

## **Sustainable Landscapes; the use of Eco Parks As a Tool for Sustaining the Living Landscape**

**By**

**Mohammad H. Refaat**

Assistant Professor

Department of Urban Design

Faculty of Urban & Regional Planning

Cairo University

### **Abstract**

The constant stimuli of city life can be mentally exhausting, and life in the city can actually dull our thinking. In navigating the outdoor environment, one must continually monitor traffic and pedestrian flow while constantly focusing on where one is going and the means to get there. Constant response to even such low-level stimuli cannot be maintained indefinitely. A few minutes in a crowded city setting can cause the brain to suffer memory loss and reduced self-control. Even brief glimpses of natural elements improve brain performance by providing a cognitive break from the complex demands of urban life. Eco parks are large, connected landscapes with high nature conservation and environmental protection ambitions. They are parks which use ecological landscape features to reduce watering maintenance while enhancing wildlife and human values. An Eco park is not just about preservation, but also about restoring nature conservation and a large-scale transformation of the landscape. In this research we shall discuss the nature and types of Eco parks. Its history and importance to the urban and natural landscapes will be discussed. In addition, we shall focus on Wadi –Asla Eco park as an example of how to integrate this landscaping concept within the whole area development master plan. The research aims to conclude with highlighting the importance of using Eco parks as a key tool in the landscape planning system.

**Key words:** *sustainability, Landscape design, Eco parks, Jeddah, KSA.*

### **1. Urban parks; knitting the city landscape**

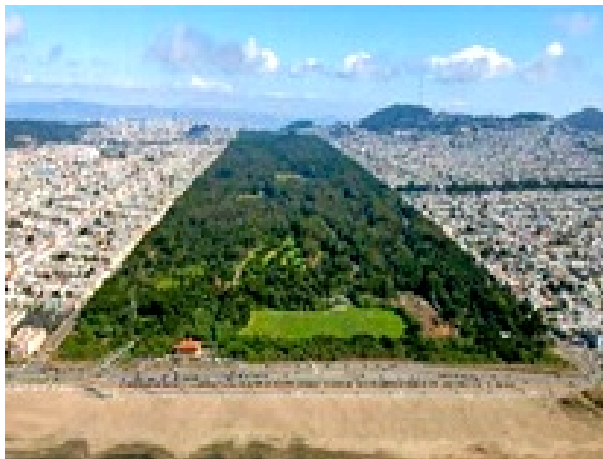
According to Andersen, (2006), ecological design will be a crucial component of the sustainable city, not only because of its potential to reduce the ecological impacts of urban life, but also because of its potential to communicate new cultural conceptions of the human relationship to nature. If designed to embody clarity, noticeable differences, and adequate redundancy, if implemented in partnership with ecological education efforts (of which landscapes form a crucial part), and if created to be meaningful and interpretable to local communities, ecologically designed urban landscapes can create a fertile piece of cultural and educational ground in which sustainability can take root and spread to neighboring communities and to generations beyond (Boland, 2001). Parks are often scattered about cities, and many cities have too few parks. Based on decades of research findings, parks should be managed as systems, not just for the usual purposes of beauty and recreation, but also to help citizens function at their best. When we mention the word "parks", it's important to begin at the beginning, with the idea of nature (Deming, 2011). The park developed out of a world view that sets nature and culture in opposition to each other. In

the 18th century, a middle ground between nature and culture emerged from this opposition the picturesque or pastoral. This landscape referenced nature visually, but was the product of human hands. It emulated the rural landscape of the English countryside. John Dixon Hunt has called pastoral landscapes “third nature” (Boland, 2001). The urban park is an expression of this pastoral idea. From their inception, urban parks were not conceived of as having ecological value or as being ecological restorations in the sense that we use these terms today. Fredrick Law Olmsted designed New York’s Central Park to provide the aesthetic experience of nature as an antidote to urban life, not to create ecological value. Central Park is not a relic wilderness surrounded by urban development. It was constructed at great effort and expense, involving the relocation of several communities, the movement of six million cubic yards of dirt and rock, and the planting of thousands of trees. Its construction transformed a rocky stretch of farmland in the middle of Manhattan that was not desirable for urban development (Ellis, 2005) (Figure1)



*Figure 1: Showing the irony that picturesque parks like Central Park are associated with nature (Source: Swaffield, Simon R., 2002)*

By modern standards, most parks are not very ecological. Because parks are based on an English landscape model, they aren’t really suitable to many sites. As wonderful as Golden Gate Park (Figure 2) is, it is fundamentally an attempt to replicate something that doesn’t really belong there. It survives at great expense, both ecological and financial (Ingels, 2003).



*Figure 2 the Golden Gate Park landscape design is based on the English visual concept. (Source: Swaffield, & Simon., 2002)*

To create this pastoral effect, parks depend on non-native plant species that have a finite life span, and require high maintenance and frequent replanting (Malpas, 2011). The dying planted forests of Golden Gate Park and the Presidio are good examples of this phenomenon. Urban parks often incorporate sweeping green lawns that require huge inputs of water, fertilizer, pesticides, fuel, and labor. Parks aren't sustainable, self-replicating, or ecological landscapes, though they may look natural to our eyes. Nevertheless, urban parks endure and are beloved (Tress, et al., 2004).



*Figure 3 some examples of the urban parks in Egypt which reflects the pastoral effect in urban landscape (Source: Google Maps):*

We have four ideal types to describe changes in urban parks over the last 150 years, Her typology include consideration of both the shifting social purposes that parks have been imagined to address and corresponding variations in designed from the four Types of parks were the Pleasure Ground (1850 – 1900), the Reform Park (1900-1930), the Recreation Facility (1930-1965), and the Open Space System (1965-today) (Cranz, 1982). The Pleasure Ground was typically a large park located on the edge of a city. It followed a pastoral ideal, with its building clearly subordinate to landscape values. This is the kind of park was associate with Frederick Law Olmsted, and its purpose was to simulate nature or the countryside; but this not supposed to be "wild" nature (Hoskins, 1955). Rather, its design encouraged a certain kind of mental appreciation of the landscape, which is something mistaken as its "Passive" component. A better word might be "contemplative" As sports become increasingly popular; these parks also become more actively programmed (Eckbo, 1975) (Figure 3).

## 2. Importance of Eco Parks

Today , we find ourselves reevaluating conventional ideas about nature , shifting away from a model that opposes nature and culture toward a one that conceives of humans as a part of an integrated ecological whole . In the design professions this new orientation has brought a surge of



concern for what has come to be known as "sustainable development" and "ecological design" (Bastian, 2002).

In terms of urban park design, we believe this shift has brought us to the verge of a new era. Can Parks help create more ecologically balanced and sustainable cities? Several factors should be taken into consideration (Burel, & Baudry, 2003); First, ecological parks reflect a holistic, integrated vision of the earth. Ecological parks derive from a world view that breaks down the dichotomy between nature and culture. This allows all of the landscape potentially to have ecological value. Second, ecological parks are conceived as part of an integrated urban whole (Klijn, & Vos, eds. 2000). As I previously mentioned, picturesque parks were conceived of as experientially isolated from the surrounding city. Because ecological parks are conceived as a part of an integrated urban whole, they can participate in solving larger urban and ecological problems. Third, ecological parks use sustainable design, construction, and management practices to reduce resource inputs and waste outputs. The use of recycled materials can be a very small and simple gesture. Fourth, ecological parks no longer depend on picturesque aesthetics to communicate the idea of nature. Rather, they are part of an expanded field of landscape aesthetics (Opdam, et al (2002). They are an example of what I call "fourth nature," landscapes that express that they are made and yet have ecological value. This notion of fourth nature is important, because it allows us to conceive of ecological value in landscapes that we traditionally have thought of as cultural. It allows us to abandon our preconceptions about landscapes like formal French gardens and see the ecological richness they hide (Waldheim, 2006) (Figure 4).



Figure 4: Some examples of the new trends of ecological landscape design "eco parks". (Source: Randolph., 2003).

### 3. Wadi Asla (K.S.A) Eco Park Landscape planning Approach

The prior history of urban parks reveals concern with social problems and with the idea of nature, but parks have never been purpose built based on overt concern for ecological fitness (Fry, 2001). However, the present conflation of ecological and social concerns may be changing all that and introducing a new urban park type, based on providing solutions to ecological problems and expressions of the human relationship to nature. An elaborated example of this concept is Wadi Al Asla master plan for development which is a mega residential as well as commercial development project situated as an extension to the city of Jeddah KSA.

### 3.1. Project description and site features

The site in Wadi Al Asla offers wonderful views with differing landscape characters and habitat. In developing the land use options the villas were located to maximize views over the surrounding landscape. This created areas for exclusive villas with elevated views of the golf courses and desert landscape, while other exclusive villas will be located with garden views of parkland. The road network and hierarchy plays an integral role in reinforcing orientation, and to preserve and create different characters in particular neighborhoods. The main roads from the highway enter the site and distribute secondary routes in the other areas of the development, facilitating connectivity while creating a sense of controlled accessibility and security. The neighborhood districts draw their inspiration from the existing landscape, and the ordering framework of these landscape elements several precinct themes. Wadi Al Asla is an extensive site (155 km<sup>2</sup>). The site lies in the Briman area known as the Eastern Hills, which is located to the east of the city of Jeddah, approximately 14 kilometres east from the Alharamain Expressway (which runs in a north-south direction, along the eastern boundary of the city Jeddah). The region supports a variety of flora and fauna specially adapted to the hot and dry conditions (Hok, et al., 2012) (Figure 5).



Figure 5: An Ariel view of Wadi Al Asla Master plan as well as the general project theme.  
(Source: Hok et al 2012)

### 3.2. The site landscape ecology

Taking the migratory birds as an example for the richness in ecosystems and habitats we found that, the number of bird species observed during the current survey of Wadi Al Asla (48 species in total from a total of 485 species recorded for Saudi Arabia) is also determined by season, as many birds in this region are migratory (Brandt, (2000). The Red Sea is a well known flyway for migrating birds, including raptors, geese, ducks and passerines. Much of the migration takes place in March and April as birds fly back to Europe after over wintering in Africa or on their return migration from Europe back to Africa (August to October) (WYG.,2012). The flora and fauna at Wadi Al Asla is largely determined by the climate. The Kingdom of Saudi Arabia is classified climatically as a semi arid region. These climates tend to have hot summer and warm winters.

Semi-arid climates receive precipitation below potential evaporation, rainfalls are little and erratic, as well as irregular and precipitation exhibits strong spatial and temporal variability (Bürgi, & Russell, 2001). The low rainfall makes Saudi Arabia one of the driest countries in the world. The south-western region of Saudi Arabia, the location of WAA, is characterized by having the highest amount of precipitation compared to the other regions. This is largely due to the presence of the Sarawat Mountain range, and the fact that annual rainfall increased with altitude. From the Red Sea to the edge of the Sarawat mountain range, within a distance of less than 100km, topographic relief may exceed 2000m. The site habitats were surveyed as follows (WYG.,2012): (Table 1) Low jebel- Sparsely vegetated wadi, without scrub-Sparsely vegetated wadi, with scrub- 'Eastern Forest' (plantation between the landfill site and Lake Briman)-'Wetland Project' (irrigated date palm, tree, shrub and ground flora)- Agriculture areas (includes use by livestock – camels, sheep, goats and horses)- Briman Lake (sewage lagoon) and downstream riparian wetland-Tamarisk and Proposis juliflora scrub (overflow flood channel, extending 8km south of Lake Briman) (Figures 6,7,8).

Habitat Type	Relative Ecological value
Briman Lake and associated riparian vegetation (sewage lagoon)	High
Tamarisk and Proposes juliflora Scrub (flood channel)	High
Low jebels	Medium to high
Sparsely vegetated Wadi, with scrub	Medium to high
Sparsely vegetated Wadi, without scrub	Medium
Wetland Project	Medium
Eastern Forest	Medium
Agriculture areas (wooded boundaries)	Medium
Agriculture areas (enclosures)	Low



*Table 1: showing the important habitats surveyed at the Wadi Al Asla site and their degree of sensitivity. (Source: the author, after WYG, 2012)*



*Figure6: the general landscape features of the Wadi Asla site. (Source: Al-gilany, 2011)*



*Figure 7: the native species and the wet lands form an important habitat at the site. (Source: Al-gilany, 2011)*



*Figure 8: an over all view of the sites natural landscape. (Source: .Al-gilany, 2011)*

### **3.3. The landscape design philosophy**

The main landscape design philosophy of Wadi Asla Eco Park was to maintain "*Sustainability*". That will be achieved by making sure that, all the residential areas within the master plan are designed to minimize the residents' dependence on automobile usage (Palang, et al 2000). Each park connects fragments of open space into a comprehensive network, both to increase human well-

being and benefit natural system. The "Ecological Park" concept strives to realize an older vision of the city as a garden, blurring the distinction between the two. Yet it also employs the most up-to-date methods to minimize such impacts of city life as urban runoff, air pollution, and traffic noise. Through the design of healthier open space as the "Lungs of the City." The neighborhoods are walk able and contain all necessary social infrastructure facilities for the residents (Hok, et al 2012). A comfortable walking distance is considered at 400-1000m, which represents a walking time of five to ten minutes. Within WAA all social infrastructure amenities will be located within that walking radius. Also, public transport stops, such as bus stops and light rail (LRT) stops will be situated within easy walking reach for the residents. This reduces car dependency within the development, by making everyday trips not dependant on the usage of personal automobile. Also, it creates livable neighborhoods and helps establish a sense of community within the residential hubs of WAA. In addition, the Eco Park landscape design concept of Wadi Al Asla aims to preserve existing valuable habitats within the site. These areas will be preserved and enhanced within the Eco Park, making this site accessible to residents and visitors. The Eco Park occupies a large area at the heart of the development. This measure will enhance the bio-diversity on the site by allowing a large number of animal and plant species to coexist in their natural habitats (Tress, et al, eds. 2003). Above all the design should first, become more efficient and self-sufficient with regard to material resources. Second, integrated into the surrounding urban fabric and playing a role in solving larger urban problems. Modeling new standards for ecological aesthetics. Management of new formal and aesthetic qualities, both in terms of landscape and architectural forms and in their relationship to city around them (Leitao, A. et al., 2006). (Figure 9)

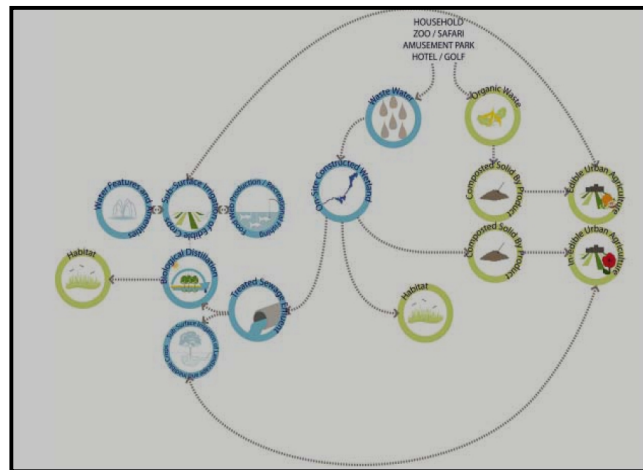


Figure 9: Sustainable system diagrams. (Source: Naveh, 2000)

Also, Ecological Parks aim at self-sufficiency. Planting rely on native and /or regionally appropriate species to reduce the need for human intervention. Exotic species are avoided, and turf is planted and managed to suit the site and social circumstance (Buchecker, et al., 2003). Open meadows that function primarily as a visual resource are planted with a mix of native grasses and allowed to grow to full height. They provide habitat for birds, bees and insects – even when purely ornamental from a human point of view. Compost is an important part of the Ecological Park. Indeed, it is elevated to the status of an aesthetic, as environmental artists work with maintenance departments to develop fascinating patterns for managing the piles of organic matter that come from park leaf and branch debris. These in turn provide subject matter for fine-art photographers (Antrop, 2001). Park compost is also used amend impoverished urban soils in community gardens. Buildings in the Ecological Park are carefully sited to be close to mass transit and bike routes.



They are built of recycle or less energy – intensive materials, and make use of solar heating and natural cooling and ventilation. They use composting toilets and rely on natural day- lighting inside (Bergen, et al 2001). Their restaurants serve organic produce from the park's own vegetable gardens. Parking lots are to the minimum, but where they are necessary; they are paved with permeable materials, such as open paves that allow grass and plants to grow through in honeycomb patterns (Özdemir, & Başal, 2008). Permeable blacktop lets rain sink into the ground without running off. Pathways for foot traffic are differentiated, but favor softer, more organic materials (crushed gravel being preferable, for example). The center of pathway may be paved to accommodate roller skating, bicycling, and wheelchairs, but its edges may use combinations of crushed gravel, wood timbers, or chips for aesthetic and kinesthetic benefit (Bergen, et al 2001).

#### 4. The Applied Landscape Design Conceptual Methodology

The main methodology depended on two main criterions, using the allowed amount of water for irrigation as the main constraint for developing the design concept, and subdividing the outdoor spaces into what is called a green way park system (Table 2). Greenway Park Systems are divided into four typologies with different criteria and level of service ranging from simple walk ways to restaurants over looking natural lakes. In addition, to two types of parks within the greenway park system, city parks and zone parks are also included (Hok, et al., 2012) (Figure 10).

<b>Landscape Typology General</b>	Primary Streetscape	Primary Streetscape	Primary Streetscape
<b>Landscape Typology Specific</b>	Primary Row 63.5m	Primary Row	Primary Row's 63.5m through entertainment areas in south east
<b>Irrigation Category</b>	Streetscape Type B, Primary streetscape	Streetscape Type A,	Streetscape Type A, Primary Streetscape
<b>Vegetation Type</b>	Planting Strips for median	Trees and	Trees and Groundcover Planting Strips
<b>Assumptions</b>	Within Super blocks 21.1 km length (24.77 km less 15% interruptions) 1 No.3.95m width for median Shrubs and groundcover. Irrigation rates per m2 are increased due to restricted root zones. 100% of total area planted and irrigated	Within Super blocks	Through Entertainment Area 2.0km length (2.3km less 15% interruptions). 4 No. Rows at 2m width Shrubs and groundcover. Irrigation rates per m2 are increased due to restricted root zones. 100% of total area planted and irrigated.
<b>Total Area (ha)</b>	8 ha	14 ha	2 ha
<b>Landscape Area (ha)</b>	8 ha	14 ha	2 ha
<b>Planted Area (m2)</b>	83,160 m2	143,377 m2	15,640 m2
<b>Irrigated Species Water Requirement (0.10.9 liters)</b>	0.60	0.80	0.80
<b>Base watering</b>	7.02	9.36	9.36

Rate (I/m <sup>2</sup> /day)			
<b>Canopy Density</b>	70 – 100%	100%, tiered	100%, tiered
<b>Final Watering Rate I/m<sup>2</sup>/day</b>	7.7	13.4	13.4
<b>Average Annual Usage(I/day)</b>	642,163 L/day	1,919,068 L/day	209,338 L/day

Table 2: the water distribution concept used in defining the landscape character required at each zone. (Source: author after, (Hok, et al., 2012))

Selecting the plant typology for each landscape category was a main decision for the designers before starting their landscape design scheme. Each landscape type was given the landscape criteria required within the water budget of the project. This lead to a detail study of the plants selections to be tolerant to the water content, irrigation specific requirements, watering rates average annual water usage and canopy density. This initiated the following landscape concepts:

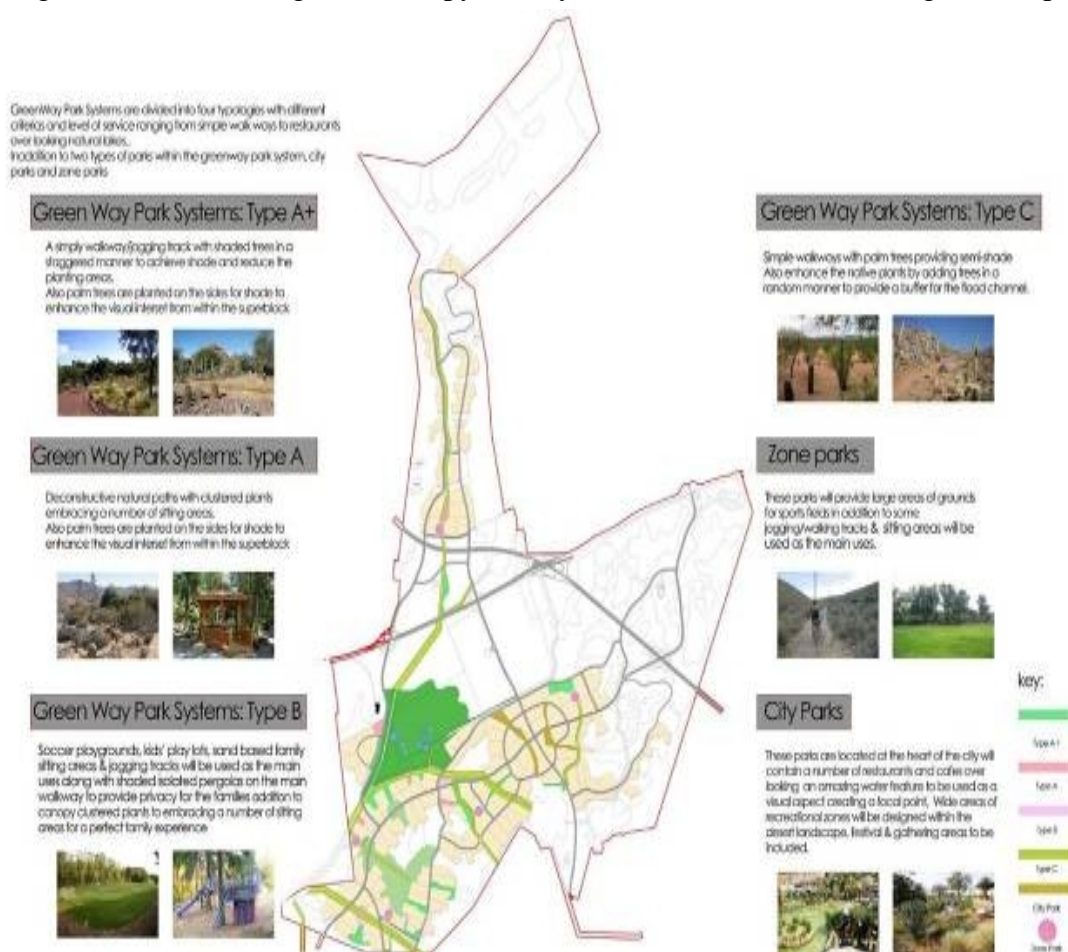


Figure 10 the landscape design conceptual master plan showing the various types of landscape suggested and its criteria of design (Source: The author, after Hok, et al., 2012)

1. *Green Way Park Systems: Type A+.* A simply walkway (jogging track) with shaded trees. Designed in a staggered manner to achieve shade and reduce the planting areas. Also, palm trees are planted on the sides for shade to enhance the visual interest from within the super block
2. *Green Way Park Systems: Type A.* Deconstructive natural paths with clustered plants embracing a number of sitting areas. Also palm trees are planted on the sides for shade to enhance the visual interest from within the super block Green Way Park (Figure 11).
3. *Systems: Type B.* Soccer playgrounds, kids' play lots, sand based family sitting areas & jogging tracks will be used as the main uses along with shaded isolated pergolas on the main walkway to provide privacy for the families' addition to canopy clustered plants to embracing a number of sitting areas for a perfect family experience.

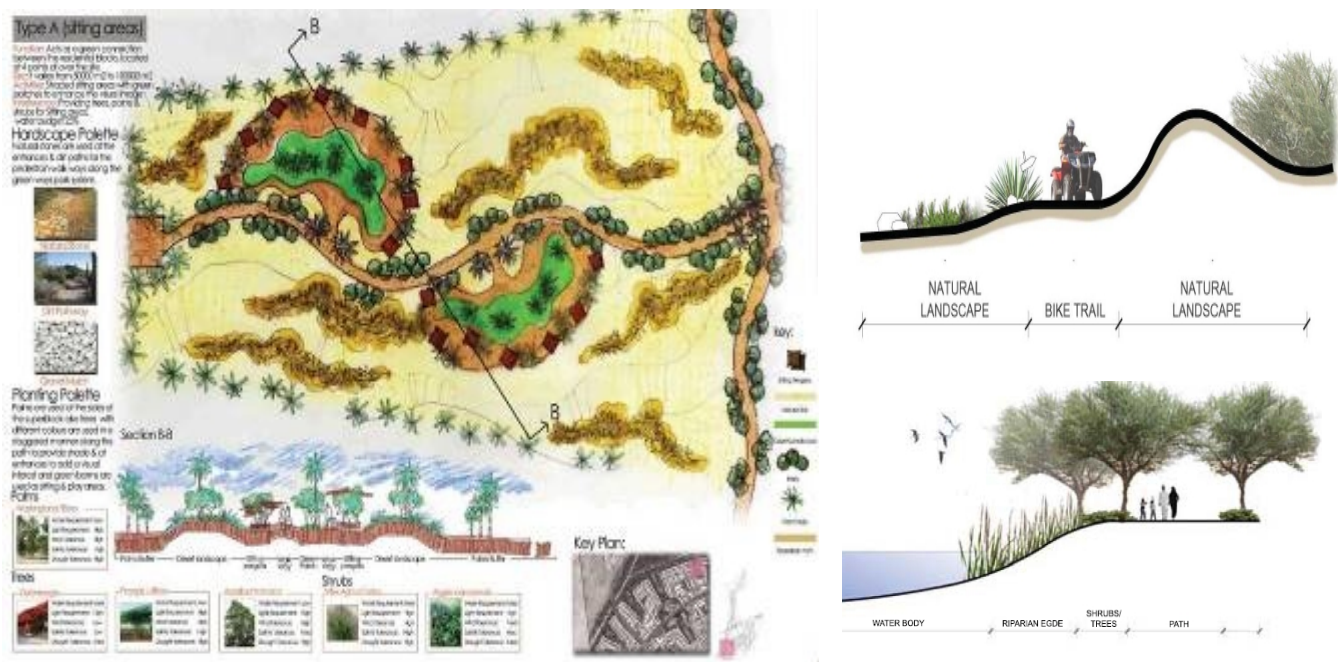


Figure 11 the landscape design of type a showing the overall design intent. (Source: the author after Hok, et al., 2012)

4. *Green Way Park Systems: Type C.* Simple walkways, with palm trees providing semi-shade. Also enhance the native plants by adding trees in a random manner to provide a buffer for the flood channel.
5. *Zone parks.* These parks will provide large areas of grounds for sports fields in addition to some jogging/walking tracks & sitting areas will be used as the main uses. (Figure 12)



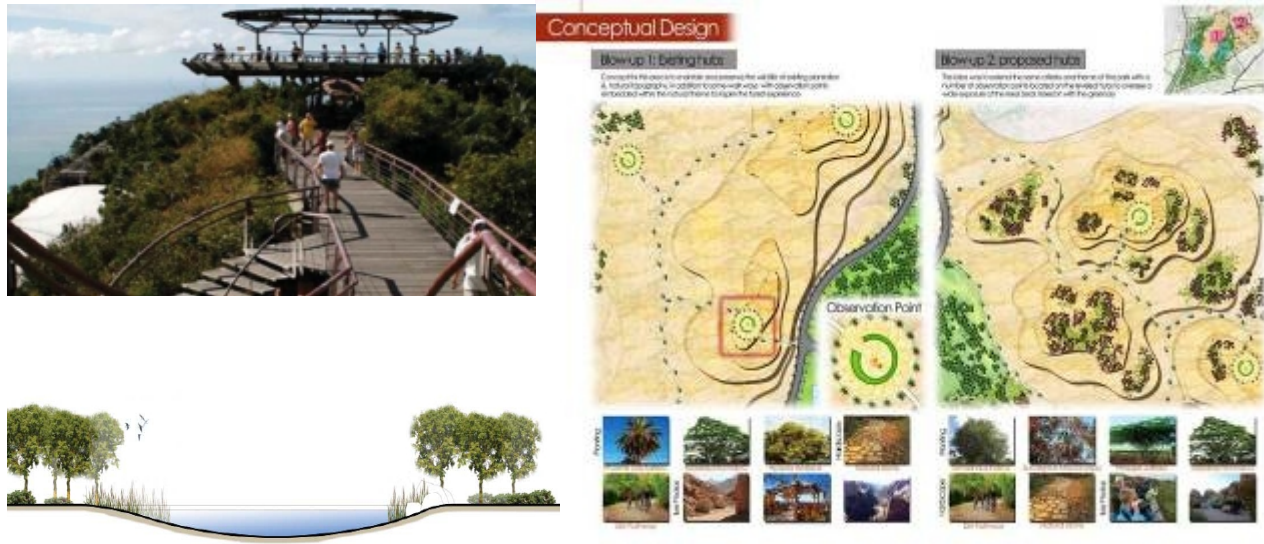


Figure 12 showing the native species used to enhance the natural environment visual value.  
(Source: the author after Hok, et al., 2012)

6. *City Park*: These parks are located at the heart of the city will contain a number of restaurants and cafes over looking an amazing water feature to be used as a visual aspect creating a focal point, Wide areas of recreational zones will be designed within the desert landscape, festival & gathering areas to be included. It is a large park serving the whole settlement of the development located at the heart of the city and is divided into 6 zones. Its size is around 500000 m<sup>2</sup>. It accommodates, toilets (rest rooms) and drinking fountains, book café Cafeteria/Restaurant, Seating areas over looking the view of the existing water bodies, Playground & a Mosque: Providing trees, palms & shrubs to compensate the uses added, water budget allowed is 60% according to Table 2. Night lighting is minimal, powered by solar collectors and wind generators (adapted to keep birds from flying into them). Benches and play equipment use more body – conscious design than has been the case to date in American public places. Perches and lounge chairs replace traditional park benches. The landscape is designed to encourage people to use their whole bodies rather than just their eyes. This is continued attention to fitness and sports, contemplation and appreciation of nature, community building and celebration, culture and art in the Ecological Park (Figure 13, 14). Sustainability was one of the main design principles of the project. The landscape design concept of this project depended on several design fundamentals, integration with the surrounding environment, enhancing the visual setting, preserving the environment and respecting the existing habitats. Most of the materials used in the project will be from the site, dirt paths are maximized, all native plant species existing in the site are listed and enhanced. Shading in the form of plants shade or light structure is also considered in the design concept. A very important aspect was also taken into consideration which is the socio culture impact , for example a full segregation between family spaces and bachelors spaces, the width of path walks are deigned wide enough to accommodate a whole family walking together without any disturbance. The hierarchy of open public spaces and linking it with the whole pedestrian network of the project is one of the major aspects of the design.



Figure 13 showing the city parks network and its integrated vision with the natural environment (. (Source: the author after Hok, et al., 2012)



Figure 14: the parks or main hub landscape design intent featuring the increase in water content supplied for this area of the project and its impact on the overall design. . (Source: the author after Hok, et al., 2012)



#### 4.1. The results of using Eco Parks for sustaining the living landscape

As we enter the 21st Century, our understanding of natural environment has deepened. Rather than the natural setting being the residual undeveloped edges of lots, it is possible to have natural systems such as streams and wetland areas serve as frameworks to guide development that is more responsibly integrated with nature. The use of Eco parks concept has created:

- 1) Open spaces that provide opportunities to unify and strengthen this research community and create a sense of place.
- 2) Succeeded in guiding a set of principles for a sustainable process of intervention involving the location of roads, walkways, structures and utilities, and making natural and cultural values available to users.
- 3) Producing a sustainable site design that involves simple design and management practices that take advantage of natural site features and minimize impacts on the natural environment.
- 4) Producing a process of designing new environments, but also involves renovating drainage ways, revitalizing stream corridors, reintroducing appropriate vegetation to filter runoff and sustaining the ecological diversity throughout the designed site.

In this context, we should consider preserving natural resources with sustainable approaches. The result is less manipulation of the natural environment with human interventions and sustainability of the natural appearance of the environment; designs should be specific to a particular site. Major issues that need to be considered during sustainable design are site topography, significant natural and geological features, site grading and retaining walls, surface drainage and sediment control. It is understood that these issues are interrelated during the process of collaboration between architects, landscape architects and urban planners in major urban development projects. An environmentally responsive design process adds the elements of integrated design, design and construction team collaboration, and the development of environmental design guidelines. These elements should be incorporated into development projects from the very beginning and sustained throughout the project phases. Conventional design strategies often fail to consider the interrelationships among building site, design elements; topography and energy. The Schematic Landscape Design of Wadi Asla Project, which is the basis of this paper, provided a set of guidelines to be followed in future development projects:

- a) Natural systems and local conditions of the region are important aspects of the overall site. It is, therefore, essential to plan this development with sustainable fundamentals if the goal is to enact sustainable design practices; that is, the natural systems present on site will be maintained via Schematic Landscape Design.
- b) Doing so will produce positive benefits for all aspects of project development, water conservation, open space, land use and building management.
- c) In addition to, favoring clustered, connected, development to unlock development potential, promote sustainability and to leverage and support a range of future transit initiatives.
- d) Preserve and restore significant natural systems with the intent to reinforce habitat corridors and increase biodiversity.
- e) Enhance the overall setting, better define key gateways into the Park, and create attractive shared open space to strengthen Wadi Asla identity and visibility.



- f) The creation of shared open spaces in guided development areas to support pedestrian activity, to link to surrounding development and to provide a natural focus to vibrant, knowledge communities.
- g) Use native plant species whenever possible to reduce irrigation and maintenance needs, and create a more sustainable environment.
- h) The steps toward sustainability will further enhance the standing of this park accomplishing its mission while incorporating sustainability into the fabric of social life. While the commitment to sustainability has been made within the preliminary plans, the next step to be taken is to ensure inclusion of these aspects from initial design to finished product.

## **5. Conclusion**

Nature advocates and nature lovers have long claimed that parks and other green environments play an important even crucial role in human health. In their time, leaders such as Thoreau, Muir, and Olmsted asserted that “contact with nature” was important to psychological, physical, and spiritual health. Through the decades, parks advocates, landscape architects, and popular writers have trumpeted the healing powers of nature. Each generation has its own set of ideas about how parks can help cities, their own experience in putting these ideas into practice, and their own frustrations and victories with those models. With increased concern for ecology and the environment, emphasizing sustainability and natural preservation becomes an urgent problem. Despite the recent intensification of environmental concerns regarding human practices, current designs do not usually include sustainable design guidelines. The main objective of design should be to develop and confer ideas of creating ecological sensitivity. By moving into a new aesthetic realm, ecological parks are beginning to generate new types of landscape expression. Ecological parks speak to what is unique about a site and a region, and do not just replicate a model inherited from Europe. The ecological park also suggests a new role for designers and for design. In picturesque parks, the idea was to create a picture and freeze it. In ecological parks, I believe the role of the designer is more about creating a frame within which social and natural processes are allowed to generate and maintain the form itself. We have to understand that the world we live in today is very different from the mid-19th century world in which the picturesque park first evolved. Today, we live in a world where science and metaphysics suggest the earth is an integrated whole. We live in a world where we value nature by virtue of its ecological worth and not just its aesthetic appeal, where biodiversity, environmental justice, climate change, habitat protection, and sustainable economic development are both social and environmental needs. Designers must develop a respect for the landscape and expend more effort to understand the interrelationships of natural systems and habitats, as well as the impacts of human uses on them. Today we think of the world as having limits and resources as finite. We may conclude by stating that the ecological park is emerging in response to these changing social needs. Lastly, ecological parks serve as a vehicle for reconnection. There is a nesting hierarchy of types of reconnection that parks can generate. Parks can provide an opportunity for passive contact with nature. Environmental education programs, waysides, and other types of environmental education generate a deeper understanding.

**REFERENCES:**

- A. B. A. Al-Gilany, (2001), Natural Landscapes of Arabia, Al-Madina Press, KSA.
- Andersen, A. (2006). Urban Landscapes and Sustainable Cities, Ecology and Society, Vol. 11 (1), pp. 34-40.
- Antrop, M. (2001) The language of landscape ecologists and planners. A comparative content analysis of concepts used in landscape ecology. Landscape Urban Plan. 55: pp. 163-173
- Bastian, O. (2002) Landscape ecology – towards a unified discipline?. Landscape Ecol. 16: pp. 757-766
- Bergen, S. D., Bolton, S. M. and Fridley, J. L. (2001). Design Principles for Ecological Engineering, Ecological Engineering, Vol. 18, pp. 201-210.
- Boland, M. 2001, "IDEAS AND ACTIONS FOR BETTER CITY", June 2001, SPUR Newsletter.
- Brandt, J. (2000) Editorial: The landscape of landscape ecologists. Landscape Ecol. 15: pp. 181-185
- Buchecker, M., Hunziker, M., Kienast, F. (2003) Participatory landscape development: overcoming social barriers to public involvement. Landscape Urban Plan. 64: pp. 29-46
- Burel, F., Baudry, J. (2003) Landscape Ecology. Concepts, Methods and Applications. Science Publishers, Plymouth
- Bürgi, M., Russell, E.W.B. (2001) Integrative methods to study landscape changes. Land Use Policy 18: pp. 9-16
- Cranz G. 1982, " *The Politics of Park Design: a history of urban parks in America*", MIT Press,
- Deming, M E, and Simon R. Swaffield. Landscape Architecture Research: Inquiry, Strategy, Design. Hoboken, N.J: Wiley, 2011. Print.
- Ellis, C. (2005). Planning Methods and Good City Form, Journal of Architectural and Planning Research, Vol. 22 (2), pp.138-147.
- Fry, G.L.A. (2001) Multifunctional landscapes – towards transdisciplinary research. Landscape Urban Plan. 57: pp. 159-168
- Hoskins, W. G. (1955) "The Making of the English Landscape." New York: Penguin
- HOK, PACER, NATURE, (2012) "WADI AL ASLA MASTER PLAN DEVELOPMENT REPORT" Stage 2A H6, JEDRIC report, London, UK.
- Ingels, J. E. (2003). Landscaping: Principles and Practices. Cengage Delmar Learning, Clifton Park, NY, USA.
- Klijn, J., Vos, W. eds. (2000) From Landscape Ecology to Landscape Science. Kluwer Academic Publishers, Dordrecht
- Leitao, A. et al., 2006. Measuring Landscapes: A Planner's Handbook, Washington Dc – USA: Island Press.
- Malpas, J., 2011. The Place of Landscape: Concepts, Contexts, Studies, London, England: The Massachusetts Institute of Technology Press.
- Naveh, Z. (2000) What is holistic landscape ecology? A conceptual introduction. Landscape Urban Plan. 50: pp. 7-26
- Opdam, P., Foppen, R., Vos, C. (2002) Bridging the gap between ecology and spatial planning in landscape ecology. Landscape Ecol. 16: pp. 767-779
- Özdemir, A. and Başal, M. (2008). Sustainable Site Design Approaches, Ankara University Press, Ankara (in press).
- Palang, H., Mander, Ü., Naveh, Z. (2000) Holistic landscape ecology in action. Landscape Urban Plan. 50: pp. 1-6
- Randolph, J. (2003). Environmental Land Use, Planning and Management, Island Press, New York, USA.
- Swaffield, Simon R. Theory in Landscape Architecture: A Reader. Philadelphia: University of Pennsylvania Press, 2002. Print
- Tress, G., Valk, A., Fry, G. eds. (2003) Interdisciplinarity and Transdisciplinarity in Landscape Studies: Potential and Limitations. Delta Series 2. Alterra Green World Research, Wageningen, pp. 44-52
- Tress, B. et al., 2004. From landscape research to landscape planning: aspects of integration, education and application, Wageningen, The Netherlands: Former Kluwer Academic Publishers.
- Waldheim, C., 2006. The Landscape Urbanism Reader, New York, USA: Princeton Architectural Press.
- WYG Environment, July 2011, "WADI AL ASLA ECOLOGICAL REPORT", JEDRIC report, London, UK.

\*\* All Illustrations are done by the author unless stated other wise.