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Introductory Chapter: A General Reading Process on Landscape Architecture

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Additional information is available at the end of the chapter

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1. Introduction

Landscape architecture is a multidisciplinary of different fields of knowledge that combines various artistic, technical, and scientific sphere aspects such as visual arts, design, descriptive geometry, history and architecture theory, urbanism, fundamental notions of botany, pedagogy, hydrology, sociology, economics, and so on. It supports a clear combination between designing and managing according to certain principles and techniques of external functional spaces in which human activities will take place, where the activity of the landscape architect addresses both urban and rural environments, irrespective of its jurisdiction (private or public). The landscape painter deals with both small-scale projects (landscaping and landscaping, etc.) and large-scale projects (urban design, parks, etc.). Among the activities, it includes many extra areas such as gardens, terraces, green/brown roofs, vertical gardens, parks, urban squares, green strips and street alignments, protection plantations, university campuses, botanical and zoological gardens, cemeteries, residential complexes, design urban, and so on. Over time, the range of plants has widened, and gardens are beginning to have ornamental and recreational characters, offering shades and coolness. In the orient, due to the warm climate and torrential summers as well as extensive desert and arid lands, the gardens were regarded as true oases of coolness, relaxations, rests, and pleasure. The creation of these gardens required the creation of water supply and irrigation systems, being stimulated by the development of architecture by creating palaces, temples, and sumptuous residences. The orient gardens were synonymous with the notion of Paradise or Heaven on earth, being, in fact, privileged places that offered pleasure and relaxation through the greenery and the shade offered by the numerous woody species, the aromas of the various aromatic species, or the cooling of the water in the form of waterfalls or ponds. The concept of landscape architecture is involved in open spaces surrounded by fences and also by open spaces without any fence or

wall, such as squares, parks zone, green belts, and wild landscapes. The critical difference between the two is that gardens tend to be enclosed and to be designed for the private individual, whereas landscape architecture is concerned with open space, the public realm, and the relationship between the humanity's development activities and the natural environment. Landscape architecture is concerned with the public good, with community values and with human development and its impact on the land. The scale of landscape planning may be regional or even national: landscape architects can design the whole new agricultural landscapes and forests [1]. The portion of territory overlooked, forming it as a natural state or through human intervention, which had the intention to create an esthetic ensemble. Landscape architecture, or green space design, is the art of land planning, design, management, preservation, and repair, as well as the development of artificial structures. Landscape role in urban sector is to directly influence the physical and biological environment and diminish many operative impressions of metropolitan development through decreasing the negative effects of climate and saving energy as well as eliminating carbon dioxide, adjusting the operative rainfall runoffs, improving the air quality, sinking the acoustic levels, protecting the nature, and improving the attractiveness of metropolises [2]. The history of landscape architectural discipline, an element which has to be analyzed, is related to the gardening sector, but not confused with it. The two disciplines labor with the confirmation of plantations and external adaptations, where gardening is more interested in public and private areas by enclosed or fenced spaces, such as parks and gardens. A worthy landscape architecture directly influences the physical and biological environments and diminishes the efficiency in many impacts of urban development by moderating the macro- and micro-climate, conserving the energy, improving the air quality, controlling the rainfall runoffs and flooding's, lowering the acoustic levels, harboring the wildlife, and improving the desirability of cities [2]. In other words, it represents the interference of discipline, with a high rank of art and science, which deals with development and arrangement of the system of green spaces. That has to be a whole and of the green spaces, in particular, according to certain principles and techniques, by associating the natural elements (vegetation, water, soil, and rocks) with the artificial elements (buildings, installations, etc.) to fulfill certain functions. Landscape architecture includes planning, design, and landscape management. Accordingly, landscaping involves the subordinate landscaping and design of the outdoor environment. Landscape refers to all cultural and natural land and water areas in the city and the countryside. Minor areas such as parks, squares, gardens, and walkways make up various components of the landscape. In an architectural domain, landscape not only shows the relationship between man and nature but also expresses the cultural content. Human civilization is the beginning of the face of all things to create a human world. The "symbiotic ecological" relationship between mankind and its living environment is often times forgotten [3]. Consequently, the "landscape architecture" caring is from the natural land of the humanities to the urban and rural areas, communities, home environment planning, and space design. The efficient process of a comfortable and esthetically valuable environment is carried out with the help of natural materials (relief, water, vegetation, etc.) and architectural structures while maintaining existing and creating artificial landscapes and designing landscaping and recreational zones. In contrast to landscape architecture, the subject is much broader and consists of the organization of many components of the spatial environment of human life. The scope of this book includes landscape design, environmental

restoration, land preparation, residential development, parks and recreational planning, and historic preservation, which are closely related to geography, architectural design, urban design, town planning, and regional planning. In other words, landscape architecture represents a 3D spatial organization of the territory, the combination of natural, building, and architectural components into an elemental composition bearing a certain artistic image. Like architecture and town planning, landscape architecture refers to spatial types of art. Landscape architecture can therefore alternatively be described as the overall knowledge as a practitioner used by a landscape architect in the implementation of projects. At the same time, the process of creating green areas in the sites is not the mere filling of the empty spaces between buildings with different natural elements such as stones, grass, flowers, and trees [4]. It requires profound philosophy of the organization of these areas in the harmonious form by using diverse plant forms, the dynamic chromaticity of the flowers and leaves, water mobility, and the relief of the trees in contrast with different construction backgrounds. Landscape, in general, represents the culture and the nature where human being needs productive, practical, beautiful, and lasting scenery in cities, settlements, and natural areas. Landscape dialogs and activity elements carry neighbors in a composed form, melting variances between racial and ethnic communities, where the effect of landscape elements becomes an operative device to unite localities. Landscape in a set form upon urban areas represents a worldwide language, which can bring the community objectively to be together. Besides the major role of landscape, it contributes effectively to reduce the domestic violence levels in communities [5]. Landscape architecture is a profession search for procedures that comprehend evident spirit, where the main goal of the career is to weigh the interests and values into an attractive, long-term, and sustainable consequence of a whole subject. The subject anchoring is found in the history of landscape architecture, social architecture and garden art, the theories of landscape architecture, and the esthetic experience, with artist-like working methods. Within the landscape architecture, a variety of methods are used. However, the core subject is the design method of the freer—heuristic architect through sketches, drawings, images, and physical and digital models. Green areas help much in reduction of environment pollution where the function of the reduction of environmental pollution can be achieved precisely by the ability of the vegetation to retain, fix, and sediment particles suspended in the atmosphere, fine powders, or smoke [6]. Solutions will be talented to touch the main objectives of the topic. In fact, the landscape is the survival of the human state in the earth on the specific performance.

2. Natural lighting as a tool of the flourishing process of landscape architecture concept

In landscape architecture discipline, the light is an important element that must take cognizance of all design processes where the light can create harmony, contrast, drama, and life. It is possible to work consciously with the light, taking advantage of the shining backlight, a light opening in the decoy, and the reflections of a living water surface. The specialization must be used by landscape architects as a tool to exploit the importance of light for the experience of shapes, colors, febricity, and spaciousness. The specialization is experience-oriented,

not oriented toward technical calculations. The specialty thus depicts the light as you experience it, not the light, as a light meter would indicate, or an engineer would calculate it [7]. At the end of the thesis, the light is described as a design tool. Based on the experiences from the theory and theories' example, the section gives examples of how landscape architects can affect the nature of the lighting and the experience of form, color, febricity, and spaciousness. Landscape architects can work consciously with light contrasts, such as when the light in a water pillar of a fountain is seen against a shadowy background. We can choose from the different light sources, such as the bright-colored sunlight or the weaker diffuse skylight, and we can utilize the direction of light. We can work with screens to filter the light and surfaces to receive and reflect it, and we can create static or dynamic light experiences. In the theory of theory, the light, as well as the sensing device, describes the eye and consciousness—which together allows the person to perceive space, its surfaces, and objects. There are four variables that describe the light. These are the strength of light, the color of light, the hardness of light, and the direction of light. Hereafter, the light is described from the different natural light sources—sunlight, skylight, and reflected and transmitted light. It describes how the light influences the experience of shapes, colors, febricity, and spatiality and finally describes the variability of light throughout the day and the year.

3. Cultural environment analysis as a tool for reaching landscape architecture

Landscape architecture and cultural environment, like the nature and the environment, should be managed with a special care. The development of recent decades has meant that landscape architecture and cultural environment resources have been lost, and the diversity and quality of landscape and cultural history are threatened. The characteristics of the affected landscape architecture and cultural environment can be identified by describing dominant features/main features, distinctive elements, and the special nature. The dominant features of landscape architecture are linked to the scale of the landscape (small scale/large scale), forms (hilly/flat), water areas, spatial effects (open/closed), and so on. The significant elements can, for example, be the valley, the lake, or the marked hill. The particular nature can be attributed to the characteristics of the land, the use of land, the degree of insanity, and so on. The cultural history features can be linked to a cultivation system, the overall structure of buildings, and so on. The bearing historical elements can, for example, be the station in the station city, the main farm, and its road and garden [8]. The special character can, for example, be linked to a time span (share time, prehistoric time, etc.) or a function (fishing, infrastructure, etc.) or the landscape context. An important point is that each of the landscape architecture and cultural environment has its own characteristics, which may be more or less sensitive to the impacts of the current project. It is, therefore, crucial to identify these properties in order to assess the impact. Similarly, it is important to retrieve the relevant data and information and not, for example, build the entire cultural environment description solely on registered memorials. Criteria for determining the values associated with landscape and cultural environment may be designations that appear in regional plans, conservation plans, municipal atlas, conservation,

and so on. It may be necessary to make a concrete assessment of the value in the current situation. An important tool for sustainable exploitation of landscape architecture and cultural environmental resources is environmental impact assessments.

4. A creative project of landscape architecture “analyzing process”

In an effective analyzing process of a creative landscape architecture project, it is important to work systematically with different data and information of an existing situation. Analysis process has to be considered and should obey the following steps.

4.1. Screening of target region

The core aim of the screening is to clarify whether an environmental impact assessment is to be carried out in connection with a proposal landscape project. This should be done by the estimated procedure of a preliminary assessment to have a significant impact on the environment [9]. For a landscape architecture expert, “natural areas” mean areas that are designed to achieve substantial protection of, inter alia, landscapes and cultural values. It is important to note that the designation of valuable cultural environments takes place as a progressing process. It is also different from region to region if there are selected valuable landscapes and/or landscapes and cultural environments, which are included in the selection of natural areas. Therefore, a concrete assessment should always be made up of whether important landscape architecture or cultural environments are affected. It should be noted that in connection with, for example, projects in historical urban areas or plans for major changes in land use, it may also be relevant to conduct a screening under the regular rules. The main objective of the screening of external expertise in the landscape and cultural environment, inspection, and so on depends directly on the current situation, including the plot foundation and the competent authority’s expertise and local knowledge. In order to assess whether there is a planned risk, plants can significantly affect landscape. It is important that urban planners, designers, and ecologists, therefore, need to focus on urban green space strategies that are ‘just green enough’ and that explicitly protect social as well as ecological sustainability [10].

4.2. Scoping of the main conception zone

The main aim of scoping is to ensure that the following environmental impact study contains all relevant information related to the impact of the project or plan on landscape area and cultural environment while avoiding unnecessary studies. As a part of the scoping phase, an investigation of the project or plan’s potential significant impacts on landscape and cultural environment. There are requested ideas and suggestions from the citizens, where the essential issues related to landscape and cultural environment are drawn forward. The main elements and the methodology shown in the description of the screening phase should be used in the scoping analysis. The call for ideas and suggestions may partly result in additional information about the landscape and cultural-historical conditions that should be incorporated into its investigation and in alternative proposals.

4.3. The input to the study program

The requirement for alternatives, justification measures, and the main issues to be addressed in the further investigation is clarified and elaborated by supplementary studies of the affected areas. Here too, it is about identifying the dominant landscape features, cultural history features, distinctive elements, and the special nature. The properties are valued, and the vulnerability to the project is described in order to clarify the need for (complimentary) alternatives and the main issues for the subsequent study. As in the other phases of the process, this happens in the interaction between many considerations—also with input from interests other than the landscape and cultural environment.

4.4. Respecting of study programs: alternatives and influences impact zones

An important part of the scoping phase is to determine the alternatives and the geographical area to be investigated. It may be a good idea to make sure that the zone is not set too narrow, so that you can start from the beginning. The extent of the influenza zone (research area) will vary widely, inter alia depending on the nature of the project, the alternatives to be investigated, and the nature of the affected area, which are determining alternatives. An important element of the scoping phase is to determine alternatives or identify, where future options for alternative solutions should be investigated. Landscape and cultural environmental considerations are one of several considerations that can justify alternatives, nevertheless an important input for the development of alternatives. The size of the geographical area to be examined—the influenza zone—naturally depends on the alternatives to be investigated and their location.

4.5. Environmental impact study

That is sure that employment of more plants in green areas and similar in dense urban environments, annoying to put excessively much nature in the city in the form of big open green spaces can reduce the thickness to the point, where everyone has to make everywhere, with negative environmental consequences. It also reduces the energy of the city [11]. The scope and content of the environmental impact study are laid down in scoping study program. The study consists of three main elements, such as screening and scoping analyzes the nature and impact of the project, the nature of the landscape and the environment, and an analysis of the extent and nature of the consequences. The impact assessment must, in a transparent manner—and as far as possible “measurable” way, describe the consequences of the project on the landscape and the environment. The analysis of the nature and impact of the project, on the one hand, and the characteristics of the landscape and the environment, on the other hand, must determine the vulnerability of the area to the current measures. The two analyses take place simultaneously, so that the necessary information about the project and its effects is obtained on the basis of the previously completed studies of landscape and cultural environment. These previous analyses have given a preliminary characterization of the landscape and the environment. In some situations, the landscape will be divided into different landscape types. Public consultation and preliminary analyses may have resulted in the setting of alternatives whose consequences for landscape and environment will now be examined further. It is necessary to engage researchers in the worldwide greenly architecture community and for those interested in biophilic architecture [12].

4.6. Analysis of landscape and cultural environment

The previous analyses were supplemented with more detailed study within the framework of the study program and under the impression of the project options to be investigated. A part of this is to identify and define distinctive landscapes that may have different vulnerabilities to the project. Similarly, characteristic cultural-historical contexts are defined—cultural environments. If a project affects a large geographic area or area with very different landscapes, it may be necessary to “break down” the landscape into smaller areas with each of their characteristics and vulnerability to the project. In other situations, where the landscape is very uniform or the extent of the impact is limited, it will not be relevant for a subdivision of the landscape. The landscape is a wide-ranging concept with many dimensions, and there is not one method for analyzing the landscape. Therefore, in the analysis of the landscape, the facts that are most relevant in the specific situation must be taken into account. In order to identify the landscape profile, it will typically be natural to treat topics such as natural land, historical development, terrain conditions, wetlands/coasts, vegetation, farm structure, housing patterns, and infrastructure (roads, lanes, and pipelines).

4.7. Landscape characteristics and value

The main objective of the analysis is to identify the significant landscapes, elements, and structures that characterize the landscape features and that can be influenced by the current project. In addition, their significance is valued. The landscape with its towns and villages tells the story of how we have utilized natural resources over time, power relations and religion, technological development, and so on. The combination of natural conditions—geology, soil, and climate—and historical development differs in different ways with each region and each local area. It is important in the analysis of the landscape to find out the special landscape profile—the special characteristics—which characterizes the area. The analysis of landscape properties consists of two elements: first, an analysis of the “physical landscape” with the dominant landscapes, vegetation, and settlement patterns as well as distinctive landscape elements such as a hilltop, river valley, and churches and second, a spatial/visual analysis of the appearance of the landscape and the individual forms, patterns, and elements, state and undisturbedness. The significant elements can be sub-areas and/or structures, and they can, for example, be characterized as strong or weak in relation to being bearable/representative of the landscape character on the determined area.

4.8. Implicated the characteristic and the value of the cultural environment

The main goal of the analysis is to identify the cultural-historical main features and bearing elements within the delimited cultural environments that may be affected by the current project. In addition, their significance is valued. However, in order to characterize and value the designated cultural environments, it is important to understand the landscape and historical context as they are part of. The cultural-historical main features are linked to both physical and functional conditions. The starting point can be the overall housing structure such as the location of the settlement on the edge of the valley, between the high-rise cultivation areas and the wet meadows along the river, which together constitute the resource base of the building.

In such cases, the functional context is as important to the identity and value of the environment as the physical structure. But also understanding the mechanisms by which natural environments contribute to stress reduction or restoration is important if this contribution is to be exploited for public health improvement [13].

5. A sustain reading of historical world's landscape architecture

Concerns about the arrangement of planted areas, in general, have existed since ancient times, with some ancient peoples having a special cult for this. Human beings have always wanted to shape nature and to be surrounded by the elements of nature (trees, shrubs, grasses, rocks, water, etc.), to harmonize them, and to integrate them into the artificial environment created by it; a fact upon which have marked the culture and traditions of the people concerned. Thus, in the course of history, different conceptions and ways of green spaces were developed. There were many planted areas developed, and others disappeared, found, interfered, enriched, and developed, passing through from one region to another and from one era to the next, shaping well-defined styles and schools with their principles and ways of realizing gardens. Historical proofs such as mural paintings, bas-reliefs, mosaics, historical texts, vestiges of ancient buildings attest to the emergence, and development of gardens in the west and east of Asia and North Africa (Egypt) and later in Europe (Greece, Ionic peninsula) and around the Gulf of Mexico. The antiquity gardens at first had a utilitarian purpose, many of which were grown as food-producing plants, later attained a religious and divine character or a meditative character.

In **Mesopotamia**, builders from the Western part of Asia are trained to make buildings that can fulfill certain required functions while giving full consideration to all sites and environmental conditions [14]. The great civilizations of south central and the north of Iraq such as “Sumerians, Babylonians, and Assyrians” who have developed in the region between the Tigris and the Euphrates. It is characterized, among other things, by the growth of the historical cities, by the monumental architecture of the palaces and temples, which encompassed within the enclosure's luxurious gardens, arranged in closet form parallel with the architectural lines. Thus, the famous hanging gardens in Babylon (sixth century BC) considered one of the seven wonders of the ancient world. The climate from Mesopotamian region is dry summer, cold winter, and a pleasant spring and fall. Roughly 90% of the annual rainfall occurs between November and April. General readings of Mesopotamian gardens consist, in part, of the palace of the King and were built on a massive stone construction, the garden from the north area of Iraq “Assyrian civilization” was built by irregular form. The water using in irrigation systems was concepts in the different form, but the majority was direct from the rivers, but the irrigation system for hanging gardens was as sophisticated as can be imagined, where the water was headed by a hydraulic system under the first terrace, being brought from the Euphrates River through a feeding channel and further driven through three wells embedded in the construction. The plantations were free, creating a harmony of the architectural lines with the regular and irregular forms of vegetation. As species used are recollected: foliage, palm trees, various shrubs, poplars, pines, lotus, or many species of flowers [15].

In **Egypt** antique, on the banks of the Nile, in the third millennium BC, there were many fertile fields, crossed by irrigation canals, cultivating figs, dates, pomegranates, cocoons, sycamores, vines, and numerous vegetables. The majority of the landscape included gardens of relaxation and pleasure. They were considered as natural extensions of the building being surrounded by a massive wall and a considerable wooden fence with a regular shape (rectangle). The green areas had designed as a central element, a water channel, or an elongated or T-shaped rectangular basin with colored fish in which lotuses were cultivated. The plants were distributed in different forms. Near the canal or basin, there were shrubs or small trees, and at the perimeter, along the perimeter alley, there were tall trees with a pyramidal port. As species used were some fruit species, and various forest species, but also numerous forest species as well as many floral species such as mixers and roses.

Greece antique, the planted areas originally appeared near temples or different religious establishments, is the place where the glory ceremonies were held. The Greeks cultivated in their garden species with a food role: fruit trees, vines, and various vegetables. The temples devoted to the various divinities were situated in natural landscapes of remarkable beauty. The ancient civilization of southern Europe has seen tremendous development in all fields, the art of gardening has no exception. As with other arts, it was with the arrival of the renaissance that the design of gardens was revived with exceptional achievements. During the fourteenth, fifteenth, and sixteenth centuries, private gardens were implanted in the most area of Europe [16]. The gardens continued to develop throughout the renaissance until the sixteenth century, and in the seventeenth century, during the Baroque. In the second and fourth centuries BC, there were gardens beside palaces, gymnasiums, and academies of relatively small size, which had many artistic elements such as statues, fountains, pergolas, porticos, and elements that filled the abundant vegetation.

Romans antique planned and designed in large-scale landscaping, where Vitruvius analyzed in deep form of various topics upon landscape in the city, such as the planning of cities, which still today interest landscape architects. The landscaping of the gardens in the Romans had an important development during the Roman Empire, being influenced by the art of the subjugated people. The green spaces have appeared beside the imperial palaces, the luxurious villas of the patricians, the temples, and the meeting places. The archeological remains reveal the existence of the sumptuous gardens around the large villas located in natural places of great beauty, and the land is arranged in terraces with great views, but there were also small gardens of the dwellings. The gardens surrounding suburban villas have become true parks, systematized in different sectors with different constructions and arrangements. The villa was always located on the slopes of the hills where the best panoramic views were located and the surrounding terrain was set up on the terraces. The architectural center consisted of dwelling, and the garden was a completion and a continuation of the house. The general systematization implied the existence of several architectural sectors with the symmetrical organization, subordinated to an axis of the general composition of an edifice or a decorative construction (canal, basin, colonnade) being correlated with each other by naturally free zones, forming a unitary unit.

Italian antique about "Renaissance age," the Italian green arrangement had the greatest glory and the greatest refinement. The gardening principles were taken from the ancient gardens,

especially for the gardens of the suburban villas, such as symmetry over an axis of composition; the architectural organization of the premises toward the building; the connection between the building and the garden through decorative elements built; the presence of sculptures, ornamental pots, and ornamental parapets; the use of tuna vegetation; the layered systematization of the garden and its subordination to a main axis of perspective with the descending slope of the slope, on successive terraces; along the axis and on the terraces were created decorative sides arranged in the form of different drawings; and an abundant use of water basins, canals, and waterfalls. In the seventeenth century, Baroque style, architectural style, is also emerging in the art of green spaces. The essential principles have been maintained, in terms of balance and symmetry, but rigid schematic disappears, the rectilinear paths being merged with broad, curved lines. The free arrangement of the trees was adopted, giving up the perfect geometric layout.

In **France** “Renaissance age,” landscape areas were built in France at the beginning of the sixteenth century AD in the castles of Amboise, Blois, and Gaillon by an Italian architect who brought new elements to terraced land (with low-level differences). Enrichment of ornaments with marble fountains and the introduction of new models of the parties (toward the medieval gardens) existed. Only after a half century, the sixteenth century began to radically change the medieval conceptions of landscaping of the gardens. Thus, the fortifications of French cities and castles disappear with walls and water channels, where the gardens were on the premises, resulting in vastly enlarged spaces. In some situations, the channels have been preserved, also having a decorative function and utilitarian function, and later became a feature of the French Renaissance parks. The composition of the garden was systematized according to a dominant shaft represented by a central alley. The land was modeled on large terraces, with flower-decorated partitions. Between buildings and the garden, there is an architectural cohesion. There were huge canals and lakes.

In **England**, “medieval” landscape in England dominated the walls with trimmed vegetation regularly symmetrical. Later, as in the rest of Europe, Italian and French influences were felt. But while in Europe, the art of gardens evolved under the strong influence of the French style in England. Since the eighteenth century, under the influence of literature, landscape painting and the new cultural movement, the art of gardens evolved in the direction of returning to nature, renouncing the rigidity and artificiality of the French style. At first, the trees were cut off, the walls were removed and the ditches replaced, creating a connection and opening to the surrounding landscape. The parts disappeared and were replaced by green carpets (lawn). The axis was kept dominant but introducing winding paths, irregular watercourses, and vegetation clustered freely.

Islamic region has put its mark on all the countries that were part of the great Islamic empire (beginning with the seventh century AD), but they also assimilated elements from the civilization of the subjugated people. This has also happened in the art of green spaces with Arab landscape design having an oriental, predominantly Persian influence, and then acquired their own specifics. The small dwellings had a single, regular garden, and the largest one, a garden suite. The garden was divided into four equal parts, where the space allowed by dividing two channels of water. The water was used either in pools and canals or in the form of artesian fountains, connected by small channels of terracotta or marble.

In **China**, landscape architecture is lost in ancient times and reflects the strong cult of nature intimately linked to religion. Religious philosophies in China promote the idea of the realization of man's communion with nature, the acquisition of moral perfection, peace of mind, and divine peace. Religion has spurred the creation of green spaces and the finding of a natural framework conducive to spiritual life in close relation to the elements of nature. A characteristic of all the gardens in China, regardless of the historical period, is their size of very large areas in which the vegetation was natural harmony with the natural landscapes. The terraces were drawn freely, irregularly, having a natural character with the straight lines being excluded and driving the viewer from one point of interest to another.

In **Japan**, the art of gardens in Japan was taken over from China and later personalized to become a national art. Larger or smaller green spaces were present everywhere, alongside homes and temples or palaces. Imperial gardens were designed according to the Chinese model but on a smaller scale (Nara—the capital of the country, and in Kyoto, the eighth century AD). Temple gardens were the predominant elements of the building, being a component of it. The philosophical symbolism was used to the fullest with the application of all elements of nature that are processed according to certain compositional rules and different symbols. In these gardens, a landscape full of mountains, hills, lakes with islands, cascade brooks, corner cliffs, rounded stones, sand, gravel, trees, and shrubs, various plants with or without flowers were either reconstructed on a small scale at certain scenic scenes (more developed in different periods) such as mountain gardens, moss gardens, and arid gardens. Large green areas where complete landscapes could be created included various buildings or architectural elements such as bridges, tea pavilions, stone flashlights, and gates.

In **the modern concept**, the term landscape architecture was invented by Gilbert Laing Meason in 1828 and was first used as a professional title by Frederick Law Olmsted in 1863. Gilbert Laing Mason used for the first time in 1828 the term "landscape architecture" in his work "The Landscape Architecture of the Great Painters of Italy". The combination of modern planning and the landscape gardening tradition gave the architecture of the landscape its particular orientation. In the second half of the twentieth century, Frederick Law Olmsted created a series of parks that continue to have a profound influence on the current practices of landscape architecture. These include New York's Central Park, Brooklyn's Prospect Park, Montreal's Parc du Mont-Royal, and Boston's Emerald Necklace Park network. Capability Brown, who remains one of the most renowned landscape gardeners today, was also the creator of places. During the nineteenth century, the term landscape gardener came to be applied to people who built. "Ian McHarg" had an important influence on the architecture of the modern landscape and on the adaptation of the soil in particular.

6. Landscape architecture categories

The categories of the landscape are numerous, being different in size, location, facilities, and functions. They can be classified according to several criteria in the following paragraphs.

6.1. Placing and position

Placing area suburban or urban includes recreational green areas, public gardens, squares, green strips, and planted street alignments as well as botanical gardens and plantations beside some public facilities, landscaping on the premises of institutions, businesses, education or social-cultural units, plantations in cemeteries, green roofs—suburban including: cultural and resting parks, recreation areas (recreation forests, park forests, and parks), botanical gardens, plantations of alignment along roads or railways (localities, soil, water, and spa-climatic resorts), and nurseries.

6.2. Accessibility

It can be divided into two access forms as follows:

- Unlimited access to general usage that is also called public green spaces is managed by the mayoralties, including public parks, gardens and squares, street green spaces or residential neighborhoods, and recreation forests.
- Limited access, where the access is made according to certain rules for a fee or just for a given category of people, some green spaces even having a private character (the individual dwellings' gardens) being administered by legal or physical persons. This can include green spaces within cultural or educational establishments, hospitals, sanatoriums or industrial facilities, sports parks and bases, botanical gardens, and individual dwellings' gardens—with strict access, where access is only allowed to those who work in these areas, or in the case of studies or works of art, including experimental stations, nurseries, anti-erosion, water protection or traffic routes, and firefighting plantations.

6.3. Urban functions

Green spaces with a recreational role: squares, gardens and public parks, park forests, recreational forests, sports parks, green spaces for children and youth specialty green areas: botanical gardens, exhibition parks, parks and zoos, dendrological parks, rosaries, climbing, green spaces in cemeteries landscaping green spaces with a decorative role of decorative squares, landscaping near administrative, cultural or educational institutions, and private green spaces for dwellings [17].

Utility and protection green spaces: Alignments along roads or railways, plantations for the protection of watercourses and open water accumulations, parasitic plantations, protection curtains, anti-erosion consolidation plantations, nurseries, lands floral, or lawn production. Landscape architecture aims at an effective spatial design of plants, materials, land, and water. The starting points in landscaping are the landscape as a dynamic system along with the needs, intentions, or interests of the people. Modeling and delivery of alternative development opportunities are central. Landscape architecture continued its development as a design discipline during the twentieth century and took advantage of various movements of design and architecture [18]. At present, the spirit of innovation still offers excellent results in the design of public roads, parks, and gardens. At the moment, the system became the basis of the current geographical

information systems (GISs). The system assigned a layer to every qualitative aspect of a place, such as a history, hydrology, topography, and vegetation. At this moment, the system is used universally in landscape architecture for the analysis of materials on and on the ground, in the same way, that they are used by urban planners, geographers, forestry, and natural resource.

7. Woody plants selecting for an operative “open space”

The advantages of using woody plants in different units of green space are to create the form of open spaces, where it represents a model of space unclosed version. Wood species “mainly trees and shrubs” embody more than about 70% of a floral species that represents approximately 5–10% of the total area of the verdant space unit. Woody vegetation is the “main building material” of a grassy space, a material that can be changed in volume, color, texture, and shape over a long period of time. By using woody plants in open spaces, architect and designers can create different landscape arrangements, colors, volumes, and compositions, all at the same time. They can form the harmonizing that binds all anthropogenic elements, which will eventually create landscape unity. The main advantages of using woody vegetation are as follows:

- The great malevolence of the contour of woody plants, which are extremely freely (proper to the respective species) or geometric (when certain cuts are used to obtain different desired shapes).
- The great diversity of green (summer) and yellow, rust, red or brown (autumn) in fallow species.
- The diversity of branches, leaves, flowers, and even fruits of certain species or taxa (including the texture of the crown surface).
- The lower cost of propagating material and maintenance work over time.
- The higher resistance of specimens of wood species to environmental conditions.
- The fulfillment to a much greater extent of the sanitary function compared to the floral or lawn species.

7.1. Species selecting criteria

7.1.1. *The ecological requirements of wood species*

The most important aspect to consider when choosing wood species is precisely the correlation of local conditions with the requirements of those species. Thus, an account must be taken of as follows: the requirements of the species in relation to climatic ecological factors, such as light, air temperature, atmospheric humidity, and wind; edible environmental factors, such as texture and depth of the soil, soil humidity regime, soil fertility, and the skeleton content; geomorphological factors, such as altitude, exhibition, slope, and terrain configuration; biotic factors, such as animal and vegetal; and anthropogenic factors, such as pollutants [19].

These factors will be taken into account differently in urban green spaces compared to periurban ones. Thus, in urban green spaces that are much smaller than peri-urban areas and where utilities are easier to achieve, some factors can be improved by applying for different special works: irrigation, fertilization, pest prevention, and control. Microstation in urban areas is more sheltered due to the presence of buildings that diminish the intensity of the wind or that increase the temperature of the air by radiation phenomena, which influences the decrease of the daily or annual thermal amplitudes. In periurban green areas, the improvement of these conditions is very difficult, and the species will be chosen in such a way that these conditions correspond to the best ecological requirements of the species.

7.1.2. The biological features of the species

- The height of the copies

This is important in choosing, but especially in the combination and location of species, a feature that takes place over time and cannot always be corrected. In designing a particular composition, the landscape artist must “see” in the future how they will look, how much the respective specimens will have, and how they fit into that composition. High-grade species are recommended for recreational forests and alignments; large urban green space units; masking unsightly targets (industrial halls, factories, etc.); shading of buildings; and obtaining vertical accents in different compositions. They can be used alone or in combination with other small species or even big shrubs. Small species and shrubs are recommended for small green areas along the arteries aimed at the shading of pedestrian walkways as well as the containment of exhaust gases, dust, etc.; realization of live fences and shrubs bring diversity to the unity of the composition is highly appreciated for its distinctive decorative effect, its rapid growth, and its ability to blossom in younger ages. Conveniently, the wood species are divided into three categories: trees of size I—over 25 m, size II—15–25 m, and size III—7–15 m; shrubs, species with heights below 7 m, with numerous stems branched from the base, which can be high shrubs with a height between 2 and 7 m, medium shrubs 1–2 m, and dwarf shrubs less than 1 m; liane, voluminous, climbing, clinging, or even creeping wood species, where the stems can have lengths from 1–2 to 10–20 m and even more [20].

- The shape and the size of the crown

The crown of the shafts falls more or less in a geometric form according to the ratio of height to diameter. This distinguishes the type of crown: cylindrical, conical, spherical, oval, obovoid, tabular, and with a sinuous outline. The shape of the crown is noticeable in any season and influences the viewer’s mental state. For example, around the stadiums or along a road, species with columnar or conical crowns will be preferred, and on a sidewalk with a spherical or tabular crown. According to the density of the branches and the richness of the foliage (shape, size, and arrangement of the leaves), there are species with a transparent crown and species with a dense crown. This feature plays an important role in the composition, especially in directing the effects of light—shadow. Dense crown species are used to create the backgrounds for other compositions—mask unsightly objects; balance the volumes of neighboring buildings; and street alignments for protection against sunlight, dust, and wind, especially in the plains and hills. Transparent crown species are used for street alignments in the mountain

regions; near certain buildings that are not to be masked, but besides which there is a need for wooden specimens; the recreation area, the creation of multi-story stands, or the installation of an herbaceous rug appropriate to picnic activities.

- Plant leaves, color, and shape

The leaves of trees and shrubs vary greatly in their shape, size, and color. Some species have simple or compound leaves, small or large, with a limb of different shapes and sizes: cordate, rhombic, lanceolate, ovoid, obovate, elliptic, and so on. The edge of the tongue may be whole, slightly incised and deeply incised. The leaves of composite leaves may be small (*Sophora* sp., *Robinia* sp., and *Gleditsia* sp.) or large (*Ailanthus* sp., *Juglans* sp., and *Aesculus* sp.). Species with small leaves, with a distinct shape of the tongue or with the sinuous or laminated edge, are recommended to be planted in the hot climates, while species with large, compound, dark-colored leaves are recommended to be planted in the cold climates. There are species where the color does not vary greatly from one season to another (tuna, biota, and juniper) or where the green hue (green—dark green) varies at most, as is the case with resinous species. However, there are many species in which the color varies from raw green, bright (spring) to intense green (summer), and yellow-orange-red (autumn) (**Figure 1**).

First, the most plant leaves are green, where the essential role of the most categories of leaves is to convert sunlight energy into carbohydrate, which the plant uses in various ways. The green leaf is green, so it is because the blade absorbs the other colors and reflects the green color, where the wavelengths of the other colors are absorbed, like some energy sources. Because if the same wavelengths were emitted again, the other colors would be emitted from, for example, the magazine, and it would not just be green. Sunlight attacks the chlorophyll, then photosynthesis takes to function. Sunlight is made up of many colors. When sunlight falls against a glass prism, the prism breaks the light into its rainbow of colors. Chlorophyll and carotene are both known as pigments. Inconsistent life, the mixing of pigments, creates diverse colors. In fact, during the summer, green plants must continually create new chlorophyll to replace what has been destroyed. This creation or synthesis of chlorophyll requires not only sunlight but also warm temperatures, so you can see why fall's cooler weather encourages our trees' leaves to begin showing colors other than green. There is another substance in many leaves

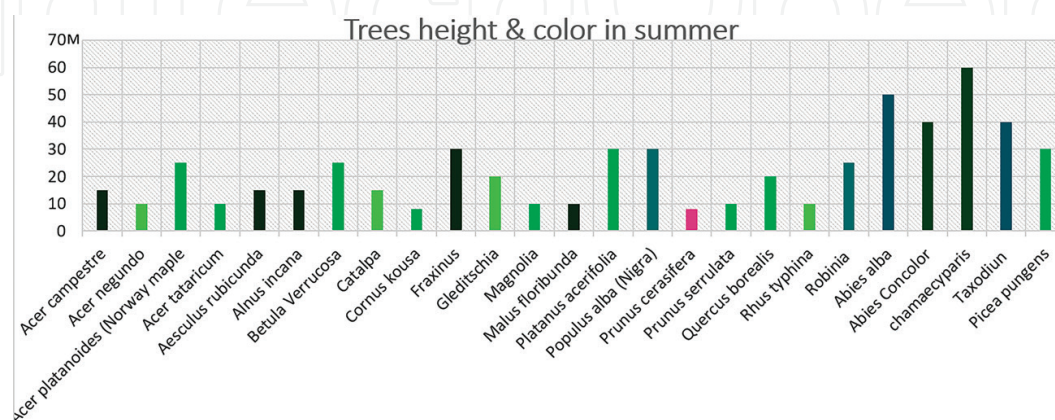


Figure 1. Different kinds of plants described by size and color in summer.

known as carotene, which is a kind of “chlorophyll helper.” This is because carotene absorbs sunlight energy like chlorophyll, but instead of keeping that energy and conducting photosynthesis with it, it passes its energy on to chlorophyll, which then uses that energy to perform photosynthesis. Carotene is known technically as an “accessory absorber.” Carotene holds up much better under sunlight than chlorophyll, so often in the fall when chlorophyll disappears from leaves, carotene is left behind. Flower shape and color, the flowering period for many artistic and arboreal species, the shape, color of the flowers, and the flowering period are the main criteria for choosing them [21]. The color range of flowers is quite varied, although white, cream, or yellow flowers are more common.

8. Green areas scenes and physical elements

Buildings are used as background elements or to fit, maintain, dominate, organize, or enhance the landscape features or shapes. All buildings present in a green space must be aligned with the surrounding landscape in order to achieve the unity of the building with it [22]. Harmonization can be achieved by similarity or by contrast. Designed green spaces are pavilions, kiosks, stairs, balustrades, belvedere, pergolas, trenches, columns, arches and porticos, plant stands, bridges and bridges, benches and chairs (garden furniture), sculptural groups, decorative pots, and green theater.

8.1. View scene between green area and physical elements

Pavilions are constructed with the circular, square, hexagonal, or octagonal base and designed to house visitors, orchestras, or fanfare. These can be made up of wood, concrete, or brick, in a simple yet esthetic form, is located on the Esplanade, at the edge of the water, at the end of alleys, in squares or perspective points. Kiosks are smaller pavilions, light constructions, located in green spaces. They can be opened at the top and side (with only metal bars or wood that serves as a support for hanging plants called natural kiosks and covered but open lateral kiosks). Tempered and closed side kiosks are not recommended. Implementing the semiotic (landscape language) genius with informative, technical data collected and inserted (**Figure 2**).

8.2. Adapted innovative design by landscape elements

For creating an efficient involvement on the landscape image, it is necessary to (**Figure 3**):

- conserve the major elements of the landscape by adopting the design ideas to the specific character of the site.
- involve the minor elements of the landscape. For example, intervention on the “shape” of the landscape through the following actions:
 - conserving the natural species
 - destructing the natural form

- choosing the natural form
- enhancing the natural form

The general scene of landscape character has to be:

- dynamic in a form
- dramatical in impression
- attractive in effect
- correspond to an architectural function
- positive effect

The relationship of contrast is the opposition to the landscape through a form of human creation in the idea of obtaining an echoing, balanced anxiety. The relationship that is required to create a contrast effect by creating stable plans, forms, with a possibility of realizing some essential points inside the composition, variation of color, light, and texture [23]. Attention is the correlation of the scale of the ensemble with that of the micro landscape. Forgetting a notion of important beautiful view, the direction of light, gravity trend should be simple. General scenes of landscape architecture have to be able to assemble many types of woody

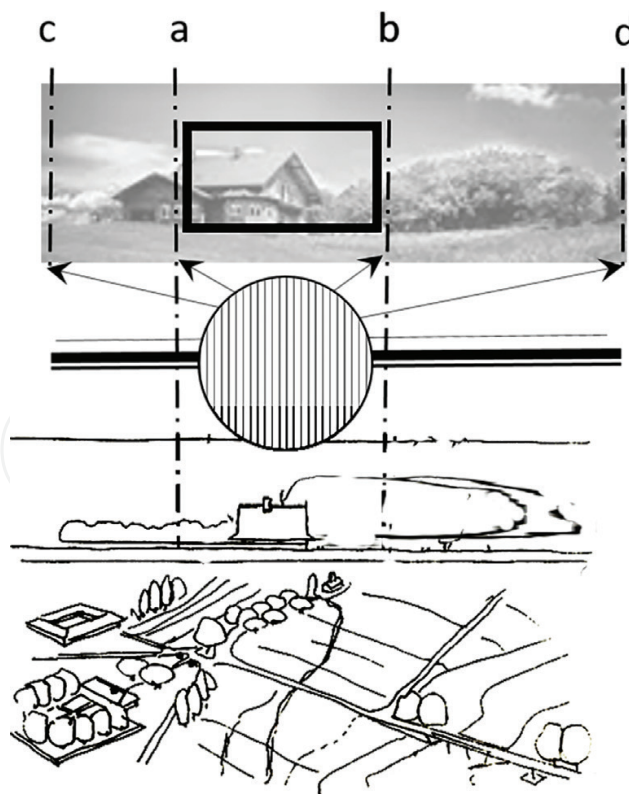


Figure 2. The configuration of a landscape architectural scenes, where (a) and (b) perspective and (c) panorama 270° (the central image is an angle of less than 90°); orthogonal view (less expressive); axonometric (present in all elements of the landscape).

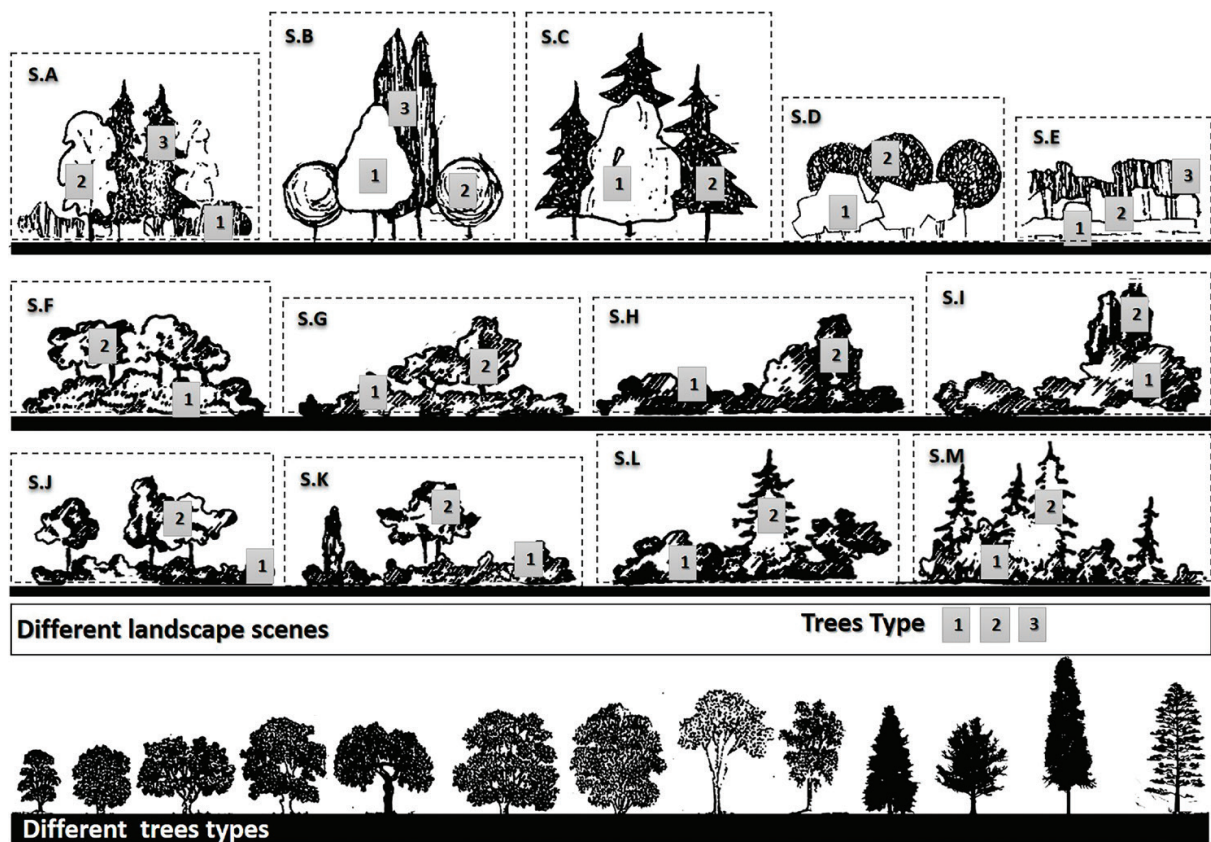


Figure 3. Different scenes of plants on landscape architecture in diverse conception.

plants, by colors, where the different kinds of plants in landscape architecture, which can create by various conceptions.

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References

[1] Holden R, Liversedge J. Landscape Architecture: An Introduction. London, United Kingdom: Laurence King Publishing Ltd; 2014. p.1

[2] Dwyer JF, McPherson EG, Shroeder HW, Rowntree RA. Assessing the benefits and costs of the urban forest. Journal of Arboriculture. 1992;18(5):227-234

- [3] Asaad Almssad, Amjad Almusaed, Environmental reply to vernacular habitat conformation from a vast areas of Scandinavia, Renewable and Sustainable Energy Reviews, Volume 48, August 2015, Pages 825-834
- [4] Amjad Almusaed, Asaad Almssad, Urban Biophilic Theories upon Reconstructions Process for Basrah City in Iraq, Passive and Low Energy Architecture Conference, PLEA 2014, Ahmadabad, India
- [5] Sullivan WC, Kuo FE. Do trees strengthen urban communities, reduce domestic violence? *Arborist News*. 1996;4:33-34
- [6] Almusaed A. Grasses, Benefits, Diversities and Functional Roles. Rijeka, Croatia: InTech Open Publisher; 2017. p. 6
- [7] Amjad Almusaed, Evaporative cooling process adaptive for Baghdad City climate, 2nd PALENC Conference and 28th AIVC Conference on Building Low Energy Cooling and Advanced Ventilation Technologies in the 21st Century, September 2007, Crete island, Greece
- [8] Almusaed A, Almssad A. Biophilic architecture: Towards a new potential of healthy architecture. University of Florida, Powell Center for Construction & Environment, Rethinking Sustainable Construction 2006, Florida, USA
- [9] Almusaed A, Almssad A. Passive and low energy housing in the context of "ArchiMetrics" concept, building, 3rd International Conference on Passive and Low Energy Cooling for the Built Environment (PALENC 2010), 29 September 2010, Rhodes Island, Greece
- [10] Wolch JR, Byrne J, Newell JP. Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'. *Landscape and Urban Planning*. May 2014;125:234-244
- [11] Amjad Almusaed. Biophilic and Bioclimatic Architecture: Analytical Therapy for the Next Generation of Passive Sustainable Architecture. Springer-Verlag London, 2011, London, England, p. 180
- [12] Almusaed A, Almssad A. Biophilic architecture, the concept of healthily sustainable architecture. In: The 23th Conference on Passive and Low Energy Architecture Conference, PLEA 2006, Geneva, Switzerland
- [13] Thompson CW et al. More green space is linked to less stress in deprived communities: Evidence from salivary cortisol patterns. *Landscape and Urban Planning*. Apr 15, 2012;105(3):221-229
- [14] Amjad Almusaed, Asaad Almssad Building materials in eco-energy houses from Iraq and Iran, Case Studies in Construction Materials, Elsevier, Volume 2, June 2015, Pages 42-54
- [15] Almusaed A, Almssad A. Bioclimatic interpretation over vernacular houses from historical city Basrah. In: The 23th Conference on Passive and Low Energy Architecture Conference, PLEA 2006, Geneva, Switzerland

- [16] Amjad Almusaed, Asaad Almssad, Vernacular passive houses from Aarhus city. In: The 23th Conference on Passive and Low Energy Architecture Conference, PLEA 2006, Geneva, Switzerland
- [17] Almssad A, Almusaed A. Cooling by underground earth tubes, building low energy cooling and advanced ventilation technologies the 21st century. In: PALENC 2007, The 28th AIVC Conference, Crete Island, Greece
- [18] Christopher A et al. A Pattern Language: Towns, Buildings, Construction. New York: Oxford University Press; 1977. pp. 152-155
- [19] Francis M. The Meanings of the Garden. Cambridge, MA: MIT Press; 1990. p. 86
- [20] Hunt JD. Gardens and the Picturesque: Studies in the History of Landscape Architecture. Cambridge, MA: MIT Press; 1992
- [21] Little CE. Greenways for America. Baltimore: Johns Hopkins University Press; 1990. p. 86 (45-52)
- [22] Jencks C. The Language of Post-Modern Architecture. London: Academy Editions; 1991. p. 73
- [23] Rogers EB. Landscape Design: A Cultural and Architectural History. Harry N. Abrams; First Edition, New York: 2001. p. 109