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IDARA (INSTITUTING WATER DEMAND MANAGEMENT IN JORDAN)

WEPIA-ESTABLISHED WATER-WISE PARKS ASSESSMENT REPORT

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ABBREVIATIONS AND ACRONYMS

JOHUD – The Jordanian Hashemite Fund for Human Development

IDARA – Instituting Water Demand Management in Jordan

WEPIA – Water Efficiency for Public Information and Action

CSBE – Center for the Study of the Built Environment

PARKS IN RURAL AREAS

Introduction

In October of 2004, the Water Efficiency for Public Information and Action Project (WEPIA) completed the development of three model water-wise parks in Mansoura, Za'atari, and Shuqaira. These parks were intended to demonstrate water efficient practices in the design and upkeep of public parks to the wider public in rural areas of Jordan.

This report assesses the success of these parks in order to inform future park development initiatives that may be supported by the IDARA Project (Instituting Water Demand Management in Jordan).

Field visits were conducted to each of the parks during the months of August and September of 2007. Visual inspections were performed along with interviews with caretakers and stakeholders. The assessment included in this report is based on these field visits and addresses the following factors:

- Site location, context, and accessibility to users;
- Design suitability in relation to cultural/socio-economic and climatic/environmental factors; and,
- Site management, maintenance, and sustainability.

Al-Mansoura Park Assessment

Park Brief

Located in the north of Jordan in the village of Mansoura (in the Khaled Bin al-Waleed Municipality), the 8,000 m² park was established on a property connected to an outreach center owned by the Jordanian Hashemite Fund for Human Development (JOHUD), a local NGO. The site is characterized by a hilly, rocky terrain, and has significant scenic views towards the north and northwest. The site also enjoys a natural vegetative cover including a few large oak trees and various indigenous herbaceous plants.

The design intent was to create an educational “nature park” highlighting the native plant assets and also to provide a small recreational component in the form of a café and children’s play areas. Below are the amenities installed in the park:

- Café kiosk;
- Children’s play equipment;
- Solar lighting;
- Benches;
- Pergolas;
- Interpretive signage and a small orientation center;
- Plant signage;
- Gateway;
- Plants (trees, shrubs, and perennials);
- Irrigation system in the upper area; and,
- Two water harvesting collection pools, reservoirs, and pumps.

Current Condition

Visual Inspection

The park is in very poor condition. There are clear signs of neglect, significant plant losses, poor maintenance practices, and vandalism (Figure 1).



Figure 1

- A significant portion of the native vegetation on the site has been burned instead of weeded and pruned. This has destroyed the concept of the park which was to preserve and draw attention to the existing native vegetation. The few surviving signs installed to label the various plant types have now been rendered meaningless (Figures 2 & 3).



Figures 2 & 3

- The pumps on the water harvesting wells have also been dismantled but are being stored on the center premises (Figure 4).



Figure 4

- All signage is in poor condition. Most of the small plant signs are broken and the larger interpretive signs are peeling off (Figure 5).
- Many of the lighting fixtures are broken and have not been fixed or replaced (Figure 6).



Figures 5 & 6

- The café kiosk that was built is not occupied by a private sector company. Efforts to rent it have either failed or were not pursued properly (Figure 7).



Figure 7

- The irrigation system installed in the upper area of the park has been dismantled.
- The play equipment is in poor condition.

User/Visitor Information

The park is seldom visited by the residents of the municipality or by regional visitors/tourists.¹

Assessment

Site location, context, and accessibility to users

The park is not within walking distance from the village. Visitors need to drive in order to reach the park². To draw regional visitors, significant efforts and coordination with other institutions need to occur. This has not taken place to date. Although this is a fairly difficult task to accomplish, the center director and the Mayor were both confident that efforts would be made in this direction using JOHUD's network and marketing initiatives on the part of the municipality.

Design suitability in terms of cultural/socio-economic and climatic/environmental factors

Although the design provided for recreational facilities in the form of a café kiosk and children's play equipment, the focus was on the educational component. Educational amenities such as the interpretive center and the botanical signage cater more to tourists and regional visitors than they do to the local residents who tend to focus more on recreation during their weekend excursions. The failure of the park management to attract local schools or connect the park to the NGO's programs and activities³, further contributes to the desertion and deterioration of the park.

¹Information obtained through an interview with Mariam Malkawi, Head of the JOHUD Mansoura Center on August 20th, 2007.

² Bus routes are not practical and involve a significant amount of walking.

³ JOHUD is currently working on introducing a medicinal plant nursery to the site which may attract some visitors.

Management, maintenance, and sustainability

The management and maintenance of the site are not adequate.

The café kiosk has not been leased to a private enterprise as originally intended during the planning stages of the park. The café was a key attraction that would have activated the recreational component and supplied funds (through income from leasing) for the maintenance and upkeep of the park.

Even though the park is associated with an NGO with a reputable track record, no resources were devoted to hiring gardening staff and guards, or to replacing plants, light fixtures, and other installations.

During the planning and development stages of the park, the Mayor at the time agreed to provide maintenance assistance to the park through the municipality. The WEPIA project implementation team had developed a solid relationship with the municipality and a verbal agreement was secured. This type of agreement has proven to be unsustainable since the Mayor was replaced by another candidate unfamiliar with proposed arrangement.

Shuqaira Park Assessment

Park Brief

Located in the south of Jordan in the village of Shuaira, the 1,300 M² Park was developed on a property owned by the Municipality of Moáb al-Jadeedah, and serves a small elderly community of about 20 families. The site has no remarkable natural features or significant native vegetation. It is also challenged by exposure to extreme drying winds.

The design intent was to provide a green pocket in the village that offered the residents play areas for children and an outdoor venue for the older generation. Below are the components installed in the park:

- Children's play equipment;
- Plants (trees and shrubs);
- Over-ground storage tank;
- Drip irrigation system;
- Seating; and,
- Pathways.

Current Condition

Visual Inspection

The park is in extremely poor condition. There are clear signs of neglect, significant plant losses, no evidence of maintenance practices, and signs of vandalism (Figure 8):



Figure 8

- The irrigation system has been dismantled, but the storage tank is in place (Figure 9).



Figure 9

- The play equipment has been dismantled and is in unusable condition (Figure 10).



Figure 10

- Some of the trees have survived and are in fairly good condition considering the lack of maintenance and harsh site conditions (Figure 11).



Figure 11

User/Visitor Information

The residents do not use the park and focus on their private gardens.

Assessment

Site location, context, and accessibility to users

The park is within walking distance from most of the residences in the village. Most residences, however, have a small garden and/or outdoor terrace that satisfy the need to spend time outdoors, typical of rural villages in Jordan. As evident from the exceptional condition of the private gardens, the residents expend significant energy in the upkeep of their gardens and none towards the maintenance of the public park (Figure 12).



Figure 12

Design suitability in terms of cultural/socio-economic and climatic/environmental factors

The central activity of the park is intended for children in a community of mostly elderly residents. Perhaps a more participatory design approach would have produced more appropriate solutions for this community.

The plant selection in this park is quite successful, especially when the dire maintenance conditions are considered. The following tree species have performed extremely well in arid, wind-exposed conditions:

- *Cupressus sempervirens*;
- *Cupressus sempervirens* 'Stircta';
- *Ulmus* sp.; and,
- *Ceratonia siliqua*.

Management, maintenance, and sustainability

During the development stages of the park, a signed legal agreement was made with the Municipality of Moáb al Jadeejah, and the local Community Based Organization of Shuqaira to maintain the park. Unfortunately, this agreement has not been honored, and the park is currently not maintained at all.

Al-Za'atri Park Assessment

Park Brief

Located near the city of Mafraq in the town of Zaätari, the 2,500 M² Park was developed on a property connected to an outreach center owned by the Jordanian Hashemite Fund for Human Development (JOHUD), a local NGO. Only half of the plot was developed due to fears that building a park on the entire site area of 4,500 m² would have been too demanding of a maintenance responsibility for the center. The site was walled and an unfinished building, intended as a library, is located at the farthest end of the property.

The design aimed at providing a recreational outlet for the town residents. The park was equipped with children's play facilities, shaded seating areas, shade trees, and lighting for use at night. Below are the components installed in the park:

- Shade structures (metal and reed);
- Wooden benches;
- Waste receptacles;
- Pathways;
- Lighting;
- Planting (trees and shrubs);
- Mulches;
- Above-ground storage tank;
- Irrigation system; and,
- Children's play equipment.

Current Condition

Visual Inspection

The park is in extremely good condition especially when compared to other public parks in Jordan. There are signs of good maintenance practices, significant plant growth, and no signs of vandalism (Figure 13).



Figure 13

- The plants are in extremely good condition. There are minimal losses which appear to have happened early on, during the establishment period. This has not affected the overall appearance of the park (Figure 14).



Figure 14

- The planting shows significant growth and is in vigorous condition showing no signs of stress or disease (Figure 15).



Figure 15

- The park is extremely clean. Waste disposal is done daily and effectively.
- There are no signs of vandalism or significant wear-and-tear to the park structures (with the exception of the play equipment). The benches, light fixtures, shade structures, waste receptacles, pathways, and inorganic mulches, are all in good condition (Figure 16).



Figure 16

- All the selected plants are performing extremely well with the exception of 'Gold Star'. This plant was chosen by the community and is known to be water-consuming. A concession was made at the time to include a small number (4) of 'Gold Star' plants. The center is now convinced that it was a poor choice.

- The irrigation system is still functioning. The drip lines have deliberately been moved around to keep them away from children’s reach. The lines were originally buried underground but have surfaced due to unsupervised children’s play. The custodian moves the lines to their original locations near the plants before he turns on the irrigation system. Given the good health of the plants this system seems to work (Figure 17).



Figure 17

- The play equipment is in poor condition. The merry-go-rounds are not functioning and the swing foundations are exposed (Figure 18).



Figure 18

- The sand in the children’s areas needs replacement (it has not been replaced since the initial construction)
- The inorganic mulch is in good condition, although difficult to clean of cigarette butts (Figure 19).



Figure 19

User/Visitor Information⁴

- The peak use of the park is in the evening. The majority of users are male, although some families use the park with their children. The local kindergarten often uses the play equipment. Estimated numbers of users in one evening vary between 60-100 people.
- A chess tournament was organized by the local residents and the center and took place during the month of August.
- Festivals such as Independence Day celebrations, have taken place in the park in the past three years. A Japanese folklore group also performed in the park two years ago.
- The park is used by NGO's who frequent the center for meetings and events.
- There are plans to also introduce a Bedouin tent to add more seating and events.
- The park closes late in the evening between midnight and 1:00 am.

Site Management and Maintenance⁵

- The JOHUD center has leased the park to a private company for JD 80 per month. The company has set up a commercial Kiosk selling drinks, snacks, and *Argeeleh* (Tobacco water pipes).
- The center has hired a custodian whose duties include guarding the park, maintaining its cleanliness, and maintaining the landscaping.
- The park is irrigated once a week. An 8 cubic meter truck (sent by the local municipality) supplies the irrigation tank.
- Pest control is conducted two times per year.
- A few lighting bulbs have been replaced since the opening of the park.

Monthly Expenses⁶

- Water for irrigation: JD 12⁷
- Electrical bill: JD 10
- Custodian's salary: JD 100
- Income generated from leasing a kiosk to a commercial enterprise: JD 80

⁴ Information obtained through an Interview with Mohammad al-Khalidi, Director of the Zaátari JOHUD Center on August 6th, 2007.

⁵ Information obtained through an Interview with Mohammad al-Khalidi, Director of the Zaátari JOHUD Center on August 6th, 2007.

⁶ Information gathered in an Interview with Mohammad al-Khalidi, Director of the Zaátari JOHUD Center on August 6th, 2007.

⁷ The cost of an 8 cubic meter water tanker is JD 15. The Municipality provides the park with a weekly supply at a reduced cost of JD 3 per water tanker.

Assessment

This park is a success story.

Site location, context, and accessibility to users

The park is within walking distance from most of the residences in the village and centrally located.

Design suitability in terms of cultural/socio-economic and climatic/environmental factors

The design caters to the recreational needs of Al-Zaátari residents. Group seating under shade structures has proven to work well. Improvements to the design may be introduced to encourage more women to use the park by including a screened, more private area close to the play equipment.

Another design decision taken during the development phase was to build the park on half of the available site area. This has decreased the maintenance burden (and decreased the overall water consumption). If the park is to expand at this point, the expansion would be more manageable since the vegetation in the park is well established and does not need continual maintenance.

The plant selection was very successful and climatically appropriate for the Mafraq region. Below is the list of plants that performed exceptionally well.

Trees:

- *Melia azerderach*
- *Casuarina equisetifolia*
- 'Gold Star'
- *Washingtonia robusta*

Shrubs:

- *Rosmarinus officinalis*
- *Lavandula angustifolia*
- *Nerium oleander* 'Nana'

Management, maintenance, and sustainability

The association with a reputable NGO and a particularly active center director is the main success behind the management, maintenance, and sustainability of this park. Monetary and in-kind resources have been devoted to the maintenance from JOHUD and the Municipality. Events and festivals have been planned by the management to attract local visitors and NGO contacts. An income-generating venture has also been introduced by the management to further advance sustainability.

There is room for improvement, however, especially in maintaining the play equipment. The center director is aware of this shortcoming, and will need to secure more funds for maintaining the equipment⁸.

⁸ Additional funds may be secured by expanding the café/kiosk facility in the park by adding a Bedouin tent. This idea is currently being explored by the center.

Lessons Learned

The following conclusions are based on the individual park assessments:

Application of Planning Standards

Planning standards should be applied when deciding where, or whether to develop a public park in a given area. Local masterplans, adopted by municipalities or national plans adopted by the Ministry of Tourism for example, should be incorporated in performing background studies during the development phases. Although Jordan has not developed local planning standards, international standards may be adapted.

Context and Accessibility

Context and accessibility are very important factors to the success of a park from a user point of view. Potential locations should be carefully studied in terms of their accessibility to pedestrians and vehicular transportation.

The cultural context specific to each geographic area whether urban or rural is also a relevant factor. Participatory design approaches are very useful in determining these specific needs. Perhaps if the Shuqaira Park had been planted with fruit trees (as in the case of the private gardens and the mosque), the residents would have taken care of them, apart from of the municipalities input. Moreover, parks should complement the needs of local residents. Perhaps they should not be constructed in the traditional park layout in locations where a high percentage of residents have their own gardens. In many areas of Jordan, communal needs such as funeral and wedding venues are more desirable than traditional park amenities. Such issues may be considered in the design of public parks.

Maintenance and Sustainability

Associating park development with a reputable institution or an active municipality is essential for maintenance and sustainability, but that alone has not proven to be sufficient. Maintenance and site management plans should be developed prior to construction and funds should be secured for these purposes.

Income generating activities should also be encouraged and agreed upon during the planning stages. Many NGO's and municipalities have limited resources and cannot fund the long term maintenance of parks. The adoption of income generating activities such as cafés or fun-fair amenities would provide them with the extra resources necessary to implement proper maintenance practices.

Furthermore, keeping the size of parks relatively small is also advisable. In the case of Zaátari, only half of the site area was used to make maintenance more manageable. Phasing plans should be adopted when site areas are large, and expansion should be based on performance.

Also, where possible, alternative water sources such as reclaimed water should be considered in providing water supply to Parks. This may reduce maintenance costs in some areas.

Finally, park developments should be completed at least one year before project closing to allow for adequate time for monitoring and maintenance assistance.

Summary

- Planning standards should be applied with reference to municipal or national master plans.
- Proposed site location and accessibility to transpiration routes should be thoroughly studied during the planning phase.
- User needs and cultural context should be assessed possibly through participatory design.
- Parks should be kept small in scale and phasing plans should be adopted if the proposed sites are large.
- Parks should be associated with an institution with a reputable track record or an active municipality to insure sustainability.
- Maintenance and site management plans should be developed and funds secured for these purposes during the planning phase.
- Income generating activities should be encouraged where resources are limited.
- Alternative sources of water such as water harvesting or reclaimed water should be used where possible.

PARKS IN URBAN AREAS

Introduction

In February of 2002, The Center for the Study of the Built Environment (CSBE) and the USAID-Funded WEPIA Project began exploring the idea of building a water-conserving model garden in Amman. The building of the park was the last phase of an extensive public education and outreach project on water-conservation in gardens and public parks supported by USAID. The project produced printed and web-based awareness and educational materials and conducted training courses and workshops on the principles of water-conserving gardens. (For further information on the project visit www.csbe.org).

The model park was intended to showcase these principles in a physical model open to the Jordanian public and was inaugurated in May of 2005.

National Gallery for Fine Arts Sculpture Garden and Water-Conserving Model Part Assessment

Park Brief

The National Gallery of Fine Arts Park (previously known as the Jabal al-Luweibdeh Park), which was constructed during the late-1950s, is one of Amman's older public parks. The park, which occupies an area of about 7,500 square meters, provided a pleasant green space surrounded by residences belonging to what was one of Amman's most elegant neighborhoods.

Over the years, the park had suffered from poor maintenance and neglect, and consequently greatly deteriorated, but had not lost its elegance and charm (Figures 20-23).



Figures 20 & 21



Figures 22 & 23

In early 2002, CSBE proposed a project for the rehabilitation and development of the park. After securing commitments for supporting the project from the USAID-supported WEPIA Project and the Greater Amman Municipality, construction work on the park began in the spring of 2004, and the work was completed about a year later, in May 2005 (Figure 24). The rehabilitated park, which continues to be open to the public, includes outdoor sculpture displays, children's play areas, a performance/exhibition space, a café/restaurant, and model educational gardens demonstrating water conservation landscape practices.



Figure 24

The park also was intended as a model water-conserving park that informs the public about water conserving landscape practices. The park consequently includes a 160 cubic-meter reservoir that has the capacity to harvest rainwater, and that is connected to an efficient drip irrigation system. The park features water-conserving plants that need minimal irrigation and in many cases limited maintenance, as well as gravel-covered areas that require no irrigation (Figures 25, 26, and 27). A special turf grass (Bermuda grass) also has been used in one part of the park to minimize water consumption (Figure 28).



Figures 25 & 26



Figure 27



Figure 28

The design of the park concentrated on a central 250 square-meter platform/performance area, which functions as a focal congregational space within the park, and also provides spatial and functional links between the original building of the National Gallery and the extension building (Figure 28). Moreover, this central platform is located over the park's rainwater harvesting reservoir, and includes built in stone grills through which the rain water is directed to the reservoir (Figures 29 & 30).



Figure 29



Figure 30

The central platform incorporates a series of levels to accommodate an area that can function as a stage and also areas for seating. Shade trees have been planted around the platform, and when these reach their full mature size, they will provide the area with considerable shade.

The paths springing out of the central platform area follow the route of the pre-existing paths of the old park. The original irregularly-shaped stone panel paving was maintained to provide a visual and textural link to the original character of the pre-existing park (Figure 31).



Figure 31

All the original trees and mature ornamental plants of the park were preserved and integrated within the new design. These original plants have been supplemented by a wide range of additional water-conserving trees, ornamental plants, and ground covers (Figures 32 & 33).



Figures 32 & 33

The use of turf was avoided in the park. Instead, an emphasis was placed on water-conserving plants that function as ground covers and on non-organic ground covers such as the local pumice stone known as tuff. One small area of the park, however, has been covered with Bermuda grass. The idea is that if lawn absolutely has to be used, Bermuda grass is one acceptable solution since it requires less water than most locally used turf mixes. It also can tolerate not being irrigated for long periods without dying off.

The park is surrounded by a fence, which is intended for the protection of the park. The park has five gates. Three of these serve as public entrances. The northern and southern gates lead to the National Gallery building and the National Gallery extension, respectively. The third gate is located to the east of the park. These gates are locked at night. The remaining two gates serve the café/restaurant. One of them functions as the entrance for patrons, and the other is used for service and delivery. The fence has been designed in a manner to allow for complete visual openness between the inside of the park and the area surrounding it.

Current Condition

Visual Inspection

CSBE has conducted quarterly visits to the park since its completion in 2005. The park remains in extremely good condition, especially when compared to other public parks in Amman. There are no signs of vandalism and the park is properly maintained.

- The planting is well maintained and shows significant growth (Figure 34).



Figure 34

- The irrigation system is intact and is regularly maintained by the staff (Figure 35).



Figure 35

- Lighting fixtures are in place (Figure 36).



Figure 36

- Benches are in good condition (Figure 37).



Figure 37

- Paving is in good condition, with the exception of two small areas (Figure 38).



Figure 38

- The mulch (Tuff stone) surfaces are in fair condition (Figure 39).



Figure 39

- Most of the signage is still intact (Figures 40 & 41).



Figure 40



Figure 41

- One of the demonstration displays is in poor condition (Figure 42).



Figure 42

User/Visitor Information

The park is frequented by a large number of visitors including neighborhood residents and schools. During the peak summer months, 300 people visit the park on an average evening.

The National Gallery has also organized several cultural events in the park. Below is a list of some of the activities held since the opening of the park:

- Receptions for various exhibitions;
- Amman Summer Festival;
- Film festivals; and,
- A corporate event for Orange Telecom.

Site Management and Maintenance

The Greater Amman Municipality (GAM) has dedicated a team for maintenance and up-keep who work under the supervision of the National Gallery. CSBE also has developed a comprehensive maintenance checklist and conducts quarterly visits to the park. In addition, a stakeholders committee including representatives of the National Gallery, the café/restaurant operator, the neighborhood residents, and those who work in the vicinity of the park, has been formed to follow up in the park.

During the past two and a half years, GAM has replaced dead plants, light fixtures, and irrigation parts. GAM's maintenance department has also been responsible for fixing mechanical failures in the pump system. GAM also supplies the park with 12 cubic meters of trucked irrigation water every week in the summer months.

The children's play equipment consisting of swings, slides, and a merry-go-round broke down during the first few months after the opening of the park. After consultation with CSBE and the neighborhood stakeholder group, the National Gallery asked GAM not to replace the play equipment and decided to commission play sculptures instead (Figure 43).



Figure 43

GAM continues to provide the following staff for maintenance of the park:

- Supervising Engineer: 1
- Maintenance Staff: 5
- Guards: 2

Expenses⁹

Maintenance follow-up from CSBE (donation): JD 100 per year

Yearly Staff Salaries (GAM): Approximately JD 18,000

Yearly Maintenance Costs (GAM): JD 300 – 700¹⁰

Assessment

This park is a success story. It has been extremely well received by the public and has also received international recognition. In July of 2005, CSBE published an article documenting the park on the CSBE website. The same article was later published in *Architecture+* magazine, a periodical with a focus on the Middle East and Asia, in May of 2007 (See appendix 1). The park was also featured in an academic paper in a symposium entitled: “Rivers of Paradise: Water in Islamic Art and Culture” held in Doha in November 2007 (See appendix 2).

Site location, context, and accessibility to users

Since the park is intended as a cultural and educational establishment, its location in direct proximity to the National Gallery is ideal. The Gallery draws many visitors to the park including school-age children on field trips, and tourists visiting Jordan.

The park has also been used as a recreational outlet by many neighborhood residents as well as by visitors from various parts of Amman.

⁹ Information obtained from an interview with Eng. Hanan Madanat, supervising engineer.

¹⁰ Maintenance cost includes replacement of plants, light bulbs, and irrigation pipes.

Design suitability in terms of cultural/socio-economic and climatic/environmental factors

The design of the park takes into account multi-dimensional factors. It addresses the needs of the National Gallery by providing spaces for outdoor sculpture displays, an open space for gathering and events, and connects the original building to the new extension. It also provides simple recreational facilities for the neighborhood residents such as outdoor seating, a lawn area, and children's play sculptures. Moreover, the design includes educational displays on water conservation in parks and gardens such as drought tolerant planting displays, and a water harvesting system.

Management, maintenance, and sustainability

The National Gallery for Fine Arts has taken ownership of the park. Hence, the name of the park was also changed to reflect this. The Greater Amman Municipality has also continued its support of the park's maintenance needs. The cooperation between these two institutions has been a key factor in sustaining the park. CSBE has also provided pro bono technical support, which has maintained the integrity of the design and the adherence to water-conserving principles.

Challenges and Improvements

There are minor maintenance issues which still need to be addressed. One of the displays needs replanting and some of the light bulbs also need replacement.

Also, the maintenance staff relies on technical support from CSBE. One challenge is to have them properly maintain the park without outside support. Perhaps providing training would give them the necessary skills to operate without outside technical assistance.