The role of landscape design in new urban place, Case study: New administrative capital in Egypt

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ABSTRACT:

Sustainability of place identity is one of the main concerns in architecture nowadays. The end of the last century witnessed a rapid increase in urban population worldwide due to the increase of internal and external immigration rate. Recently, more than half of the world's population lives in urban settlements, putting into consideration the fact that these settlements continue to grow in order to accommodate more inhabitants. Therefore accordingly, both natural and cultural landscape resources will continue to be under pressure in and around these urban settlements.

Today, Landscape design approaches and practice are interdisciplinary, and they can be used to manage the development of urban settlements. Therefore, it is important to introduce an analytical Landscape framework which respects place identity. The main concern of this framework technique is to identify the cultural features of urban place and preserve these features through the growth of new urban extensions. This helps in conserving the local image and values of urban places which considered as an important aspect in urban design and planning.

Place identity is an important aspect that should be considered in social and cultural life of urban places. The continuity of place identity is strongly linked to place attachment and sense of belonging. It is important to develop a sense of belonging, as it is a crucial in establishing an emotional bond with urban places. Such bond increases the inhabitant's connection to the place. And to achieve such aim, Landscape features can be used in improving the quality of urban places especially when it comes to engaging cultural landscape factors with this place.

In the end, the research aims to develop new urban places, such as the new capital city which is a new political, cultural and economic centre, due to its privileged location and proximity to the Suez Canal. New landscape features will be proposed which represent and symbolizes the ancient Egyptian civilization. The green space will link the natural area with administrative buildings and ministries and give it a visual identity which expresses the ancient Egyptian civilization. This will help individuals to interact and feel sense of belonging to this area by using of landscape elements with the surrounding buildings.

Keywords: landscape, Place identity, Urban Place, Place Image, Sense of Belonging, Sustainability, Urban Development

1. INTRODUCTION:

Landscape design today is understood as a practice in urban realities. However, landscape design managed to emerge and change towards a perception for dealing with strategic, contemporary problems of the urban structure. Most of the contemporary problems solution relate to the landscape responsive design, resource efficiency, technologies, and ability to design new places with quality for the prospective urban communities (Fakiri, 2016).

The definition of "sustainable development" appears around the 1970s, but it was a broader term including economic, agricultural, industrial, technological, and other aspects (Hembd, 2011).

The World Commission on Environment and Development the sustainable development was defined as: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Rasha, 2017).

"Sustainable" concept in landscape design is used for a smart city development. The tools which are used in landscape design to create and develop smart city are on basis of sustainable materials, smart technologies, natural resources. The natural landscape reflects the tools applied on the smart places. However, the natural environment and landscape has become as a design tool and an indicator of sustainable growth and development, this indicator can control the balance between the natural spaces and the urban fabric. Therefore, the landscape design role in new places concept and its creation is towards more sustainable places by improving citizens living environment (Punter, 1997).

1.1. RESEARCH OBJECTIVE:

The research aims to develop new urban places, such as the new administrative capital city through landscape. Landscape design will link the natural area with administrative buildings and ministries, giving it a visual identity. This identity is related to the main urban and architecture character of the place which is inspired by the ancient Egyptian civilization. Through landscape elements, having a place identity will help individuals to interact and feel sense of belonging to this area.

1.2. RESEARCH METHODOLOGY:

The research is setting a new urban development approach by using landscape as interdisciplinary field. Landscape can be a method of sustainability, where it can be used to establish and sustain place identity. New urban settlements can be developed through landscape elements to maintain a unique visual image and spatial identity which express our nations' culture and history.

2. LANDSCAPE IDENTITY AND SUSTAINABILITY:

The main concept of sustainability is founded basically on the need of conserving existing natural resources, so they would be maintained and passed to future generations. If this concept is applied to environmental resources then it should be applied as well to place identity aspects including landscapes spaces which have a crucial role in forming the community identity. (Manenti, 2011)

Landscape identity can be seen from different perspectives, existential identity and spatial identity. The focus and debates are always about existential identity perspective, and unfortunately spatial identity is disregarded though it is quite important as well. Spatial identity is commonly seen as the features which makes one region different than another and most projects are driven towards applying this superficial idea. (Stobbelaar & Pedroli, 2011) When mentioning Spatial identity of landscapes spaces, cultural , historical and psychological aspects should be studied and discussed. It can be seen the relation between spatial and existential landscape identity and personal (psychological) – cultural landscape identity in the landscape identity circle (Stobbelaar & Pedroli, 2011). Spatial identity elements and features can be a symbolic representation of distinguished civilizations through history. Landscape spatial identity can be a tool to revive and sustain the unique culture and history of a nation.
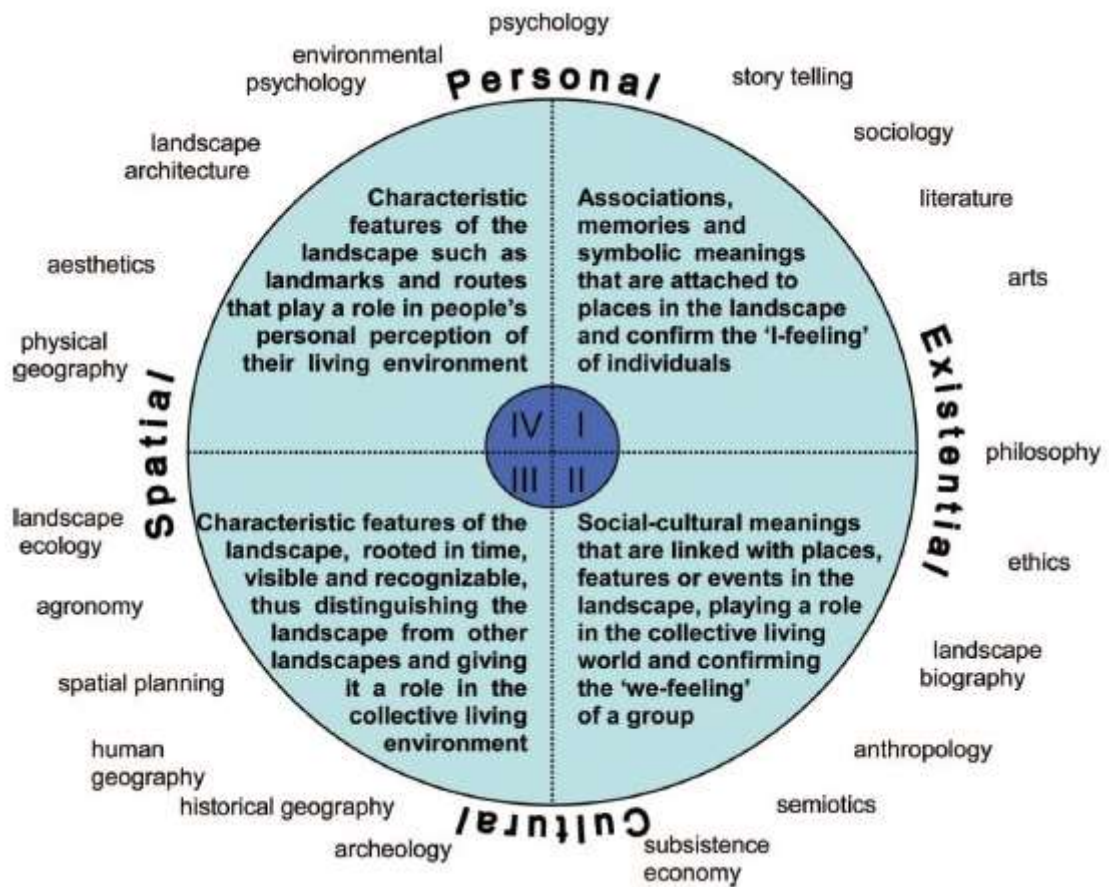
Fig(1): The Landscape identity circle, Source: (Stobbelaar & Pedroli, 2011)

3. LANDSCAPE PLACE FORM:

One of the principal objectives of landscape architectural design is to establish a spatial organization for human use through elements of land scape in a coordinated inspiring manner to enhance place image. A primary aspect of landscape design elements is "form," it a base and an armature for assembling many landscape elements which define landscape place identity. Form is defined as the "structure of a work—the manner of arranging and coordinating the elements and parts of a composition so as to produce a coherent image" (Dubé, 1997)" Without form, place exists as an amorphous void that lacks clarity.

Form is the vital element for landscape design and provides the most appropriate means for organizing space elements. (Booth, 2012).

Form is articulated in the landscape by edges and shape. That silhouette of form is the easiest seen around structural elements which have mass and extend upward from the base plan like walls, fences, steps, decks, plants. And softer landscape elements like a line of trees, mass of shrubs, water bodies, and topography. (Booth, 2012).The boundary of form is forged by elements above the ground like canvas awnings, trellises, and tree canopies. In summary, form is created any time a line circumscribes an area whether it be on the ground or in the third dimension. A landscape place design is composed of a multitude of lines and forms, all intertwined in a carefully orchestrated network. During the design process, these edges are thoughtfully and creatively assembled to outdoor space (Lynch, 1981).

4. CASE STUDY: THE NEW ADMINISTRATIVE CAPITAL IMPORTANCE:

Decision makers desire to develop Cairo as a leading capital in the Middle East and North Africa region, being a political, cultural, and economic centre through a prosperous economic environment supported by diversified economic activities and their realization. Sustainable development was chosen as a strategy which ensures the preservation of the distinctive historical and natural assets of Cairo. Part of the development strategy is applied through establishing an efficient infrastructure and the construction of the new administrative capital east of Cairo which has a privileged location near to the regional Suez Canal, main roads, and axes (Bahansawey, 2014).
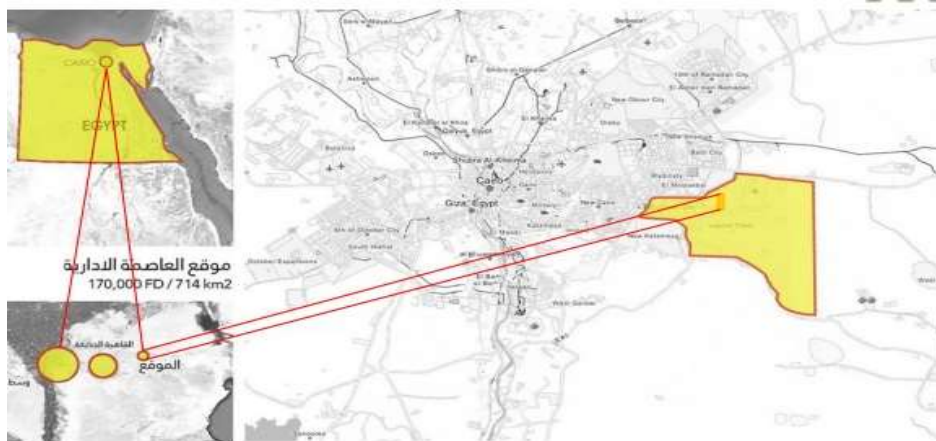
Fig(2): Identifying the location of New Administrative Capital on the map and it relation to Cairo. Source: (The Researcher)

Fig(3):The site of the case study site, the New Administrative Capital
Source: (The Researcher)

Fig(4):The main movement axes and streets to the case study site
Source: (The Researcher)

4.1. VISUAL IMAGE OF THE CASE STUDY:

In the case study, the buildings were designed in the Ancient Egyptian (pharaonic) style and this is an illustration of the buildings which make up the place visual image and architecture-urban character:

4.1.1. TRIUMPH ARCH

The triumphal arch designed was influenced by Ancient Egyptian architecture style in terms of use of columns and decorations with pharaonic character. Where the height of the triumph arch reaches the limits of thirty meters and consists of two parts that take a circular shape.

4.1.2. THE PEOPLE'S SQUARE

People's Square, which has the highest and largest flag sari in the world, as well as the memorial, which was designed based on Ancient Egyptian architecture elements in terms of using pharaonic columns and decorations (So why Egypt is building a new capital city right nect to , accessed October 2016).

4.1.3. THE HOUSE OF REPRESENTATIVES

The House of Representatives in the new administrative capital is built on an area of about 109 thousand square meters. The building consists of the main hall and accommodates 1,000 members. The building is topped by a large dome with a diameter of 55 m and a height of 65 m.

4.1.4. THE GATEWAY TO THE CASE STUDY:

4.1.5. THE MAIN AND SUB-ENTRIES BESIDE PATHS TO THE CASE STUDY AREA

The main idea of the entries and paths in the case study area is to create a main axis to be a link between the Arc de Triomphe, which represents the Ancient Egyptian civilization, and the Mosque of Egypt (Gamee' Maser) which is on the opposite side of the triumph arch.

There are 3 sub-paths of movement intersect with it. These are 3 secondary traffic lanes and each lane is considered an axis for every two opposite entry gates, and also considered as a separating space between each part has a different function.

4.1.6. MINISTRY OF CIVIL AVIATION

The Ministry of Civil Aviation is located in the new administrative capital, which is located within the ministerial complex in the government district in the new capital

4.1.7. MINISTRY OF FOREIGN AFFAIRS

The Egyptian Ministry of Foreign Affairs building in the government district in the new administrative capital.

4.1.8.THE PRESIDENCY OF THE COUNCIL OF MINISTERS

The Presidency of the Council of Ministers building will be consisting of three floors, The first floor contains a VIP reception hall, two administrative areas, a conference room, and a service area. The second floor includes a hall for receiving VIPs, a conference area, the Prime Minister's office, and an information and decision support centre. As for the third floor, it includes the office of the Secretary-General of the Council of Ministers, the financial sector, the government relations sector, the conference area, the General Secretariat of the Council of Ministers, the councils sector, the policy sector, the secretariat office, the national projects sector, and the media office.
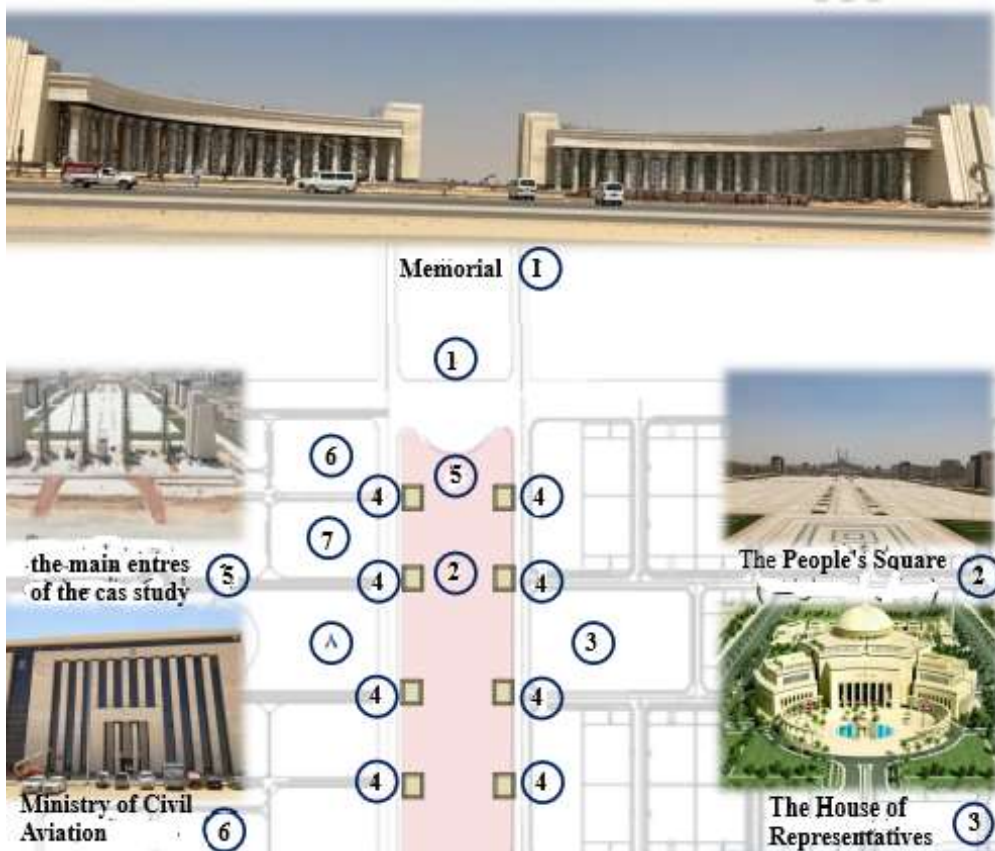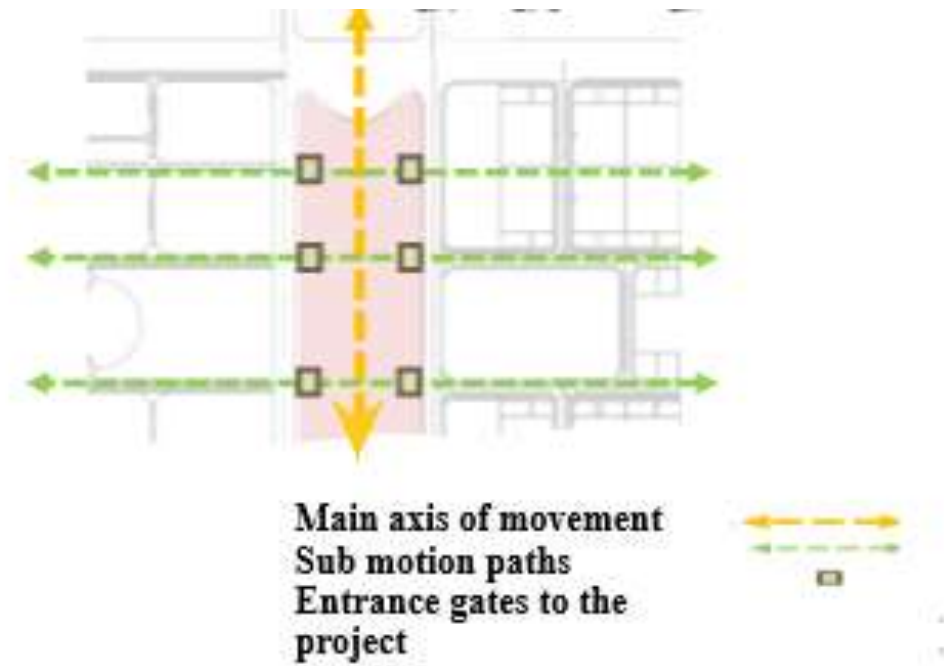
Fig(5): The location of the case study site in the New Administrative Capital and the images of the surrounding built environment, (The place visual image and architecture – urban character), Source: (The Researcher)

(7) Ministry of Foreign Affairs

Main axis of movement
Sub motion paths
Entrance gates to the project

Fig(6): The main paths of pedestrian movement in the chosen site of the case study, Source: (The Researcher)

4.2. LAND SCAPE DESIGN:

A landscape place design is composed of a multitude of lines and forms, all intertwined in a carefully orchestrated network .During the design process, these aspects are thoughtfully and creatively assembled to outdoor space.Beautiful landscape designs include hardscape and softscape. It is important to establish a balance between Hardscape and Softscape when designing landscape elements in a new settings. An ideal landscape includes elements from both categories. A design that focuses mostly on rocks, gravel, a large cobbled driveway is a very challenging one, and a place full of trees, shrubs, and flowers without any walkways or walls to break up the growth can feel like a forest.

4.2.1. THE PROPOSED CONCEPT OF LAND SCAPE DESGIN PROJECT (CASE STUDY):

Egypt is the cradle of civilizations. The Nile vein is where civilizations flow. Architecture is the physical representation of civilizations which narrate their philosophical and moral values. The importance of Ancient Egyptian civilization is expressed clearly through the architecture character of ministerial complex in the government district. Therefore, the identification of the foundations of the design of Ancient Egyptian architecture and gardens (landscape) is needed as it is the main idea of the proposed landscape project (Alberto).

The main axis, which represents the main backbone of the project, expresses the continuing ancient Egyptian civilization, emphasizing the expressions and features which distinguish it. The axis will also contain places for statues which represent important figures in this civilization. And since symmetry is the balanced distribution of equivalent forms and spaces around a point, or line, such as a walk or road, or it may be an elongated element like a pool, panel of lawn, bed of plants. (Simonds 1997, 223). Therefore, the main axis lies in the centre dividing the space into two symmetrical parts in the case study. The consequence of the axis 'superiority is a clear sense of hierarchy within the design. Not only the axis represents a dominant element but also it organizes the spaces and elements placed on it. As a line, the axis focuses on movement and views for any element along it (right 1.42)

The William Kent landscape designer in the 1600s said : "Nature abhors a straight line." The human ability to organize, simplify, and control nature's complex patterns is epitomized in the straight line's purity.

The straight line inserted into the landscape to contrast the natural and imply human regimentation While all straight lines imply human regulation of the landscape, the axis moreover symbolizes the ability to dominate because of its undeniable supremacy in the landscape. Therefore, curved lines were used in the design of the paths and pedestrian ways in the project concept of the case study in the new administrative capital, in order to emphasize the domination of the main axis and its undeniable superiority in the landscape design concept. Also, the axis is used to present the power of the government, inspired by the central axis or processional line at Queen Hatshepsut's temple in Egypt. The straight line as a representation of human intervention is likewise evident in rows of plants in the cultivated field, orchard, and vineyard. The Ancient gardens in Egypt likewise placed plants in rows to accommodate irrigation (. Rasha, 2017).


Fig(7): Temple of Queen Hatshepsut in Egypt, Source: (the-ancient-pharaohs.blogspot.com/)
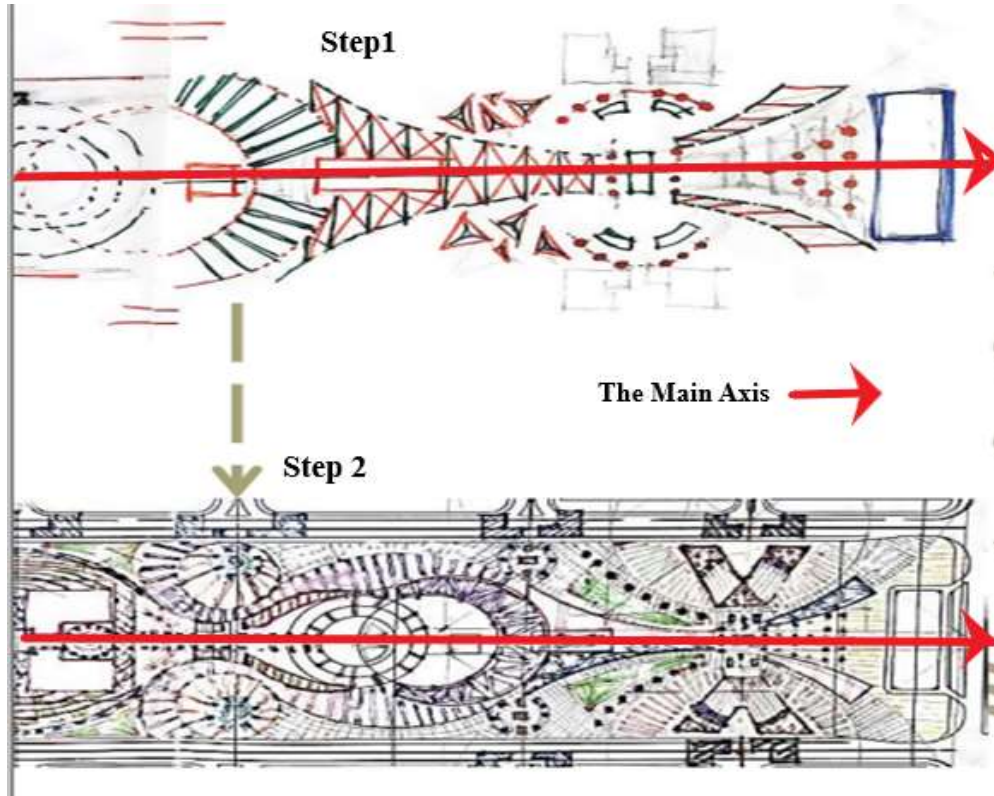
Fig(8): The project concept
Source: (The Researcher)

edges between areas of materials, lines of different elements, or a combination of the two, and the arcs can form converge or divergence from each other as they pass through a region . Concentric arch architecture is a prominent centre of arches, where movement across the landscape becomes the primary function, and where the design goal is to create an overall multi-layered gesture .In the case study, the arched structure of the curved landscape lines is seen as a 'shadowed path' which deals with the varied lighting conditions created by grouped tree canopies and open space .The use of water bodies and stone creates symbolic connection and visual continuity across the main axis. Collectively, layered arches provide an effective organizing tool which means to unify a complex series of spaces, elements, and associated experiences.
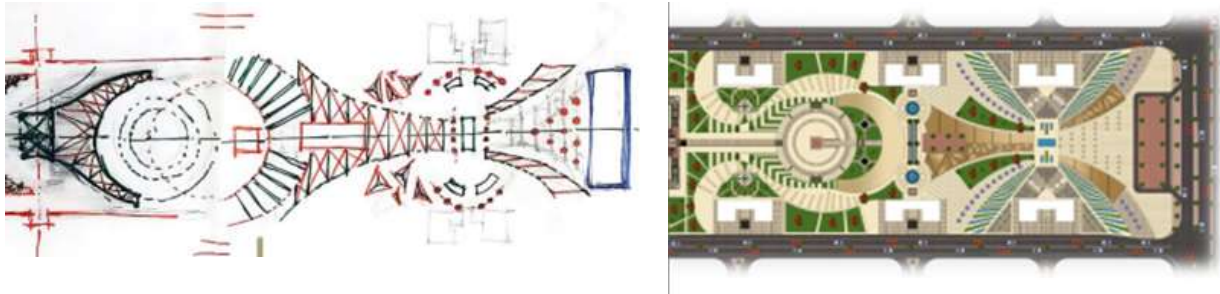
Fig(9): The use of arches in land scape design
Source:(The researcher)

4.2.2. ANCIENT EGYPTIAN GARDEN DESIGN IN GENERAL

Ancient Egyptian architecture is famous for its own style, which was greatly influenced by the geographical nature of the country. The influence of Egyptian architecture by these factors was evident in the walls that spread various geometric shapes; Like rectangles, and squares in an overlapping shape, they were built diagonally. The features of the Ancient Egyptian architecture and gardens (Landscape) is as following:

*They were axially planned ,and often centred around pools of water.

*The unity of the building and the gardens was usually evident.

*Straight lines predominated in the design and in the plantings. Symmetry is found in the repetition

*Steps and stairways emphasized changes in levels.

* Confirm the entrances planting trees on both sides.

* Fountain in the middle of the garden surrounded by trees and ocean.

* Grape tiles to shade the paths.

* The floors are stone or natural stones and covered with grapevines.

* Pharaonic gardens were famous for palms - buckthorn - acacia - olives - willows - orange trees - and pomegranate.

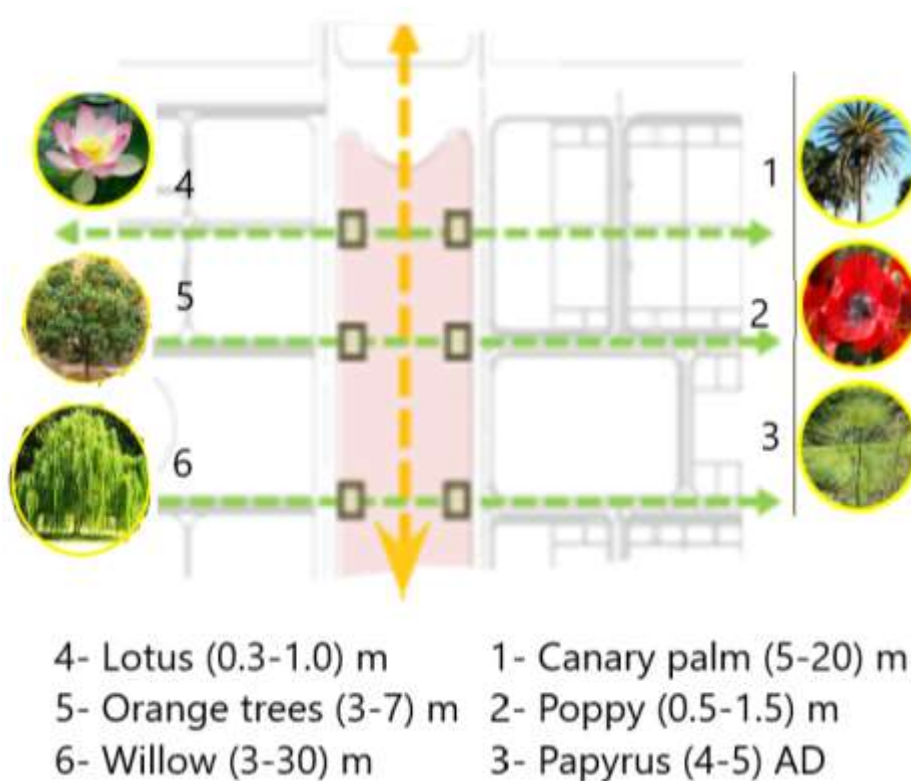*Aromatic and aquatic flowers and plants such as lotus and papyrus.
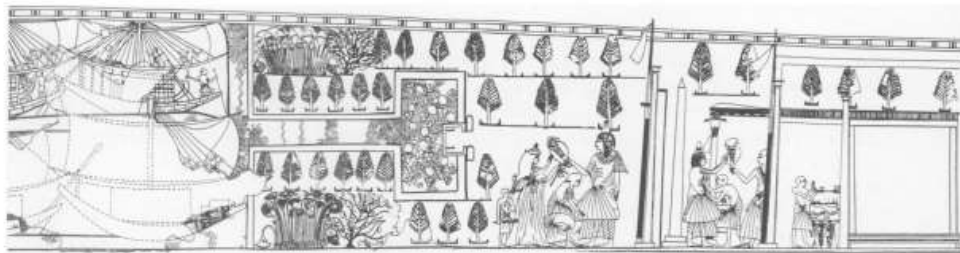
Fig(10): Garden at Karnak, the layout consists of a rectangular walled area in the centre of which is a vineyard surrounded by walled gardens, Source: (Norman de Garis Davies, The Tomb of Nefer-Hotep at Thebes (New York, I948)).

The main axis with the surrounding landscape elements are considered as a social hub which connects different areas in the government district in the new administrative capital. Being a mediator, this hub is the main focus of the case study. The superiority of the hub is clear through the hierarchy of elements within the landscape design., and this is borrowed from the Ancient Egyptian civilization, especially in designing the space layout. (Punter, 1997). As mentioned before the axis focuses on the movement, scenes and whatever elements along it and towards the end. (McHarg, 1971.)

4.3.. THE LAND SCAPE DESIGN OF THE CASE STUDY IN ANCIENT EGYPTIAN STYLE:

### 4.3.1. SOFT LANDSCAPE ELEMENTS:

Soft scape is the "soft" living part of landscape. These features may be permanent, such as shrubs and evergreens, or temporary like seasonal ones. Softscape include: Trees, Shrubs, Grass, Flowers, Vegetable Plant. When designing the case study site, some plants and trees of the ancient Egyptian gardens were used and selected to create a place image that would verify the identity of the place

4- Lotus (0.3-1.0) m   1- Canary palm (5-20) m
5- Orange trees (3-7) m 2- Poppy (0.5-1.5) m
6- Willow (3-30) m   3- Papyrus (4-5) AD

Fig(11): Trees and plants that will used from Ancient Egyptian style in the case study land scape design : Source: (The researcher)

4.3.2. HARD LANDSCAPE ELEMENTS:

Hardscape is the "hard" features in landscape. It is the heavier, unchanging, inanimate objects comprised of gravel, paving, stone and wood. Hardscape elements include: Walkways, Patios, Pathes, Retaining Walls, Swimming Pools, Water Features, Arbors, Stone Benches, Sprinkler Systems.
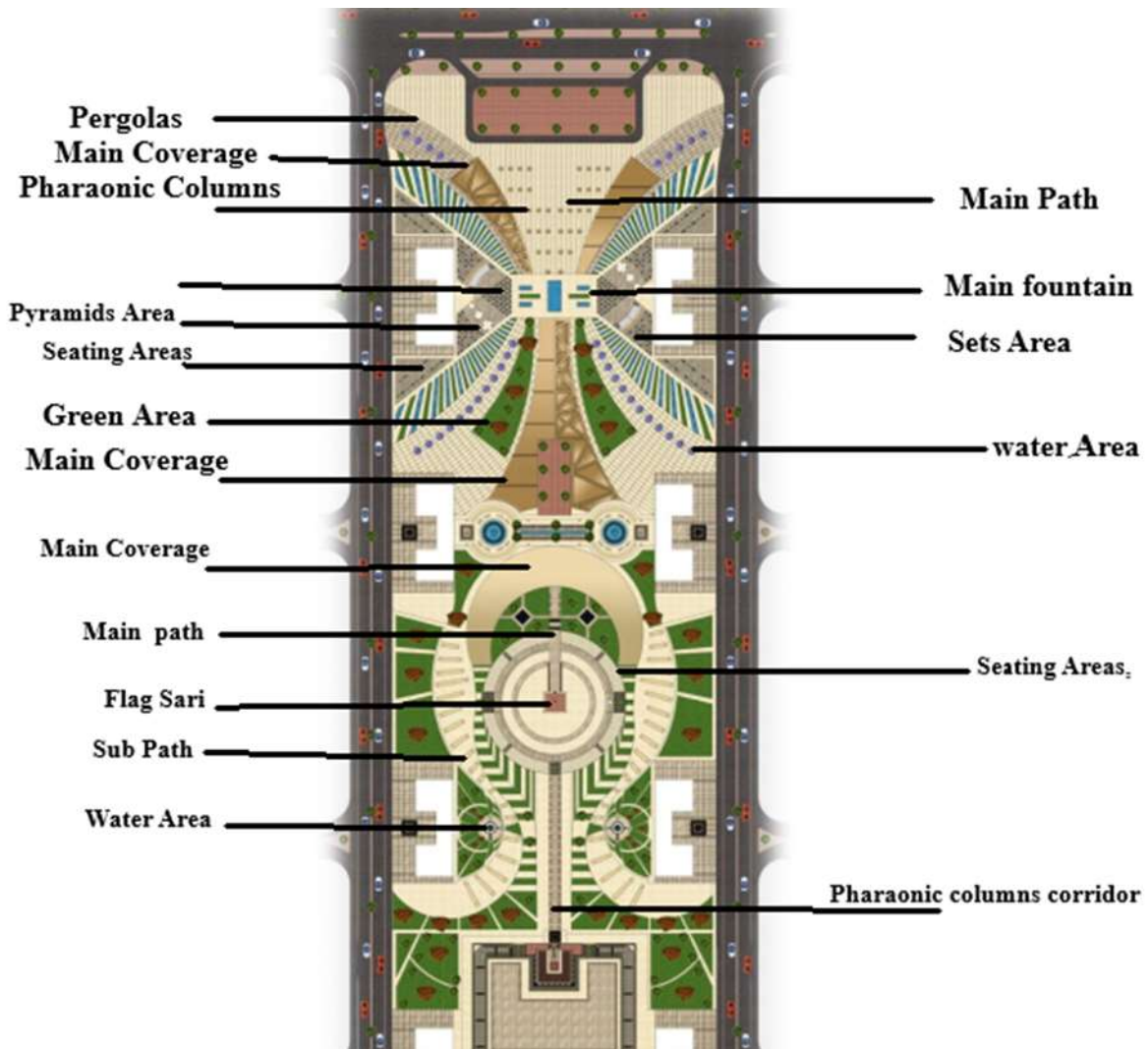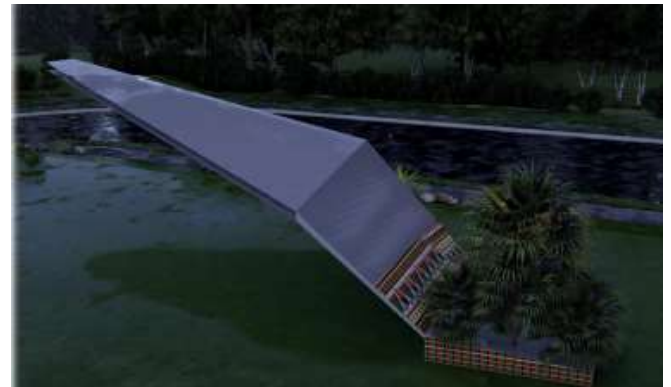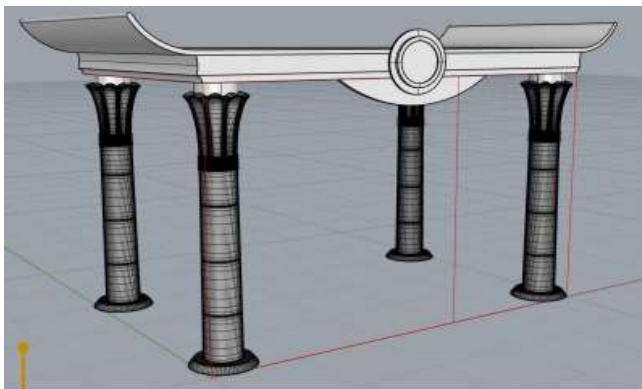
4.3.2.1. PATHS:

The first image clarifies the main spine of the landscape design which was inspired by the axis in Temple of Queen Hatshepsut in Egypt. The second image clarifies the sub-paths which covered with the Arcades.

4.3.2.2.SHADING AREA:

A model of the shading areas (pergolas) designed in Ancient Egyptian style, where solar panels were used to cover it.

4.3.2.3.LIGHTING UNITS:

The design of the lighting units is inspired by Lotus flower from the Ancient Egyptian civilization>

4.3.2.4.SEATING MODELS:

The Used of solar panels to cover seating place (pergolas) in all the case study.: Solar energy is the main source of all types of energy on the planet. The Arab world is considered. Egypt is one of the areas where solar energy is most available, every one square meter of land receives 2200-2500 kilowatt-hours per year.
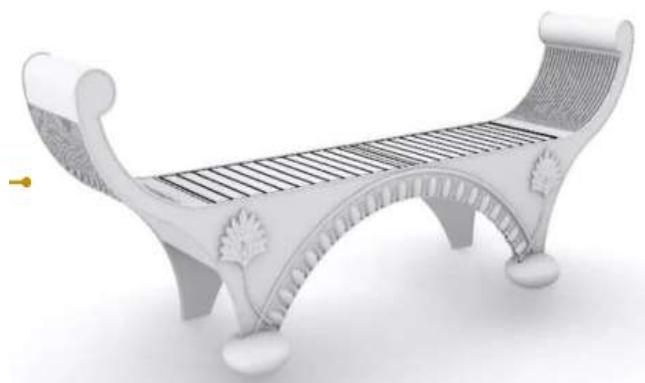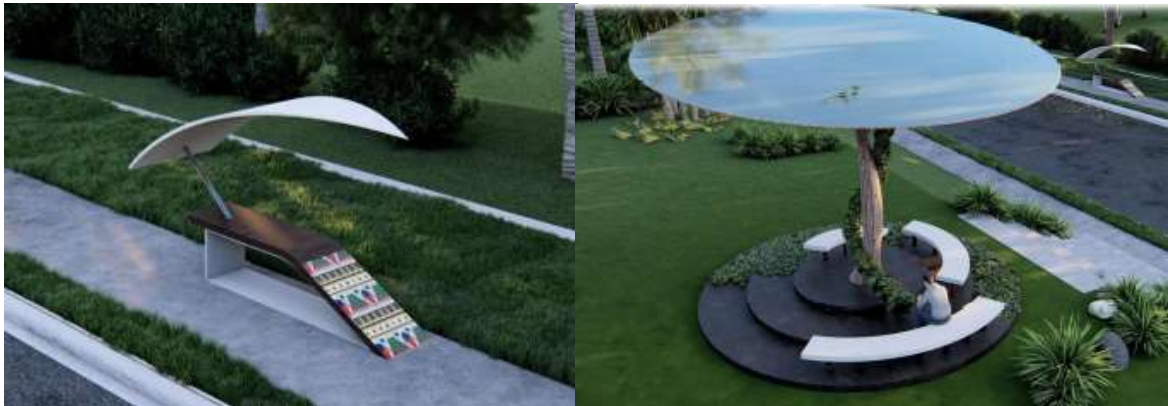
During the day can be used at night By storing them in dedicated storage tools. Solar cells are used to cover seating places (Journal of Urban Technology, 2015)

4.3.2.5. STATUE AREA:

The status were inspired by Anobis and Ramsis the second statues in Ancient Egyptian civilization. Also there an abstract of of the three Pyramids which can be seen in the fifth image.

4.3.2.6. MAIN PLAZA AND GATE WAYS LANDSCAPE:

The main plaza represents the main node in the landscape design were people gather and interact with the statues. The Gateways are designed based on the architecture character of the Ministries buildings in the governmental district which is inspired by the Ancient Egyptian architecture.

4.3.2.7. THE FLOORS:

The floors used to generate electric energy and its use in the main entrance allow the generation of electric energy with the movement of people, with increases the rationalization of internal energy while taking into account the cost of installation and use.

5. CONCLUSION:

In conclusion the landscape project of the case study applies the aspect of spatial identity where it represents not only visual uniqueness but also sustains and revives, through landscape design elements and form, the culture of our nation's unique civilization. In other words, it conserves our local image and values of urban spaces with new urban development and planning.

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