square meters. In 1994, the sanatorium was reconstructed in accordance with a resolution of the Cabinet of Ministers of the Republic of Uzbekistan (Figure13).



Figure 13. Topography of the Rehabilitation Center

The medical zone of the sanatorium is surrounded by flower beds where medicinal plants such as rosehip, aloe, nettle, wild mountain pine, horseradish, and thorn grow. These plants are used for treating various ailments including hypertension, gastrointestinal disorders, cardiovascular diseases, and bronchitis. The healing leaves of juniper and thyme are used for preparing medicinal baths. The landscape architecture of the sanatorium is divided into two zones: the main building and the procedural building. Each zone is designed in a distinct architectural style opposite to the other. Overall, the sanatorium is an important social facility providing rest and treatment for employees of internal affairs entities. By 2015, the medical center was renamed as the "Rehabilitation Center." Currently, the rehabilitation center serves 116 patients. Every year, 3600 patients undergo treatment at the rehabilitation center. Over the years, the landscape architecture of the health center has deteriorated significantly. Therefore, it is necessary to reconstruct it in a modern style, restore national landmarks, and develop a project for ecological solutions. In the future, we can witness the creation of opportunities for the development of landscape architecture for health complexes on a national scale. The building is surrounded by a library for spiritual relaxation, a greenhouse with lemon trees, and an area where people play recreational games. Thus, the settlement area consists of the Obi-Rahmat stream and a fountain on the northern side of the building. The healing area predominantly features spruces, birches, white poplars, and various fruit trees. The shrubbery includes lilac, Japanese quince, black mulberry bushes, iris flowers, roses of different colors, chamomile, and other similar flowers. Based on the analyses conducted and the research methods applied from international, and historical experiences, and other methods mentioned above, the planned territory is divided into zones (Figure 14).

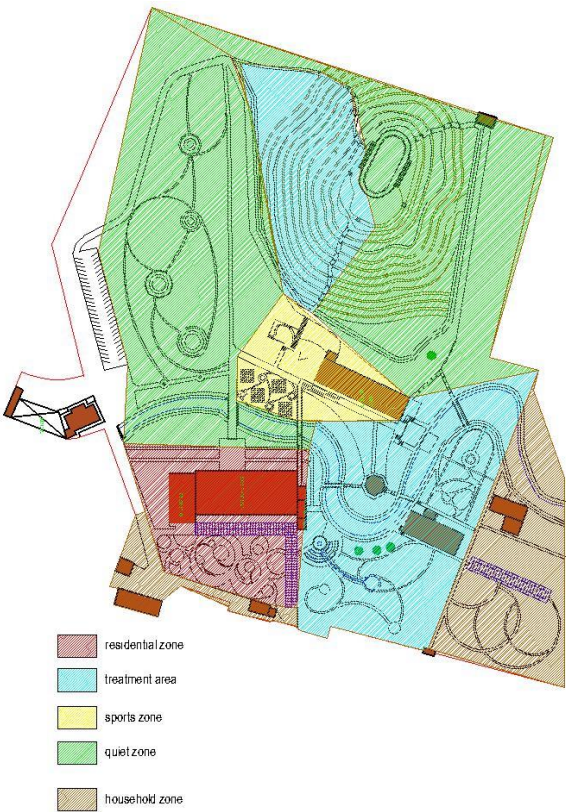


Figure 14. Zoning of the Territory



Figure 15. Project Proposal of the General Plan of the Medical Center

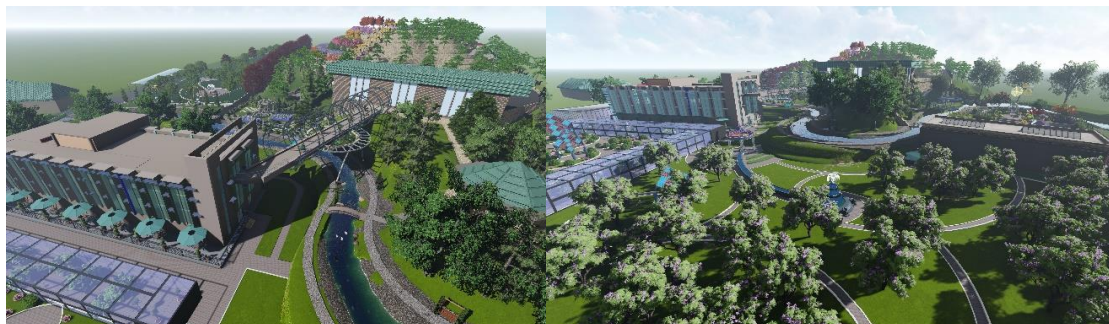


Figure 16. Current Type of Project Proposal

In the area to the left of the main entrance to the planned medical institution, there are tall coniferous trees that will be preserved. On the right side, where the hill is located, there will be a "color therapy" zone designed. This zone helps patients restore their health through color. Table 1 presents the classification of the color therapy zones.

Table 1. Color Therapy in Landscape Design

Color	Symbols	Influence on the psyche	Influence on physiology	Heals diseases	Not recommended	Examples of plants
Red	Fire, warmth, life, energy, activity, will, struggle, passion, anger	It gives a sense of security, confidence, helps to overcome problems, strives for leadership	Improves the nervous system, releases energy, improves blood circulation	Low blood pressure, anemia, poor circulation, cold, runny nose	People with high blood pressure, heavy bleeding	David's budlea, maiden grapes, honeysuckle caprifol, clematis lianas, Chinese astilba, Viola, multi-colored margarita
Orange	Movement, speed, rhythm, joy, emotion, enjoyment of life	Cleanses from unpleasant emotions, helps to forget about negative events, forgive a person	It gives energy, expands the thought process, and will energize	Loss of appetite, upset stomach, asthma, gallstones	There are too many applications in landscape design	Tecoma or campsis Liana, viola, calendula, Korean chrysanthemum
Yellow	Sun, day, freedom, holiday, joy, patience	Stimulates feelings, frees from negativity, increases self-confidence	Effectively treats diseases of the digestive tract, improves function, mainly helps to digest fats	Constipation, diabetes mellitus, skin diseases, fatigue of the nervous system	For insomnia, as well as for severe stomach diseases	Droc Spanish shrub, honeysuckle caprifol, tecoma or campsis, Japanese honeysuckle creepers, viola, narcissus, cinnia
Pink	Femininity, unconditional love, romance, friendship, kindness, infancy	-	-	Cleanses the kidneys, adrenal glands, blood from harmful substances -	-	Chinese astilba, viola, Perennial daisy, Korean chrysanthemum, Aster, zinnia, petunia

Color	Symbols	Influence on the psyche	Influence on physiology	Heals diseases	Not recommended	Examples of plants
Green	Nature, life, confidence, harmony, extraversion, naturalness, kindness and tenderness	Neutral color, helps to cope with anger and aggression	Heart attacks	Heart disease, bronchitis and lung diseases, as well as the flu	-	Large-leaved linden, Western camel, prickly spruce, Virginian juniper trees, brilliant dogwood, Cossack juniper shrubs
Blue	Wind, sky, cold, ice, purity, sincerity, conversation, politeness, peace, depth, vision, wisdom, silence and peace	It calms you down, helps you make the right decisions, listen to your inner voice	Astringent and anti-inflammatory agent	High blood pressure, Sore throat, cough, thrush, insect bites, burns, PMS, stress, childhood illnesses	People prone to depression	Hydrangeas, rosemary medicinal shrubs, pueraria, clematis lianas, delphinium, Altiris
Violet	Wisdom, spirituality, abstraction, insight, skill, nobility, law, power	Calms the psyche, energizes, unites mind and body	Seizures, diseases of the nervous system and multiple sclerosis	-	It does not apply to seriously mentally ill and intoxicated patients	Common lilac, Hungarian lilac shrubs, caprifolia honeysuckle, pueraria, Chinese Wisteria lianas, Chinese astilba, viola, purple basil"

To the left of the color therapy zone is a sports complex, where large chess boards are arranged using lawn and paving stones. The great Cuban grandmaster Raul Capablanca said: "Chess is not just a game. It is an intellectually beneficial way to spend time, based on a certain degree of art and science (Figure 17). The more important sports are for physical excellence, the more important chess is for mental potential. It is an interesting and convenient way to develop special qualities inherent to people and to train the mind" (Boonpracha, 2023). The area around the sports zone is landscaped in the form of an artistic landscape. Furthermore, decorations with various shrubs and flowers with medicinal properties have been designed. Shelters are installed between the chess squares for the cultural leisure of elderly people. This, in turn, brings aesthetic beauty to the landscape zone.

The next therapeutic zone is the "aromatherapy garden (aroma)" consisting of decorative trees, shrubs, climbers, and flowers emitting fragrant calming scents.

These garden plants release phytoncides into the surrounding environment of the health center, soothing the human nervous system, and clearing the respiratory tract of bacteria and fungi. The Crimean pine, silver maple, holly trees, white dogwood, common lilac, snowberry shrubs, and honeysuckle climbers are offered in this healing area. Their composition is rich in essential oils. Therefore, the aroma uplifts the mood, calms people with different characters, boosts self-confidence, and eliminates negative traits. This garden represents a compositional space of open space, designed in a free style.



Figure 17. Sport Zone

Landscape classification is a logical grouping operation of the set of individual landscapes into classes, types, and communities based on strictly defined characteristics reflecting their essential properties. Classification also holds significant practical value. In practical terms, the landscape is important for individual analysis when assessing architectural needs. There is a need for the development of more specific standard norms or measures (urban planning, environmental protection, etc.). It can be expected that typologically similar landscapes will have similar natural conditions and resources while responding to the same types of agricultural and land reclamation impact.

After studying the therapeutic effect of each plant from the classification mentioned, species suitable for health centers and growing in the territory of Uzbekistan were selected.

If it becomes difficult or economically unfeasible to find specific trees and shrubs for planting in a health center, work can be carried out relying on a different plant composition to replace it. For example, this problem can be solved using the SCAMPER method of pedagogical technology (Boonpracha, 2023).

Throughout history, and especially since the creation of the internet, numerous processes and methods have been developed to enhance creative abilities, problem-solving, and productivity. Among them, the SCAMPER method is the most well-known, which can help us both personally and professionally.

While some people are more creative than others, creativity is an innate human ability. However, this does not mean that it cannot be learned or improved. In many cases, methods such as SCAMPER help reestablish the connection lost between individuals and creativity.

SCAMPER (Substitute, Combine, Adapt, Modify, Put, Eliminate, Reverse) is a creative method in the form of creativity. Although the idea of this method in the mid-twentieth century belonged to Alex Osborn, one of his students, Bob Eberle (1997), who developed and made this method pragmatic for enhancing brainstorming.

Furthermore, the SCAMPER method assists in positively solving problematic issues that arise in the design object. The process consists of substitution, combination, adaptation, modification, proposing new ideas, elimination or reduction, and reversal.

To better understand this method, we must think about the words in each letter and some questions that may arise concerning the words (Table 2).

Table 2. Scamper Method

Abridged	Modification	Explanation
S	<i>Substitute</i>	Substitutes - for example components, things, people
C	<i>Combine</i>	Combination - for example, something or devices that perform some function, etc.
A	<i>Adapt</i>	Adaptation-add something new, Task-Action, for example
M	<i>Modify</i>	Modification-change, for example, size, shape, color or other feature
P	<i>Put</i>	Making a new offer
E	<i>Eliminate</i>	Cancellation or reduction
R	<i>Reverse</i>	Reverse direction

As an example from the compiled classification, the sugar maple tree is cited in the SCAMPER method as one of the innovative methods of pedagogical technology.

Table 3. As an Example, One of the Innovative Methods of Pedagogical Technology of the Klenostrolistny Tree is in the SCAMPER Method

Abridged	Modification	Explanation
S	<i>Substitute</i>	Buddleya Davida (<i>Buddleja davidii</i>)
C	<i>Combine</i>	Spireya Bumalda (<i>Spiraea Bumalda</i>) Rosa wichuraiana
A	<i>Adapt</i>	For Buddleya Davida, the Rose Vixurayana Liana can be the most successful collaborator. Buddleya Davida adapts well with low plants, dominates among them and fully reveals its delicate beauty.
M	<i>Modify</i>	The use of the Scamper method resulted in a landscape composition with a bush and liana in place of the Klen ostrolistny tree.
P	<i>Put</i>	Applying the David budlea bush and the Vihurayan Rose Vine in different ways to the landscape composition, not limited to planting on the projected object, the formation of an arch with metal frames can lead to the creation of an arched path decorated with wonderfully delicately scented roses when the Vihurayan Rose walks along garden paths.
E	<i>Eliminate</i>	The above landscape is correct in the design of treatment areas, helping a person to release stress and mental fatigue.
R	<i>Reverse</i>	The holly maple tree is planted, abandoning the composition of shrubs and lianas.

These plants are used for creating the landscape design of the sanatorium. Their healing properties are combined with aesthetic design, providing favorable and comfortable conditions for rest and recovery. Additionally, a new planting and caring method for these plants has been proposed and implemented, allowing for maximum therapeutic effectiveness and maintaining a well-groomed appearance of the area. The health complex contributes to the introduction of innovative new project proposals into the development of the medical center by compiling a classification and analysis through one of the innovative methods of pedagogical technology – landscape-architectural planning solution tasks of the project proposal using the Scamper method.

Studying the classification of health institutions, it is impossible not to dwell on the concept of creating their internal environment. Because both of these states are inseparably linked and complement each other.

For instance, the increase in landscape-therapeutic potential of landscape architecture in healthcare institutions in the conditions of Uzbekistan was considered through the example of an innovative project of health centers in the City of Samarkand. It is obvious that implementing this project is not easy, but the project will certainly be systematic, requiring scientific research, observations, and experiments. It is necessary to create controlled experimental healing gardens with different environmental conditions

and study the effectiveness of therapy. In order for patients undergoing treatment at the health center to feel well, it is necessary to use landscape design rich in various colors.

DISCUSSION

After years of changes, the landscape architecture of the Samarkand sanatorium and resort center has deteriorated. A new project is needed that would combine modern trends, national traditions, and ecological principles. The project must be designed taking into account the following factors: The geographical location of the sanatorium. The Samarkand Sanatorium and Resort Center is situated in a picturesque location on the outskirts of the city of Samarkand. The project should harmoniously blend into the surrounding landscape. Samarkand has a hot and dry climate. The project should consider this factor, providing comfortable conditions for rest and treatment of patients. Samarkand is one of the oldest cities in Uzbekistan. The project should reflect the national traditions and culture of Uzbekistan. It should also be environmentally friendly and contribute to the preservation of the environment.

The implementation of the project will achieve the following results: The sanatorium and resort complex will meet modern quality standards; The landscape architecture of the complex will harmoniously fit into the surrounding landscape. The complex will be comfortable and safe for the rest and treatment of patients; Developing a new project for the landscape architecture of the Samarkand sanatorium and resort center is an important task that will improve the quality of leisure and treatment for patients, as well as preserve the environment.

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In conclusion, we extend our thanks to the team at the Rehabilitation Center in Samarkand for their valuable contribution to the field of healthcare architecture. Their work serves as an example of the positive impact of landscape architecture on patient well-being and healthcare efficiency.

REFERENCES

- Ahn, Y. J., & Kim, K. B. (2024). Understanding the Interplay between Wellness Motivation, Engagement, Satisfaction, and Destination Loyalty. *Behavioral Sciences*, 14(3), 239. <https://doi.org/10.3390/bs14030239>.
- Bai, K., & Onufriv, Y. (2021). *Formation of medical and recreational complexes at the post-industrial territories (on the example of the Bolekhivtsi village)*. Master's thesis Lviv Polytechnic National University. <https://doi.org/10.13140/RG.2.2.31339.46881>.
- Boonpracha, J., Roong-in, J., Lookraks, S., Wongtanasuporn, P., Kooptiwoot, S., & Seangkong, S. (2023). Creativity of students' cultural product design using the SCAMPER technique. *Journal of Mekong Societies*, 19(2), 179-196.
- Erkinovna, K. D., & Sergeyevna, K. G. (2021). The Reconstruction of the Architectural Landscape is a Means of Optimizing an Urban Environment. *International Journal on Integrated Education*, 4(4), 238-240.
- He, Y., Wen, C., Fang, X., & Sun, X. (2024). Impacts of urban-rural integration on landscape patterns and their implications for landscape sustainability: The case of Changsha, China. *Landscape Ecology*, 39(7), 129. <https://doi.org/10.21203/rs.3.rs-3956364/v1>.
- Kaya, A. (2023). Kaplıcalardan Termal Otellere: Yalova Termal. *Sinop Üniversitesi Sosyal Bilimler Dergisi*, 7(2), 1812-1832. <https://doi.org/10.30561/sinopusd.1361219>.
- Liang, Y. (2023). Horticultural landscape therapy on anxiety disorders of spatial design students. *CNS*

- Spectrums, 28(S2), S138-S138. <https://doi.org/10.1017/S1092852923006016>.
- Moholy-Nagy, S. (1962). The Indivisibility of Design. *Art Journal*, 22(1), 12–14. <https://doi.org/https://doi.org/10.2307/774603>
- Sher, S. A., Albitskiy, V. Y., & Ustinova, N. V. (2023). Sanatorium And Resort Recreation Services For Child Population In Ussr In Post-Wwii Period (1946 TO 1950). *Pediatrica. Journal Named after G.N. Speransky*, 102, 219–225. <https://doi.org/10.24110/0031-403X-2023-102-4-219-225>
- C.,T., P., & Kulkarni, B. S. (2023). *Therapeutic Horticulture and its benefits*. (pp. 110–121).
- Valeryevna, D. N., & Bahriddinovna, K. H. (2022). Rockeries and rock gardens in the landscape design of the urban environment. *International Journal of Advance Scientific Research*, 2(05), 90-97. <https://doi.org/10.37547/ijasr-02-05-15>