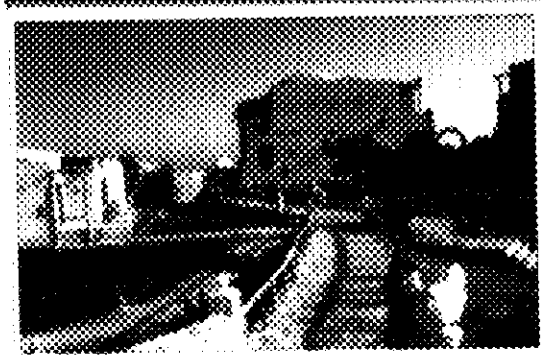
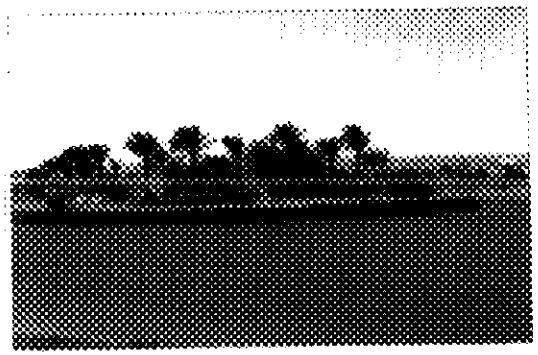
SUSTAINABLE LANDSCAPE ARCHITECTURE

Landscape

Best Practices





RED SEA TOURISM DEVELOPMENT

BEST PRACTICES
for
LANDSCAPE ARCHITECTURE

This document was prepared under the Red Sea Sustainable Tourism Initiative, which is part of the United States Agency for International Development (USAID/Egypt)'s Egyptian Environmental Policy Program (EEPP) implemented in cooperation with the Egyptian Tourism Development Authority (TDA).

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Comments and suggestions regarding this document are welcomed. Please bring any errors or omissions to the attention of the Tourism Development Authority/Red Sea Sustainable Tourism Initiative.

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Foreword

Responding to the increasing demand for leisure tourism on the Red Sea, the Tourism Development Authority, TDA, has put into effect plans to ensure that the Red Sea region is ready to receive thousands of tourists who wish to spend their vacations in a pristine environment. While the development strategy of the Red Sea region relies on the private sector, TDA plays a vital role in guiding developers to adopt the highest quality standards in design, construction and operations.

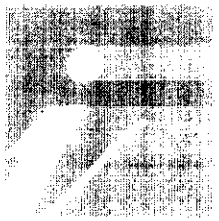
TDA recognizes that the Red Sea natural environment is the main asset upon which all tourism activities rely. Understanding that any development or human activity may have negative impacts if not properly managed, TDA has developed regulations and legal requirements intended to prevent degradation of the natural environment. It is however TDA's policy when dealing with developers to encourage rather than discourage, provide incentives rather than penalize and guide rather than command.

In view of this policy and the advisory role we play, TDA, with funding from the US Agency for International Development (USAID) introduced the "Best Practices for Tourism Center Development along the Red Sea Coast" for the first time in 1998. That document introduced the main concepts of Best Practices in environmental planning and design of tourism destinations. It touched upon many topics of environmental concern and introduced the framework for tourism development and environmental protection. Five years later, greater environmental awareness has emerged and more practitioners are seeking guidance . To fulfill these needs, TDA, through the Red Sea Sustainable Tourism Initiative (RSSTI), introduces the updated Best Practices Manuals. The new Best Practices Manuals are more comprehensive in addressing key issues of environmental concern in the Red Sea region such as: Solid Waste Management, Landscape Architecture, Landscape Planting, Water & Sanitation, Energy Efficiency and Environmental Management for Resorts. The documents contain practical examples and information to guide developers as well as practitioners in the field of tourism development during the development process of a tourism center or resort from the planning phase to design, construction and operational phases. The Best Practices Manuals are neither intended to be used as text books nor as a "How To" type of reference. Instead, they highlight for the developer, and consultants, the main issues to be considered in each phase of the development. It is then left to the professionals in each field to select the design and the practice that is appropriate to their development purposes.

Finally, the TDA is committed to continually update the Best Practices Manuals periodically according to the new needs of developers and to cope with the latest innovations in the field of sustainable tourism. It is hoped that by issuing and publishing these manuals, greater environmental awareness will be created encouraging all of us to protect the unique Red Sea environment.

Eng. Mohamed Magdy Kobaicy
Chief Executive Officer
Tourism Development Authority

About this Manual



This manual was prepared by the Red Sea Sustainable Tourism Initiative (RSSTI) – a project under the Egyptian Environmental Policy Program (EEPP), funded by the US Agency for International Development (USAID) and implemented by the Egyptian Tourism evelopment Authority (TDA). PA Government Services is providing technical Dassistance to TDA under USAID Contract LAG-I-00-99-00019-00, Task Order #807. The overall objective of RSSTI is to assist in development and dissemination of environmentally sound practices for the design, tourism centers and resorts along the Red Sea Coast. RSSTI's core work areas are :construction and operation of

- Environmental Best Practices,
- Environmental Impact Assessment (EIA),
- Environmental Monitoring,
- Land Use Management and Environmental Planning, and
- Sustainable Tourism Awareness.

"*Best Practices for Landscape Architecture* is one in a series of best practice manuals produced by RSSTI that also includes manuals on:

- Solid Waste Management,
- Energy Management,
- Planting, and
- Water and sanitation.

This manual seeks to guide all stakeholders, including investors, developers, designers and managers in conceiving and producing successful landscape architectural projects.

Organization of Manual

The manual is organized into seven parts:

- Landscape Architecture, Best Practice: A conceptual Framework
- Types of Landscape Architecture Specialization.
- The The challenges of Landscape Analysis and Planning.
- The Challenges of Landscape Master Planning.
- Best Practise in Detailed Landscape design.
- Best Practise in Implementaion and Operation.
- Conclusions.

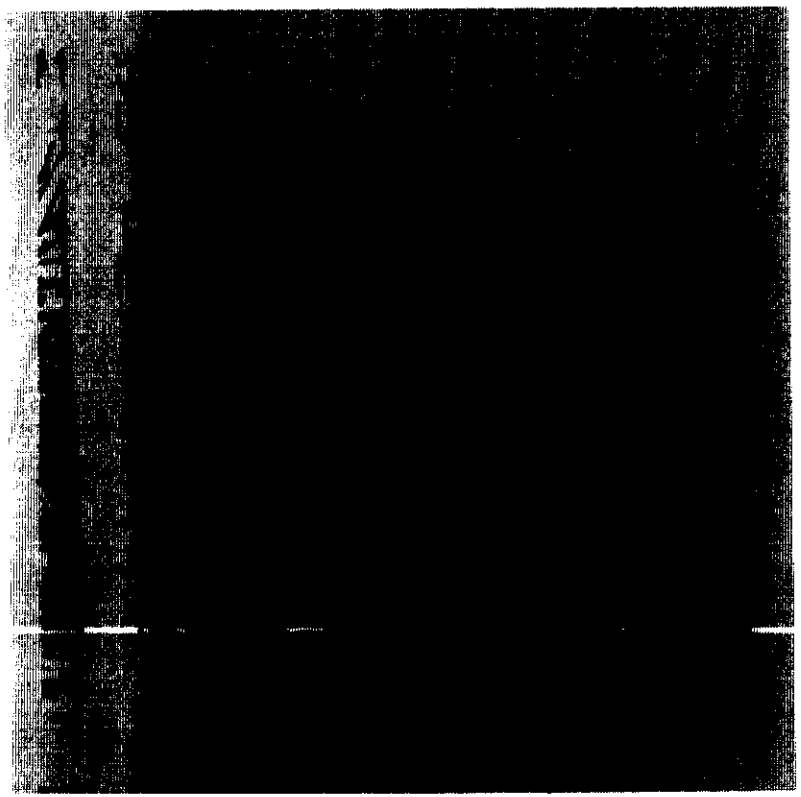
Readers can focus on the specific parts that apply to their individual situation. However, they should be familiar with the entire publication because each part provides valuable information regarding best practices for Sustainable Landscape Architecture References to additional sources of information on Sustainable Landscape Architecture are provided in Exhibit VI-12

Table of Contents

Best Practice for

Landscape Architecture

in Red Sea Tourism Centers



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Landscape Architecture Best Practices : A Conceptual Framework

1- What is Landscape Architecture?

2- Types of Landscape Architecture Specializations

3- Selecting a Qualified Landscape Architect

4- Phases of the Landscape Development Process

5- The Criteria for Sustainable Landscape Architecture

6- The Role of "Best Practices" in Tourism Development

7- Learning from Best Practices

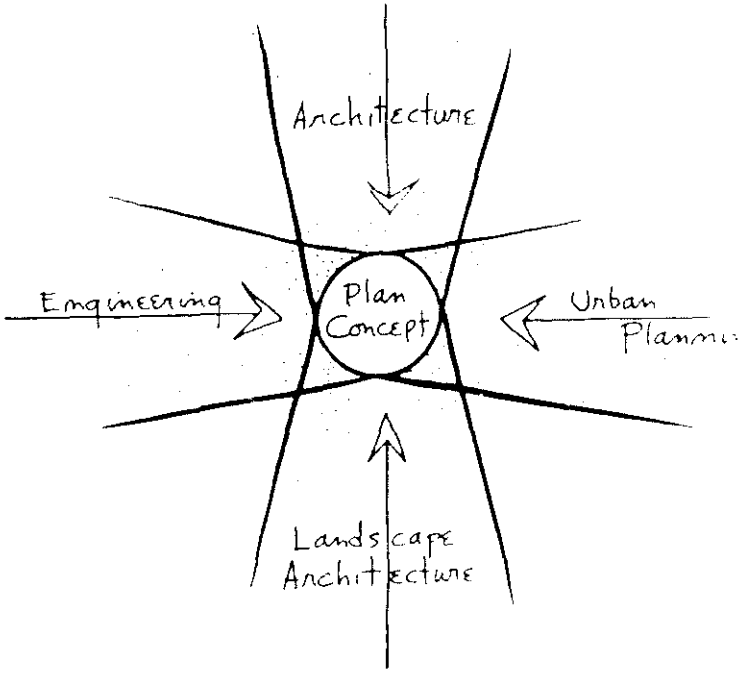
1- What Is Landscape Architecture?

Landscape architecture is the design and planning profession that applies both science and art to achieve the best use of the land. Using available lands to provide the best natural and built environment requires a special understanding of natural resources and ecology, human needs and design, as well as construction and environmental management. The landscape architect understands the relationship of people to their surroundings as well as the potential environmental impacts that certain forms of development can bring. This diversified knowledge makes the landscape architect uniquely qualified to meet the challenges of the booming growth of tourism projects along the Red Sea coast.

Potential tourists are usually attracted to a vacation destination by the elements of the landscape that formulate the character of a certain resort and the image of its region. It is the image of a tourist resort area that ultimately suggests to potential buyers, tenants, or guests the kind of experience they would expect during their vacation. As a result, experienced developers often rely on the landscape design as much as they do on architecture to define the special theme of a project, especially in recreational, mixed-use, and tourism developments.

Today, the presence of a landscape architect from the beginning to the end of the development process has become essential. A landscape architect brings to the tourism development team a specialized set ofskills that were often overlooked before the global environmental movement

1.1 Landscape architecture is the art of improving people's use and experience of outdoor spaces. *Source: John Simonds, 1961.*



1.2 Sustainable tourism development can be achieved when the members of the design team cooperate in producing the conceptual plan. They should include architects, urban planners, landscape architects and engineers .

of the 1970s. His/her contribution now plays a much greater role, influencing both regional planning and site design decisions. He/she is responsible for:

- Producing a master plan in the context of the existing ecosystems of the site,
- Creating a sense of place by enhancing the natural environment, and
- Complementing the built environment during the detailed landscape design stage.

Landscape architects formulate the master plan for all the elements on the site, including plants and hard surfaces. They create the landscape character by selecting plant materials, manipulating landforms, and siting different activities to create useful and enjoyable outdoor spaces. Their tasks include designing roadways, walkways, outdoor lighting, outdoor seating, water features, railings, signs, grates, retaining walls, steps, ramps, bus stops, picnic shelters, play areas, bicycle and walking paths, horseback riding trails, roof gardens, public parks, and outdoor sport fields. Today, there is an agreement within the environmental design community worldwide regarding the definition of the profession of landscape architecture:

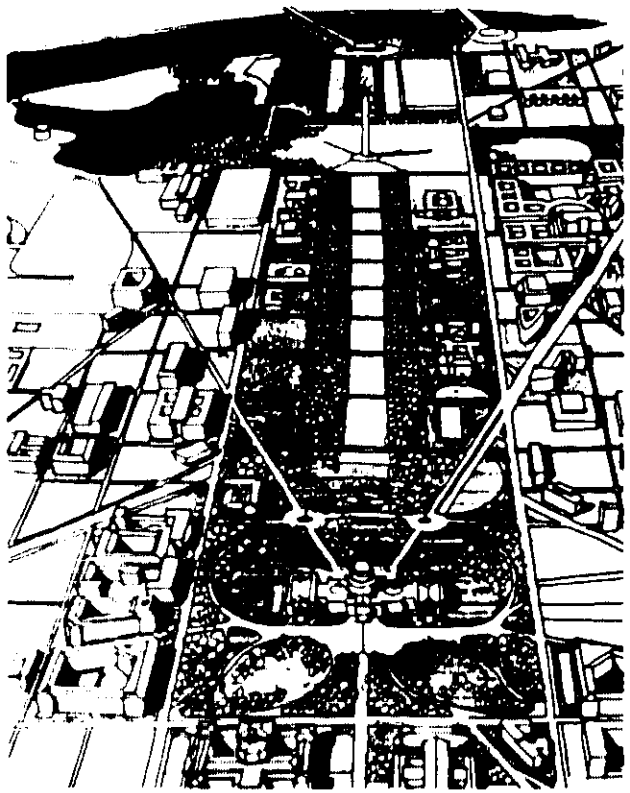
> *"Lndscape Architecture is the art of design, plannin and/or management of the land, arrangement of natural and manmade elements thereon through application of cultural and scientific knowledge, with concern for resource conservation and stewardship, to the end that the resultant environment serves useful and enjoyable purpose."*
>
> American Society of Landscape Architects, 1975

1- what is Landscape Architecture ?

Professional landscape architects often find it frustrating that their role among the design professions can be misinterpreted. The majority of people perceive landscape architecture as limited to and focused around the task of decorating the exterior spaces with ornamental trees, shrubs and flowers. This perception confuses a design field of study with another natural science discipline, namely: "horticulture". Although landscape architects study plant materials and use them for functional as well aesthetic objectives, ultimately it represents only one major element on the site among many other elements that are equally or in certain projects more significant

Perhaps what adds to the confusion in most developing countries, including Egypt and other Arab countries, is that no degree-granting program in this field has been established yet in public or private universities, no professional organizations or registration requirements have been introduced, and no technical magazines or scholarly journals in landscape architecture have been published in Arabic. Nevertheless, practicing landscape architects in Egypt are working hard to introduce a quality landscape architecture component to tourism development in spite of these challenges.

Today, the specialized skills that landscape architects bring to the development of tourism projects are recognized as critical to a successful project. The Tourism Development Authority (TDA) has recognized that focused attention must be given to the protection of Egypt's environmental heritage. Both the natural and cultural landscapes of the Red Sea coast are key elements in TDA's efforts to achieve environmentally sustainable



1.3 Landscape architecture is the field of design that bridges the gap between architecture and urban planning.
Source: Garrett Eckbo, 1969

development TDA is producing this manual to highlight the need for landscape architecture in tourism development and to share TDA's practical experience. TDA is also encouraging universities to introduce this discipline into their curriculum to help increase the number of professional landscape architects practicing in Egypt

In conclusion, the landscape architectural profession is drawn into the sustainable development debate as investors and developers face more stringent environmental regulations and higher demand for vacation and recreation opportunities. As a result, the tourism industry's stakeholders are increasingly relying on the landscape architect's expertise to help them manage the delicate balance between development and the environment .

2- Types of landscape Architecture Specializations ?

Landscape architecture is a profession of unusual diversity. Over the years and especially since the peak of the environmental movement after the 1972 United Nations Conference on the Environment in Stockholm, the realm of landscape architecturehas diversified considerably. The profession has expanded its activities in response to new challenges. Modern technology, industrialization and urbanization have caused a continuing trend toward specialization in the professional practice of landscape architecture. This trend mirrored most other professions in the 20th century. The variations and specialized forms of landscape architectural practice are particularly useful for tourism development along the Red Sea.

Market growth in the last three decades has continuously demanded the *profession of landscape architecture to expand its boundaries*, and as a result, three clearly definable yet related types of landscape architecture practices have emerged. They are:

1) Landscape analysis and evaluation;
2) Landscape planning, also known as "landscape master planning" or simply "site planning"; and
3) Detailed landscape design.

1) *Landscape analysis and evaluation* is a distinctly different level of professional practice since it:

- Deals systematically with the study of large regions;

- Has a strong ecological and natural science base;
- Includes a major and unique component of Visual Resources Management (VRM); and
- Requires a team of consultants such as natural resources scientists, economists, and social sciences experts, in addition to landscape architects, civil engineers, and urban and regional planners.

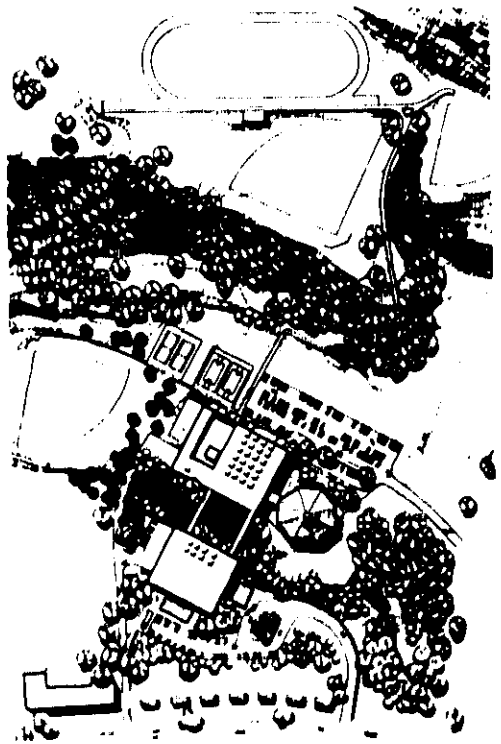
The typical product of landscape analysis and evaluation work includes items such as:

- Land capability or land suitability maps,
- Land use maps,
- Visual resource analysis and synthesis,
- Cultural resources analysis and synthesis,
- Regional environmental impact assessments,
- Development policy options (e.g., incentives, investment, information, institutions, legal regulations),
- A list of client/user needs and expectations, and
- A list of locations and site-specific criteria for different project activities

2) *Landscape master planning/Site planning* builds upon the previous work of landscape analysis and evaluation and represents the more conventional type of landscape architecture consulting services since it deals with the following tasks:

- Preparing a comprehensive set of site inventory maps, site analysis maps, and a composite map that identifies problems and opportunities

- Preparing a project brief that determines functional requirements, budget range, required permits, and other needed specialized consultants (e.g., irrigation engineer, golf course designer, ornamental horticulturist).
- Formulating a conceptual scheme that suggests patterns of activity, circulation systems, and physical form of the outdoors. This scheme is normally expressed in freely drawn plans, sections, functional diagrams, and perhaps a series of sketches or rough model.
- Developing a final accurate master plan that shows the location of all buildings and outdoor structures, roads and paved surfaces, plante d areas, existing and proposed ground contours, and the type and location of all site furniture



2.1 A landscape master plan for a major resort complex.

2.2 The role of the detailed landscape design stage is to translate conceptual ideas into specific decisions regarding size, paving materials, plant materials, lighting, signage, and street furniture.

3) *Detailed landscape design* is a process through which a specific quality or theme is given to the master plan and to the schematic areas of the landscape plan. It involves the provision of all the information needed in a contract document, on which bids can be based. In addition to the specifications and the material summaries, the landscape construction drawings represent a major component of the contract development. These usually consist of:

- Staking and layout plans,
- Grading and drainage plans (including earthwork computation),
- Roadway and utility profiles,
- Planting plans,
- Irrigation plans, and
- Construction details (e.g., lighting, signage, fences).

3- Selecting a Qualified Landscape Architect

Ensuring a successful solution to any tourism project begins long before the proposed master plan is developed. It starts with the selection of a competent and professional design he realm of landscape architecturehas diversified considerably. team. Ideally, this team should be composed of at least an architect, a civil engineer, and a landscape architect. If they all are competent in their professions, the chances of achieving an efficient operation, profitable investment, and satisfied guests are much higher than a single professional monopolizing the design decision-making throughout the development process.

Therefore, selecting a qualified landscape architectural consultant is an essential skill, which should be mastered by investors, developers and other major design professionals.

Best Practices in Selecting a Landscape Architectural Consultant

Following a systematic procedure may help guide this search:

1. *Determine what is needed*

   Write a clear, concise letter requesting the services necessary for your project, or in large projects prepare a formal "Request for Proposals". This should specify the different stages of project development when the landscape architectural services will be needed: landscape analysis and evaluation, master planning, detailed landscape design, contract document, or landscape construction supervision.

2.Prepare a complete "Request for Proposals"

If you decide that your project is complex enough to warrant issuing a Request for Proposals (RFP) among many firms, make sure it is well written. The following information should be included in every RFP:

- Project Background: Location, type, site information, and a site map if available.
- Services Required: Complete list supplemented by the range of expertise sought.
- Objectives of the Project.
- Deliverables: Clear list of end products expected.
- Client Relation: Whom the landscape architect will report to, and what the lines of communication are.
- Selection Criteria.

3.Develop selection criteria

Establish a comprehensive and clear selection process and develop evaluation criteria. Do not rely only on lowest price as the basis of hiring a landscape architectural consultant.

4.Set a realistic project budget

Like all other professionals, a landscape architect is partially a businessman who has to operate within the market place. If you ask for complex landscape architectural services, you should ensure that appropriate fees are available.

5. *Explore the available market of landscape architecture consultants*

Particularly in complex projects, try to consider both local and

international landscape architectural firms that specialize in the services your project requires. Either contact them or publish an advertisement in appropriate periodicals so that your specialized needs get a wider exposure.

6. *Insist on a multi-disciplinary team of designers*

Tourism developments are typically considered complex projects by their very nature. Most of the design work will require a multi-disciplinary team approach. There is a tendency among some professionals to under-estimate the importance, uniqueness, scope, and complexity of other design fields. Although you may encounter professionals in other design fields who claim full expertise in landscape architectural issues, this can lead to costly errors in design and construction and cause irreversible damage to the site's ecosystems. When assembling a project design team, it is important to ensure a balance of landscape architects, engineers, planners, interior designers, and architects.

7. *Evaluate their educational background and practical experience before selecting among consultants*

It is important to understand the qualifications and characteristics of the different groups of local landscape professionals who are currently active in the field of tourism developments. Training, professional experience, and educational credentials should all be evaluated in selecting among consultants. References from previous clients and evidence that the consultant has received awards or professional

recognition for previous work can be very helpful in evaluating a consultant's experience.

8. *Know the differences among the various groups of landscape professionals*

Horticulturalists are those who received their training in colleges of agriculture and they normally rely heavily on their plant and soil sciences knowledge. Their role is usually confined to tasks such as plant selection, soil analysis, and calculation of water needs for the selected plants. There are types of landscape professionals who tend to lean towards the traditional approach of placing an emphasis on horticulture and civil engineering.

The recommended professionals are those who are characterized by the following:

- Stress the ecological approach to site inventory, analysis and planning.
- Expect to be involved in the project as early as the site selection stage. They avoid working on a project where others already made most of the planning and design decisions.
- Focus more on planning and designing non-residential, large-scale, urban, mixed-use projects. Very few of them specialize in gardens.
- Skillful in master planning projects like new towns, tourism centers resort areas, university campuses, industrial or business parks, and large residential communities.
- Use heavily every relevant new technology including remote sensing, GIS , and computer-aided drafting.

Criteria for Evaluating a Landscape Architectural Consultant

Factor
I. Educational Background
Ph.D. in Landscape Architecture
Master in Landscape Architecture
Bachelor in Landscape Architecture
Ph.D. in Urban and Regional Planning
Master in Urban and Regional Planning
Bachelor in Urban and Regional Planning
Ph.D. in Horticulture
Master in Horticulture
Bachelor in Horticulture
Ph.D. in Architecture
Master in Architecture
Bachelor in Architecture
II. Professional Experience
• *Number of years*
• *Level of responsibility*
III. Relevancy of Experience
• *Experience in tourism development*
• *Experience in coastal zones*
• *Experience in arid lands*
• *Experience in relevant culture*
• *Experience in project type*
IV. Quality of References
• *Previous clients*
• *Awards and recognition*
V. Quality of Proposal
• *Design process*
• *Design team*
• *Design fees*

4- Phases of the Landscape Development Process

During the 1960s the construction industry changed worldwide as it witnessed land development emerge as a new and major force on the urban scene. The land developer brought new levels of sophistication to the construction industry that included new marketing and sales concepts, new managerial and administrative techniques, new and imaginative ways to finance project costs, and brought together, for the first time, a development team. A key member of this team has been the landscape architect.

As a result of this new association with land developers, landscape architects popularized a methodological landscape development process as an integral component parallel to the land development process. This systematic approach for determining how the environment can be most sensitively developed coincides with the growing concern for the Red Sea coast's natural and ecological heritage. It gives the tourism investment community a useful tool to plan for environmentally sustainable development in that booming region of Egypt.

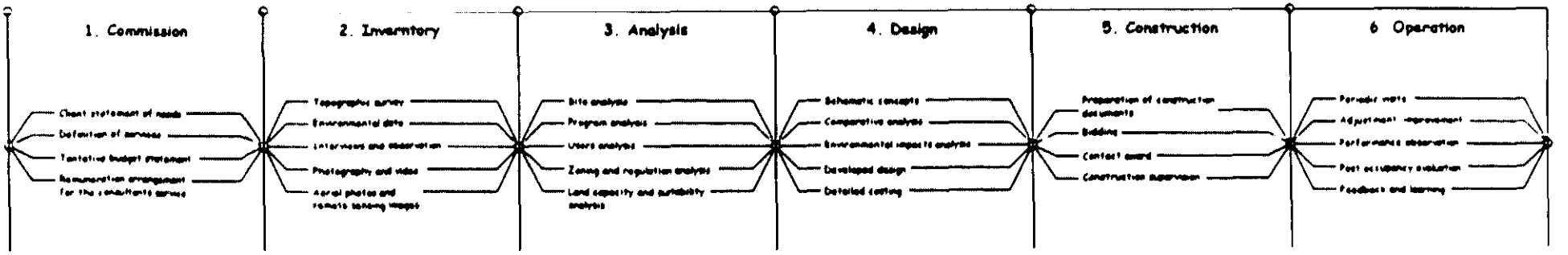
4- Phase of the Landscape Architecture Process

Typically, the landscape development process includes six phases. These are:

1) Commission
2) Inventory
3) Analysis
4) Design
5) Construction
6) Operation

It should be noted that each project is unique and each development team is different. Although all phases mentioned before are essential, they may not be taken in a strict chronological order. The process should always remain flexible to allow each project to proceed creatively in a way that is most comfortable to the development team.

The Landscape Development Process



1. Commission Phase

Most landscape architectural contracts are awarded based upon the experience and reputation of the consultant (see Chapter 3). The primary purpose of this stage is to clarify a number of decisions including:

1) For whom is the development being made? And for what purpose?
2) Where will it be built?
3) When will it be in operation?
4) Who will decide what the final plan is to be? And on what basis?
5) What resources can be used?
6) What type of solution is expected?

The most important tasks during this phase are:

1) Client statement of needs,
2) Definition of consulting services,
3) Tentative budget statement, and
4) Remuneration arrangement for the consultant's services.

Effective professional agreements take different forms:

- A verbal agreement, which is often used but not recommended.
- A letter of confirmation is considered a good business practice.
- A standard professional agreement is found to be the best practice.

2. Inventory Phase

Understanding the qualities of a site demands time and effort. The skilled landscape architect diligently tries to recognize the "spirit of the place" through his/her personal reconnaissance of the landscape and by following

a systematic data collection procedure (see Chapter 8). The most important tasks during this phase are:

- Obtaining a topographic survey;
- Acquiring or preparing aerial photos, remote sensing images, photos and videos;
- Gathering environmental data; and
- Conducting observations and interviews.

In essence, site inventory is an exercise in gaining awareness. It is an organized investigation of the different determinants of the site. The findings are usually assembled under four headings:

1) Physiographic: geology, soils, topography, hydrology and climate.
2) Natural Resources: flora, fauna, food chains, and ecological systems.
3) Cultural Resources: built environment, social factors, political and legal factors, and economic factors.
4) Visual Resources: scenic values, panoramic views, distant views, unique features, land-water interface, line, form, color, image, vista, and topographic index.

3. Analysis Phase

While the site inventory phase is focused on compiling data, the analysis phase, on the other hand, is an exercise in carefully classifying, ordering, examining, ranking, evaluating and grouping these data. Various studies may be generated as a part of the analysis, however, the most important are:

1) Site analysis,
2) Users analysis,
3) Program analysis,
4) Zoning and regulations analysis, and
5) Land capability and land suitability analysis and/or a land use map.

In addition to the landscape architect, this phase involves a team of specialists such as soil scientists, marine biologists, ecologists, and civil engineers (see Chapter 8).

4. Design Phase

The design phase is probably the most challenging to the landscape architect. It is occasionally called "synthesis" since it involves putting back together what has been taken apart, analyzed, dissected, categorized and/or classified.

Design is attained by integration rather than by evolution. It is a product of balancing and weaving the five sets of analysis listed earlier. Since design is the imaginative creation of possible forms and relationships this phase usually produces different alternative solutions to the same problem. The design stage includes various steps. The most common are the following:

1) Schematic concepts,
2) Preliminary cost estimate,
3) Comparative analysis of concepts,
4) Developed design and detailed costing, and
5) Environmental impacts analysis of the developed design.

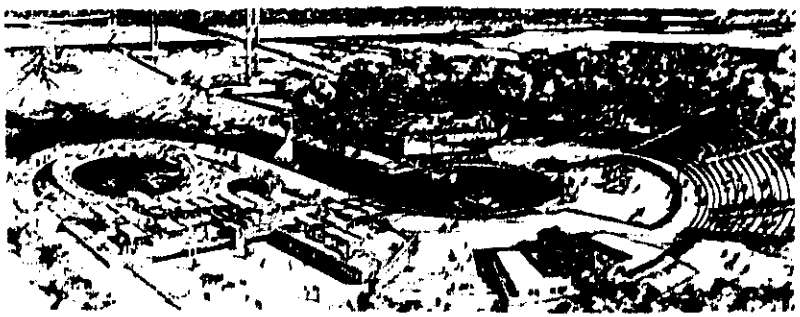
5. Construction Phase

Upon receiving the approval of the client, the project moves into the construction phase. It begins by preparing the contract documents, on which bidding can be based. These documents are usually comprised of the following ten items:

1) Layout plan,
2) Grading plan: includes earthwork computation, with spot elevation for all major features,
3) Utility layout and profile,
4) Road profiles (vertical and horizontal alignments),
5) Planting plan and planting schedule,
6) Site details and outdoor furniture,
7) Irrigation plan,
8) Outdoor lighting plan,
9) Landscape specifications, and
10) Conditions of work and bid procedures.

The above landscape contract documents may be incorporated into the architectural or engineering documents or remain separate in the form of a landscape development plan.
Preparing the contract documents is only the first step in the construction stage. Other steps are:

- Bidding,
- Contract award, and
- Supervision of construction.



4.1 The landscape construction document is the tool that ensures the design team that their ideas are communicated fully to the contractor who is implementing the project.

Based on the construction drawings and specifications, different contractors bid on the project. Once a bid is accepted the construction can start.

Landscape construction supervision, in particular, is a crucial aspect of the development process. No matter how well a project has been identified, prepared, and appraised, its benefits can be realized only when it is properly executed. Furthermore, months or years can elapse before the project begins to yield tangible results.

6. Operation Phase

The ultimate test of whether a tourism project is successful or not is when it finally opens its door to guests. Efficient management of a landscaped area, whether it is a large golf course, medium-size hotel grounds, or a small landscaped courtyard, requires yearly operational guidelines or what is commonly known as a management plan. Such a plan is particularly important where sensitive ecosystems such as the arid climate and the coastal zones of the Red Sea are involved, to ensure maximum utilization of time and money.

A comprehensive management plan varies from one project to another, however, the most important components are:

1) Irrigation system operation and maintenance guidelines,
2) Soils/topsoil and fertilizer management plan,
3) Turf maintenance plan,
4) Planting and transplanting guidelines,

5) Pruning guidelines,
6) Plant diseases and wound care guidelines,
7) Pest control guidelines,
8) Street furniture maintenance plan,
9) Outdoor lighting maintenance plan, and
10) Grounds security guidelines.

The final effectiveness of a landscape design rests in the hands of the grounds team, who will determine by their skills in maintenance and operation whether the design features included in the master plan will be achieved. The team also controls to a great extent the future growth and development of plant material after it is installed. Poor operation and maintenance practices, even for a short period of time, can destroy healthy plant materials or minimize its role in the overall landscape master plan.

5. The Criteria for Sustainable Landscape Architecture

In the field of landscape architecture, sustainability is defined as the ability of a landscape design, planning or management decision to maintain the carrying capacity of the ecosystem of which it is a part, without:

- Adverse intervention,
- Resource depletion, or
- Ecosystem degradation.

Criteria of Environmentally Sustainable Landscape Development
A landscape development project that either meets or comes close to meeting the following criteria is considered sustainable. It should:

- Locate outdoor activities in sites most suited for them;
- Prohibit outdoor activities from sites intrinsically unsuitable for them;
- Site different facilities sensitively to capitalize on existing opportunities;
- Site different facilities sensitively to avoid existing constraints;
- Maintain or improve the carrying capacity of different ecosystems on the site;
- Preserve lands particularly capable for critical uses (c.g., productive agriculture lands, wetlands, mangroves, coral reefs, wildlife habitat);
- Minimize the probability of adverse environmental impacts;
- Mitigate unavoidable environmental impacts;
- Take advantage of native plants, scenic views, and other natural features;
- Emphasize, as a primary theme, the issue of sustainability;

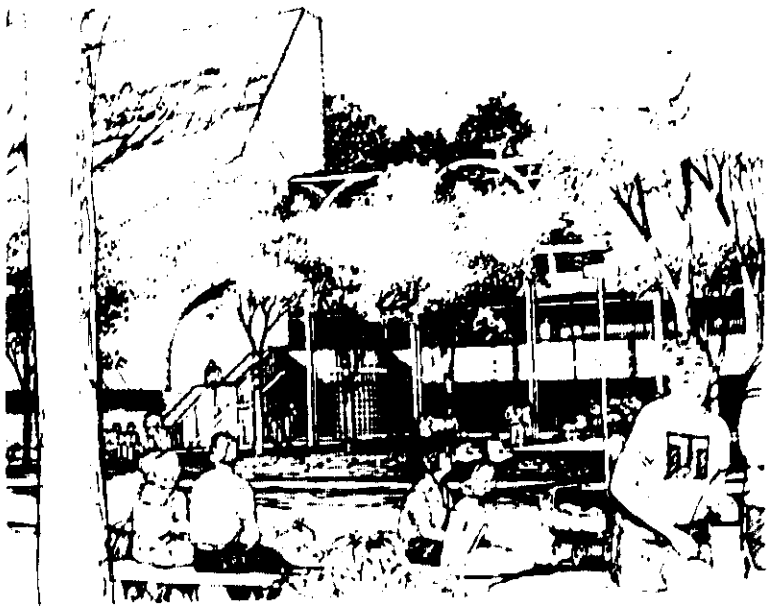
Promote long-term value systems;
Stress a holistic approach and/or a systems viewpoint;
Encourage a comprehensive cost-benefit analysis; and
Emphasize policy incentives.

riteria for Sustainable Architecture

o clarify and contrast between sustainable landscape architecture and
ıstainable architecture see the criteria below.

A building that either meets or comes close to meeting the following
criteria is considered a sustainable building:

Designed in a vernacular style,
Built out of indigenous materials,
Constructed by native labor,
Furnished and decorated by local artifacts,
Sited appropriately to minimize degradation of the
environmental quality of the site, and
Benefiting primarily local communities.



5.1 Sustainable landscape development has many characteristics. The designer has to be aware of them and try to maximize their achievements in each outdoor space.

6- The Role of "Best Practices" in Tourism Developmer

est practices in tourism development are promoted and used a means of:

- Improving environmental policy based on what worl
- Raising awareness of decision-makers at all levels potential solutions to common environmental problems;
- Sharing and transferring knowledge, expertise and experience throu networking and peer-to-peer training;
- Building a knowledge-base of case studies to be used by all stakeholde and
- Incorporating unified reporting formats to facilitate exchange and learning.

Criteria for Best Practices in Tourism Development

Four factors should be included in the selection criteria for best practic in landscape architecture:

- *Impact:* The best practice should demonstrate a positive and tangib impact on improving the living environment of people particularly the tourists, the employees of the resort, and the neighboring communi
- *Partnership:* Best practices should be based on a partnership amon the different members of a multi-disciplinary design team (i.e., landsca architects, civil engineers, architects); among landscape contractors, landscape maintenance teams, and resort managers; and among TD the investors, and the design team.

- *Sustainability:*

Best practices should result in lasting changes in at least one of the areas listed below:

a) Reduction of pollution;
b) Improved environmental health;
c) Improved waste collection, recycling and reuse;
d) Greening of the site and effective use of public space;
e) Improved production and consumption cycles, including replacement/reduction of non-renewable resources;
f) Protection and conservation of natural resources;
g) More efficient energy use and production; and
h) Preservation of visually, historically, and culturally important sites.

- *Innovation within local context and transferability:*

a) How others have learned or benefited from the initiative, and
b) Means used for sharing or transferring knowledge, expertise and lessons learned.

7- Learning from " Best Practise "

Best practices can be an instrumental source of knowledge and experience through different means including: Documenting and assessing best practices can promote productive partnerships between TDA, the Red Sea Municipalities, consultants, managers, developers and investors.

- Training, educational and capacity building initiatives will benefit from the use of best practices as case studies to identify and illustrate experience.
- Sharing information on best practices will allow other regions in the country or other developers and investors to adapt them when planning and implementing their future projects.

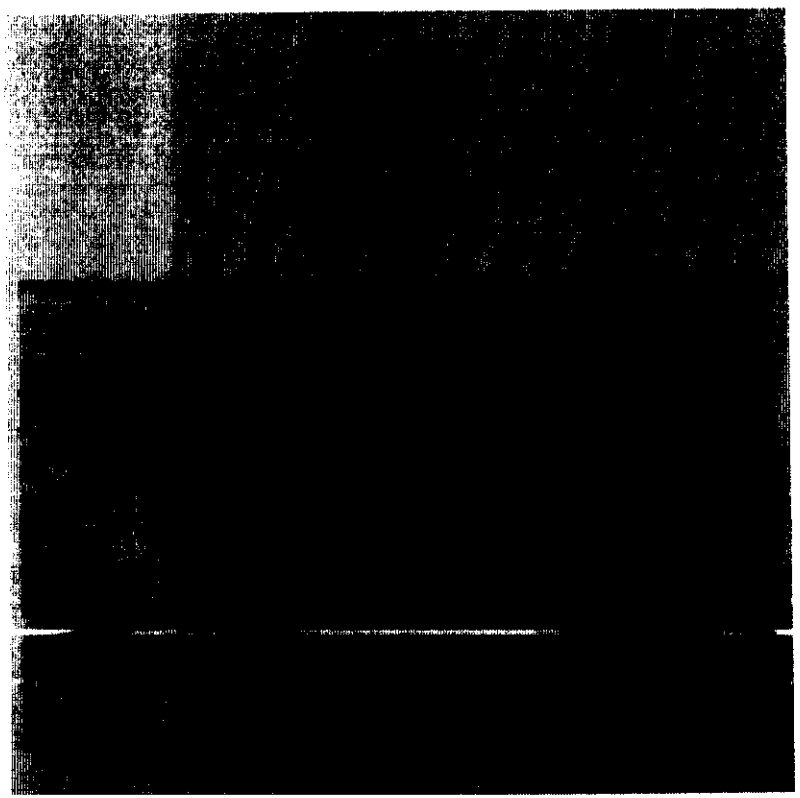
In particular, developing best practices in landscape architecture presents different opportunities through:

- Providing analysis of current trends in landscape analysis, evaluation, planning, detailed design, construction and maintenance.
- Developing an awareness of typical and emerging issues related to the Red Sea coast in landscape design, planning and management.
- Networking with people and organizations involved in tourism development projects of similar type, size or climate.
- Improving capacity-building efforts related to the field of landscape architecture and its related industries.
- Enhancing technical cooperation among different stakeholders.
- Adjusting various policies that affect landscape architecture's contribution to tourism development projects and programs.

Best Practice for

Landscape Architecture

in Red Sea Tourism Centers



II

Types of Landscape Architecture Specializations

8- Landscape Architecture Analysis and Evaluation

9- Landscape Master Planning

10 - Detailed Landscape Design

8- Landscape Architecture Analysis and Evaluation

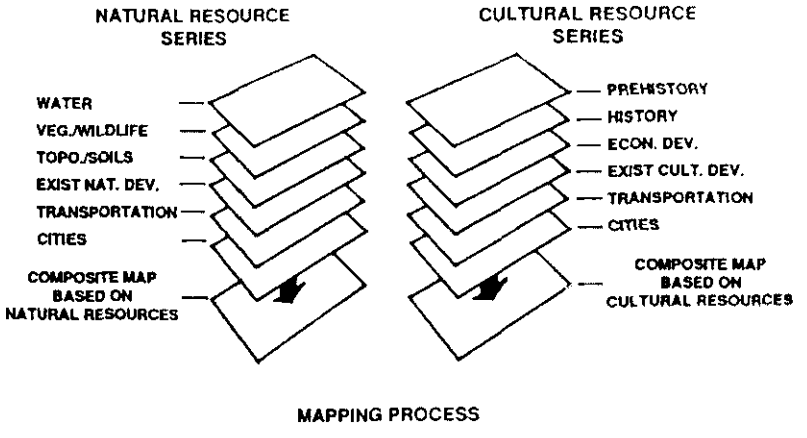
Landscape architecture is a profession that is remarkably diversified. One scholar defined it as the link between city planning and architecture; another referred to it as the art of arranging the external physical environment to support human behavior; and yet another definition suggested that landscape architecture is the art of improving people's use and experience of outdoor spaces through enhancing direct relations between man and nature. This variety of definitions is an evidence of the vitality of this profession. It also points to the wide spectrum of involvement landscape architects have on various levels (see Chapter 2).

In the last three decades the profession of landscape architecture has expanded its boundaries, and as a result, three clearly definable yet related types of landscape architecture practices have emerged. They are:

1) Landscape analysis and evaluation;
2) Landscape planning, also known as "landscape master planning" or simply "site planning"; and
3) Detailed landscape design.

This chapter discusses landscape analysis and evaluation. Chapter 9 discusses landscape master planning and Chapter 10 discusses detailed landscape design.

Landscape analysis and evaluation is a distinct level of professional practice since it:



8.1 Potential tourism destination zones can be identified by conducting a complete inventory and analysis of natural resources and cultural resources. Composite maps can then be prepared by using GIS programs. *Source: William March, Landscape Planning, 3rd Edition, 1997.*

- Deals systematically with the study of large regions;
- Has a strong ecological and natural science base;
- Includes a major and unique component of Visual Resources Management (VRM); and
- Requires a team of consultants such as natural resources scientists, economists, and social sciences experts, in addition to landscape architects, civil engineers, and urban and regional planners.

As a specialty, landscape analysis and evaluation is principally the scientific and environmental policy domain of the profession of landscape architecture. Those who operate within this specialty usually hold advanced degrees in different fields and work closely with the landscape architectural consultant.

While a landscape survey is a compilation of facts and forces that formed the site ecology, landscape analysis involves the approaches, methods, procedures, and body of techniques employed to:

1) Investigate the past and present condition of the landscape,
2) Project it into the future,
3) Determine what is to be attempted and accomplished, and
4) Program the actions to be taken.

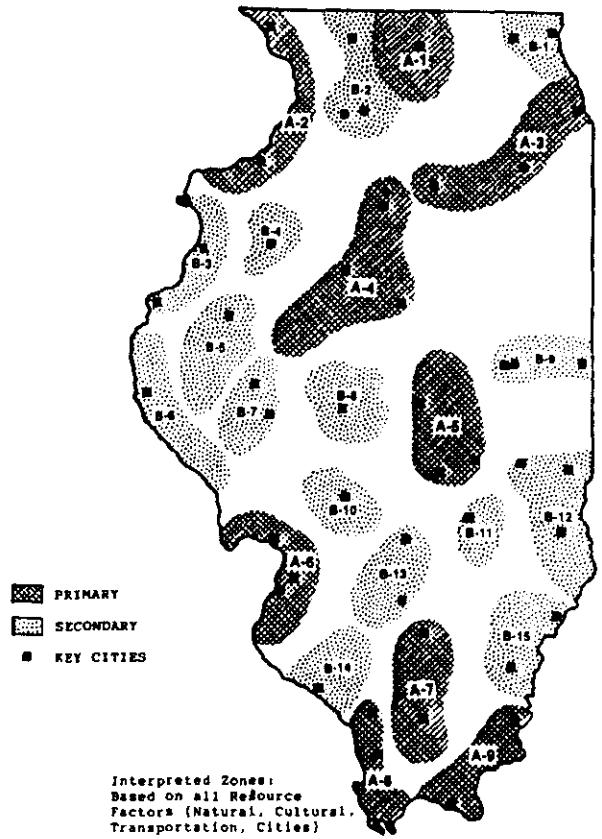
Landscape evaluation is the mental process of attaching or allocating value to different landscapes, or to different elements of the landscape. A value is a perception of importance related to a physical or conceptual entity.

8- Landscape Analysis and Evaluation

It is a characteristic of that entity which an individual or a society considers worth acquiring, protecting, keeping or preserving. Landscape evaluation need not be expressed in real terms or universal measures but may be expressed in relative terms. For example, the ecological value of lot A may exceed that of lot B, or the ecological value of lot A may be 2.5 times that of lot B.

Landscape analysis and evaluation is carried out by teams of experts who gather, analyze and evaluate data about different ecosystems and different factors that may affect the site under consideration. The team may be comprised of representatives from different fields including:

- Plant sciences,
- Wildlife management,
- Soils,
- Landforms,
- Climatology,
- Hydrology and geology, and
- Systems ecology.



8.2 Regional landscape analysis resulted in identifying primary and secondary destination zones. This study helped the tourism industry to recommend specific projects for each zone and made the State of Illinois one of the leading areas in the U.S. *Source: Clare Gunn, Tourism Planning, 3rd Edition, 1988.*

The final product of their work varies from case to case but, typically, it includes one or more of the following items:

- Environmental inventory map,
- Opportunities and constraints map,
- Site assessment study (i.e., land capability/suitability),
- Regional environmental assessment study,
- Land use map,
- Facility planning study to site installations that are dependent on mechanical or structural systems (e.g., sewage treatment plant, airfield, marina, power line),
- Site selection study (e.g., beach site, marine site, camp site), and
- Analysis and evaluation of special environments (e.g., wetlands, coral reef, mangrove forests, unique wildlife habitat, sand dunes, archaeological sites).

In addition to the natural and physical factors listed above, the landscape survey may also include socioeconomic and cultural values. This whole process of landscape survey, analysis and evaluation reflects a strong conviction that each landscape type or each ecosystem is a dynamic reflection of the facts and forces of its evolution.

8- Landscape Analysis and Evaluation

The level of detail required in landscape analysis and evaluation depends on its purpose. If the study is of a broad nature dealing with the capability and suitability of land for different uses (i.e., land use planning), then a comprehensive evaluation of natural factors is essential.

In brief, the challenge of landscape analysis and evaluation is to address the macro-environmental factors, land use planning issues, and to document the landscape features, processes and systems

A consultant who is qualified to perform the tasks involved with the field of landscape analysis and evaluation should display one or more of the following attributes:

- *Knowledge of base mapping, land surveying, land use plans, aerial photo interpretation, geographic information system applications, zoning by-laws.*
- *Knowledge of site-specific standards for landscape architectural projects.*
- *Knowledge of hydrology and watershed management.*
- *Knowledge of geology and soil genesis.*
- *Knowledge of macroclimate and microclimate conditions that affect human comfort and outdoor activities on the site.*
- *Knowledge of wildlife habitats and plant associations.*
- *Knowledge of visual resources analysis and management methods and techniques.*
- *Knowledge of sociological and behavioral factors influencing the future design.*

8.3 Landscape analysis and evaluation addresses the macro environmental factors including land use analysis, landscape resources, and ecological systems.

9- Landscape Master Planning

In a tourism development, the landscape master plan is a long-range, comprehensive diagram illustrating the entire tourism center as it might appear upon completion of all expected projects. The diagram is mainly prepared to suggest the sequence of steps necessary for implementing individual landscape projects (i.e., tennis court, marina, golf course, bicycle path). In this respect, it is a process that helps coordinate all parts of the physical environment to ensure a thoughtful and studied balance of different components. A successful landscape master plan is characterized by:

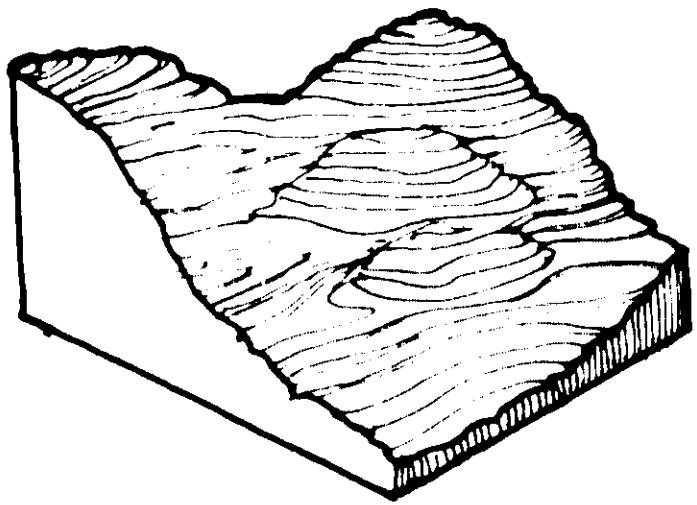
- Intelligent allocation of different land uses to capable zones of the site. Landscape planners believe that for every site, there is an ideal use, and for every use there is an optimum site;
- Logical relationships between different buildings, and between buildings and adjacent outdoor activities;
- Adequate space allocation to different outdoor activities;
- Rational siting of buildings according to their functions, importance and architectural effects; and
- Skillful utilization and/or conservation of the ecological, visual and physical qualities of the site.

Learning how to design requires a considerable amount of time and patience spent in simply testing, discovering, and synthesizing ideas, objects, and relationships. Much of the difficulty in learning master planning is due to the fact that no one has yet prepared a landscape masterplanning cookbook containing procedures that ensure successful

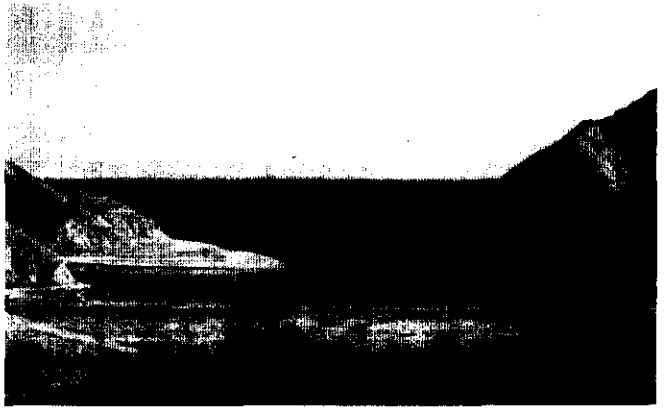
solution if followed. However, what experienced landscape architects stick to with usual success is applying a site design process that helps them sort data, generate analysis, determine premises, and produce combinations that lead to alternative solutions.

Landscape master planning builds upon all the studies that are carried out under the umbrella of "Landscape Analysis and Evaluation"(see Chapter 8) as well as other socioeconomic studies. However, landscape master planning is different in that it typically focuses on a specific site within the region examined earlier. Many architects refer to landscape master planning as simply site planning, while most engineers and urban designers prefer the term "master planning". Nevertheless, they all agree that its primary purpose can be stated as: "arranging the elements of any planned development in relation to the different ecosystems and constructed features of a site and its surrounding landscape."

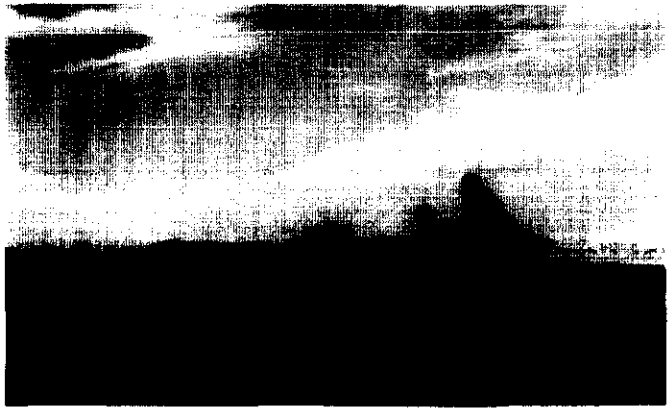
Whether for a roof garden, resort area, tourism center, or university campus, the approach to landscape master planning is essentially the same. Although the planning process remains the same from one type of development to another type of development, the design expression could vary considerably in accordance with the variation in landscape character. The site-structure expression of a hotel built on the Nile shore in Cairo must be very different from a hotel of the same capacity, built by the same developer, and planned by the same design team, but located along the Red Sea coast in Quseir or Hurghada. The difference is related to a simple fact: each of the varying locations suggests its own intrinsic master planning response.



9.1 Analyzing the topography of the site and then placing the various elements of the project based on this analysis, is the most critical step inthe landscape master plan planning process.



9.2 Taking advantage of the scenic views on the site is a primary objective of landscape master planning.



9.3 Along the Red Sea coast, the major landscape features are well established. They include: the sea, the mountains, the desert, and the clear open sky.

Key Factors Influencing Landscape Master Planning for Tourism Projects along the Red Sea

1. *Land area is plentiful, which:*
   - Allows for a more open and free plan, and
   - Increases the scope of environmental planning considerations.
2. *Open view is abundant, which:*
   - Enhances the opportunity to orient the master plan outward to command the best views, and
   - Allows the design team to orient the master plan in the most appropriate direction to embrace or protect the best landscape features.
3. *The client is nature-oriented*

   Every visitor who selects the Red Sea region as a vacation destination indicates loudly and clearly that he/she actually prefers nature-oriented recreation. As a result, the master planner should:
   - Make nature appreciation a design objective,
   - Minimize disturbance to the natural environment, and
   - Maximize every effort to enhance the natural environment.
4. *Structures are perceived as elements imposed on the landscape*
   - The design team should decide early on a clear strategy for their master plan. Either the building or the site must dominate.
   - The first option considers the site as a setting for a dominant structure.
   - The second option considers the structure as subordinate to the landscape, and therefore, the architecture is designed to complement its surrounding natural forms.

5. *The major landscape features are well established*

Along the Red Sea coast, the major landscape features are clearly identified (i.e., the sea, the mountains, the desert, the sky). The master planning strategies to deal with them are equally clear:

- Highlight the best of those features,
- Screen and de-emphasize the least desirable of those features,
- Site different use areas to celebrate the best features, and
- Blend the structures sympathetically with the best features.

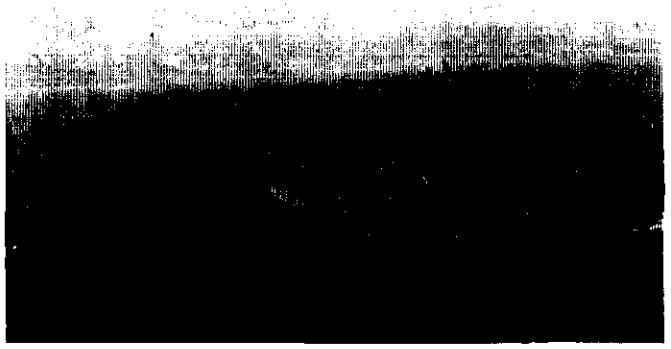
6. *Sites are more exposed to the elements*

The functional relationship diagram, the schematic concept, and final landscape master plan should all recognize and reflect a thorough understanding of the local climate. The recommended landscape master plan should adapt to the coastal desert climate that is characterized by hot and dry summers, occasional flash floods, and harsh winds. As a result, the landscape master plan should:

- Stabilize and maintain wind barriers and maximize shaded areas,
- Prepare a mitigation program for the areas affected by sand storms,
- Promote and ensure the reduction and dispersion of air pollution, and
- Isolate or screen the sources of air contamination.

7. *More opportunities to explore property boundaries exist*

The expanded area of the land implies greater opportunities to maneuver and explore its boundaries. Vehicular circulation plays a more significant role than in urban or suburban sites.



9.4 When the site topography is distinctly steep, it may be recommended to treat the proposed building as subordinate to the landscape by following its contours and echoing its rugged form.

9.5 Exploring the property boundaries provides unique recreational activities and cultural awareness.

9.6 The use of indigenous building materials both in the interiors and the exterior spaces help accentuate the landscape character of the region.

8. *Indigenous materials contribute much to the landscape character*
   Maximum use of local materials is always encouraged to relate the buildings and the rest of the outdoor structures and facilities to their surrounding landscape.

A similar list of key factors should be outlined for the limited, but unique, steeply sloping sites in the upland parcels. Also, most of the Red Sea coast is fairly flat, and as a result, most developments are built on level sites. There is a set of factors that influences the landscape master plan of such a site. In summary, a level site:

- Offers a minimum of planning restriction,
- Is relatively flexible since its approach is not dictated by the topography,
- Offers little privacy,
- Is dominated by the dome of the sky,
- Is exposed evenly to the powerful impact of the sun,
- Has a neutral landscape quality,
- Has relatively limited landscape interest,
- Has no focal point,
- Lacks the third dimension, and
- Depends on buildings as well as outdoor structures and activities to dramatize its sameness.

Best Practices in Landscape Master Planning

1. *More than one concept should be presented to the client to explore alternative approaches/themes to the master plan.*

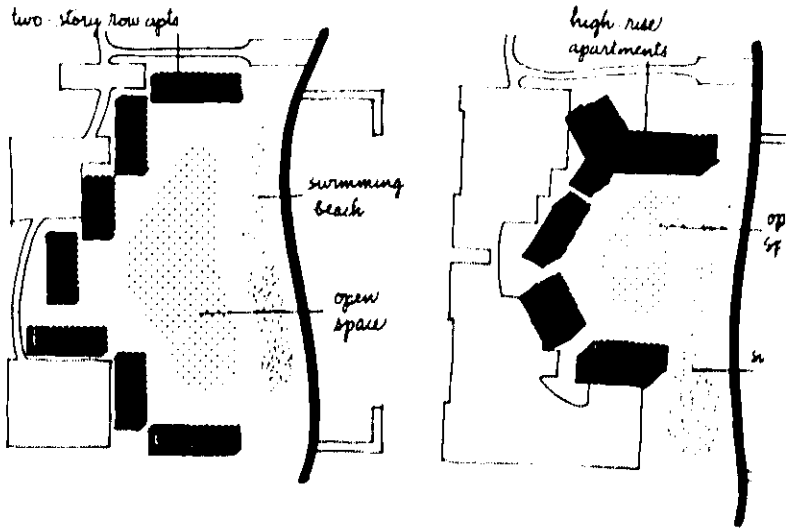
2. *Comprehensive and clear criteria should be used to compare and contrast between alternative concepts.*

3. *The client may choose one concept among the alternative concepts. He may reject them all, or he may request that one of them be modified.*

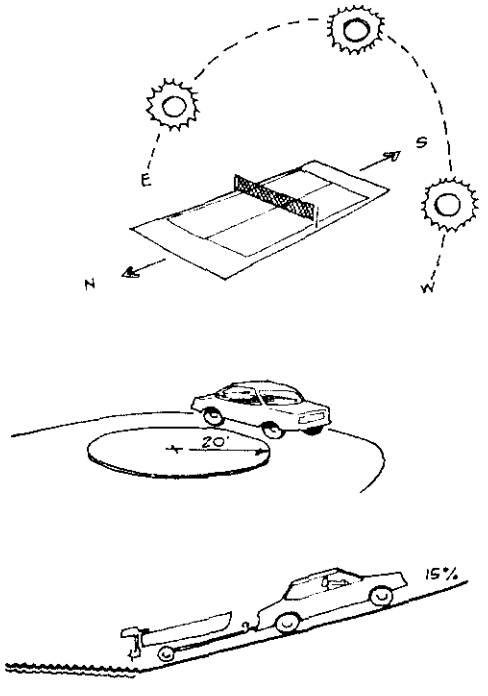
4. *Concepts may be presented in freely drawn plans, sections, functional diagrams, and perhaps in sketch views and rough model.*

5. *In an arid environment such as the coastal zones of the Red Sea, grass areas should be minimal since they require the most intensive irrigation and maintenance.*

6. *Natural areas of prepared sand, local stones, and desert plants can be preserved and maintained fairly easily.*



9.7 Developing alternative master plans allows the stakeholders to explore a variety of concepts and themes before making the final decision.



10.1 Designing and dimensioning outdoor structures andelements is an essential task of the detailed landscape design stage.
Source: Albert Rutledge, Anatomy of a Park, 1971, 1st Edition.

10- Detailed Landscape Design

Detailed landscape design is the search for forms that satisfy the project's program (see Chapter 15). It deals with three elements: the pattern of outdoor activities, the pattern of outdoor circulation, and the sensible forms that support both the activities and the circulation The level of involvement of the landscape consultant in this stage of the development process should be clearly explained to the client and should be discussed in advance with other consultants as well. This is the time when he/she adds specific quality to the diagrammatic spaces suggested in general terms in the landscape master plan. The detailed landscape design assignment/commission includes different tasks:

1) Selection and placement of plant materials.
2) Selection and placement of paving materials.
3) Selection and placement of lighting fixtures.
4) Designing and placement of outdoor structures, street furniture, signs, fountains, sculptures, fences, gates and walls.
5) Designing and three-dimensional detailing of certain well-defined spaces such as parking lots, roof terraces, amphitheatres, waterfront walkways, outdoor restaurants, and trails.

Detailed landscape design requires knowledge, training, skills, and above all, artistic creativity (see Chapter 3). Although some consultants may be more talented or artistic than others, landscape design is not a black box. It actually can be taught, learned, explained, articulated and evaluated

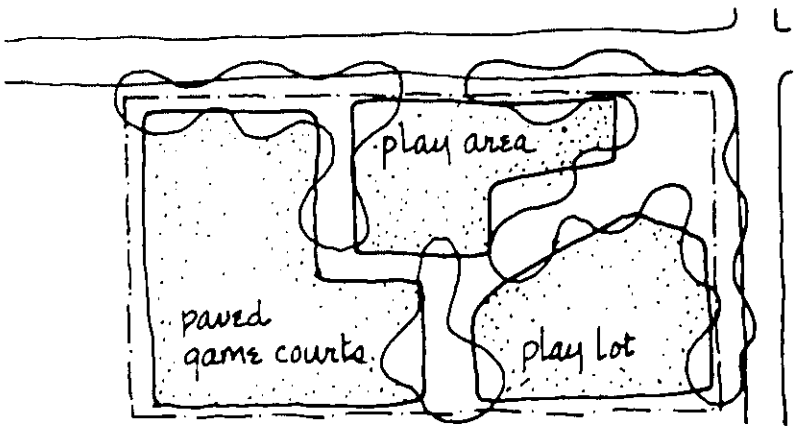
- Good landscape design is a product of a number of things:
- Good education (i.e., acquired knowledge).
- Good training (i.e., acquired skills).
- Good experience (i.e., gained proficiency).
- Intimate understanding of the project (i.e., comprehensive analysis).
- Repeated searching for solutions (i.e., patient exploration and experimentation).

Only after all of the above are in place, attributes like creativity, innovation, natural talents, and leaps of discovery may be added.

A detailed landscape design plan must show: building forms and location, outdoor activities, hard surface areas, circulation systems, ground forms, and general planting design scheme. The product of the detailed landscape design phase should illustrate and develop further the landscape master plan that preceded it.

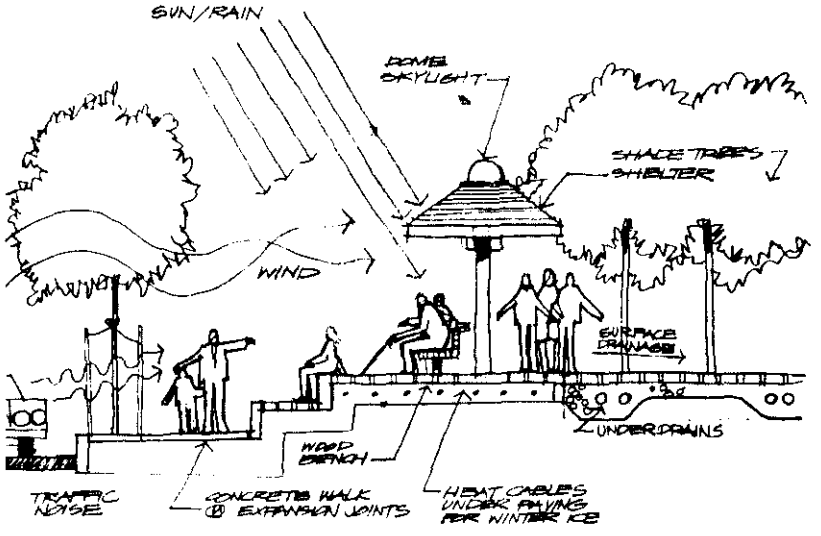
In addition to all essential dimensions and materials, the plan should show – to scale – the following items:

- Property line and adjoining highway.
- Outside walls of the buildings including doors and windows and the property fence.
- Existing site elements or features that are to remain part of the design solution (should be on the base sheet).
- Utilities such as air conditioner, heat pump, gas meter, and telephone poles.
- Existing paved areas such as driveway, walks, plazas, courtyards and terraces.



10.2 Detailed landscape design advances the conceptual diagram to a final three dimensional site plan.

10.3 Detailed landscape design involves the coordination of buildings, circulation systems, outdoor spaces, and landscape amenities.



10.4 Detailed landscape design phase involves three dimensional visualization of every outdoor space as well as making decisions about building materials, plants and spatial relationship. *Source: C. Harris and N. Dines, Time-Saver for Landscape Architecture, 1990.*

- Existing vegetation that is to remain.
- All elements of the design drawn and illustrated with the proper symbols and textures, including the following:
- Pavement materials and patterns.
- Walls, fences, steps and other structures. Overhead structures may need to be shown on a separate drawing so they do not become confused with pavement, plant materials, or other surface structures.
- Woody plant materials shown as individual elements (though still in masses) so the exact quantity and location can be determined.
- Perennials, annuals and herbs (shown as generalized masses).
- Water fountains, pools, lagoons, and other water features.
- Outdoor lighting locations and types.
- Rocks, geologic formations, sculptures, and other special features.
- Furniture, planter boxes, sculpture, and other moveable features.

In addition, the landscape plan may identify the following with notes and/or a legend on the drawing, and in larger scale:

- Major use areas such as the swimming pool, children's playground, outdoor cafes, entrance plaza, or beach terrace.
- Materials and patterns of pavement, walls, fences, or overhead structures.
- Plant materials by quantity and scientific name (unless a separate planting plan is to be drawn).
- Ground elevations defined with spot grades and/or contour lines.
- Heights of walls, fences, steps, ramps and benches.

- Other notes that help explain the design to the clients.
- North arrow and scale (graphic and written).

In most cases, additional drawings will be needed such as a planting plan, a layout plan, and a grading plan.

Best Practices in Detailed Landscape Design

1.A well-developed program for every space being designed is the first step in the process.

2.The best detailed landscape design is the plan that reflects a unique response to the land, the program, and the user's needs.

3.Natural areas of prepared sand, local stones and desert plants can be preserved and maintained easily.

4.In an arid environment such as the coastal zones of the Red Sea, grass areas should be minimal since they require the most intensive irrigation and maintenance.

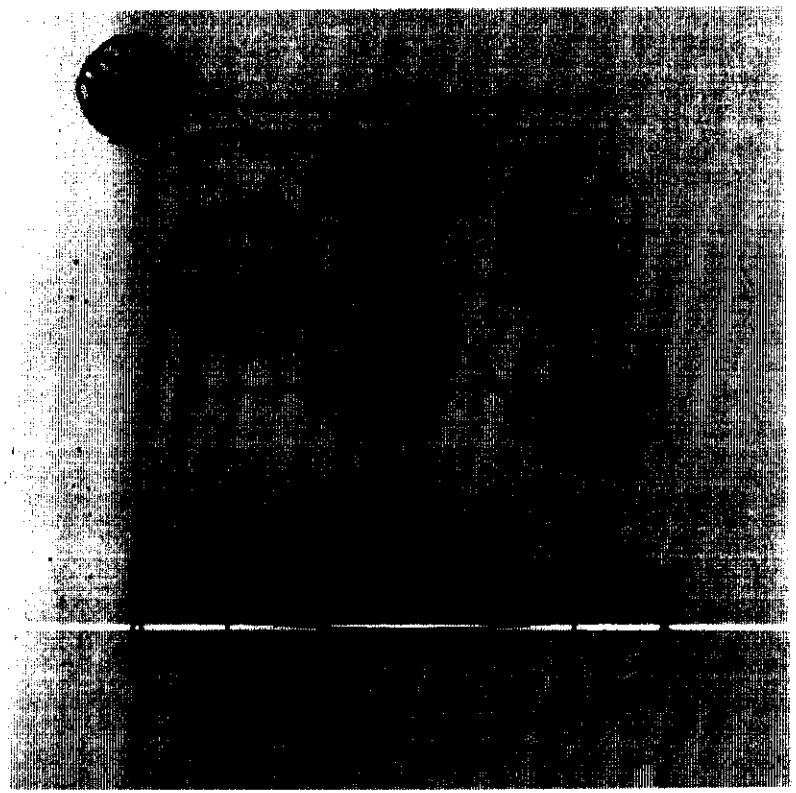
5.A primary maintenance schedule and cost estimate should be discussed between the investor/developer and his landscape architectural consultant as early in the design stage as possible.

6.A good landscape designer is a product of a number of things: good education, good training, good experience, the ability to prepare a complete set of analyses, and the ability to search patiently for a suitable and creative design concept.

Best Practice for

Landscape Architecture

in Red Sea Tourism Centers



III

The Challenges of Landscape Analysis & Planning

11- Site Selection Criteria for Beaches

Site selection is one of the most useful results of the landscape analysis and evaluation phase. It is mostly based on identifying the opportunities and constraints of an area of land.Selecting a suitable site for any outdoor activity begins when a clear and complete program is ready (see Chapter 15). The landscape architect's challenge then is to conduct a comprehensive environmental analysis to reveal the strengths and weaknesses of the site that is under consideration. This analysis may include topography, hydrology, soils, flora, fauna, microclimate, and visual resources. Other geographic and land use factors should also be investigated before the final composite analysis is prepared. Based on these composite maps, the landscape architect will be able to determine alternative sites that are suitable to locate the proposed outdoor activity or the proposed building facility. As an important step in the landscape analysis and evaluation stage, site selection typically begins according to one of the following two alternative scenarios:

First: The investor may propose a development idea for a specific site, which he owns or is considering. He may suggest, for example, a 9-hole golf course that takes advantage of the view of the Red Sea and is within walking distance from the existing main hotel. The landscape architect, based on his composite analysis map, may respond to such an idea in different ways. He may suggest one or more sites to locate the proposed golf course, or indicate to his client that his site is incapable of

11.1 Estimating the carrying capacity and then preparing a master plan for the resort's beach ensures an orderly progression of development and pleasant experience of visitors.

accommodating this particular program. The rationale behind either conclusion should be stated clearly and supported by an environmental analysis study. In brief, the challenge in this case is to adjust and develop a vague or flexible program to a specific area of land.

Second: The investor may have a well-developed program in mind and is requesting his landscape consultant to assist him in finding an appropriate site. The landscape architect in this case needs to analyze carefully the program and develop criteria for ideal sites that can accommodate each of the elements required in the program. Finally, he should proceed to search for these qualities through a rigorous process of land analysis and field trips to available land areas. In brief, the challenge facing the landscape architectural consultant in this scenario is to find the appropriate piece of land that meets all or most of the criteria of the required program.

In both of the above scenarios, the work proceeds with a strong conviction that for every site, there is an ideal use, and for every use, there is an ideal site.

The second scenario was a somewhat less common task of the landscape consultant in the past. Instead, urban economists and real estate agents were in charge. However, in tourism projects, it should happen more often to protect the investor from purchasing an unsuitable parcel for his intended project. In turn, the landscape architect must be prepared to advise his/her client that the chosen site is inadequate for its purpose and that he/she must seek a new one, or that his program is incoherent or mistaken, or that the chosen site has a better use than the one proposed. Without such advice and professional service,one may witness more

resort areas along the Red Sea coast without a beachfront, a large hotel without sufficient parking space, or a marina without adequate depth.

Planning Requirements for a Resort Beach

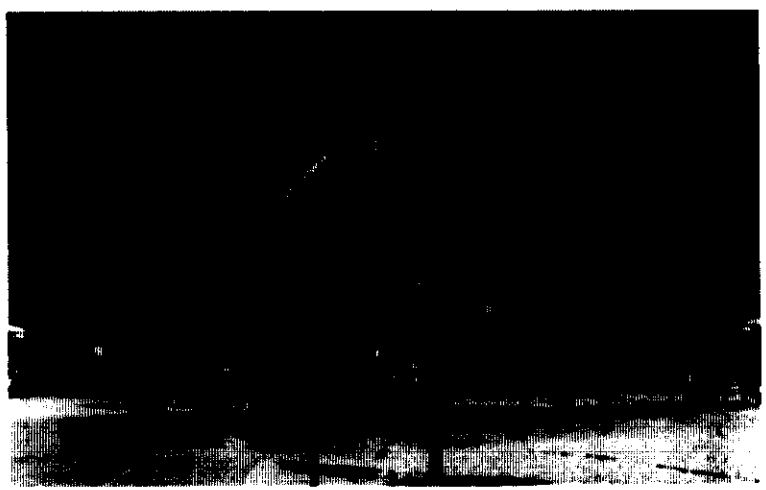
Beaches require space to provide for the users and protect the natural environment. Dunes are a crucial component of shore environments and extremely sensitive to human activity. Adequate space is required to protect dunes. An adequate location provides room for the following alternative functions:

- Crossovers (bridges over the dunes),
- Setbacks (protected zones including and surrounding dunes),
- Services (such as restrooms, kiosks), and
- Accessible shoreline for the estimated number of users.

For resorts that may potentially surpass their carrying capacity, it is important that the beach is manageable to regulate the number of users. To protect view sheds and avoid water, air and noise pollution, beaches must be distanced from:

- Industrial harbors,
- Busy roads,
- Boat traffic,
- Marinas, and
- Other potentially unattractive views and/or pollution sources.

Heavily used beaches should not be located near coral reefs or other natural resources that are difficult to protect and susceptible to human activity.



11.2 Every major beach should include a central service center. Fast food outlets, rest rooms and a store for renting recreational equipment should be all clustered and housed in the service center.

11.3 Planning for water recreation activities should separate incompatible uses. Mixing a marina with the swimming beach may lead to air, water, and noise pollution, and ultimately dissatisfied visitors.

11- Site Selection Criteria for Beaches

Public beaches may benefit from being in close proximity to hotels and good roads. However, private investors may not appreciate a public beach adjacent to their property.

Surfers, windsurfers, and boogie boarders may seek higher waves whereas casual swimmers may prefer less active water. Beaches may be designated for specific uses and water sports. Other factors to be considered are included in the following table.

Site Selection Criteria for a Beach

1) Exposure to the sun
2) Water quality and pollution levels
3) Water salinity
4) Water temperature
5) Water depth
6) Beach soils (e.g., sand, gravel, rock, coral, debris, marine shells)
7) Vegetation within the water
8) Microclimate factors (e.g., wind, temperature)
9) Beach erosion
10) Carrying capacity (physical and perceptual)
11) Accessibility and proximity to other facilities
12) Dune conditions
13) Coastal flora (e.g., mangroves, dune vegetation, kelp, algae)
14) Near-shore water circulation (e.g., waves, tides, surf and currents)
15) Surrounding land use
16) Slope: the slope of the beach into the water may range from 2-5%, the slope underwater may range from 7-10%

11- Site Selection Criteria for Beaches

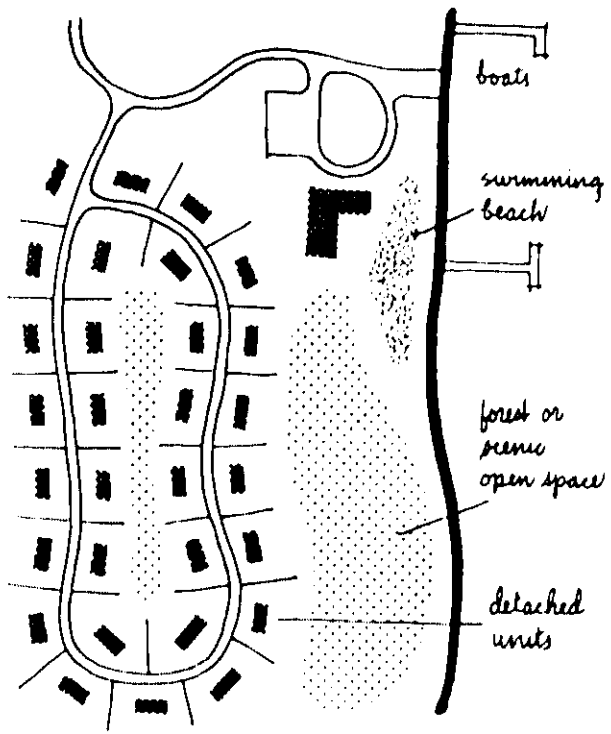
While there is always the possibility that other consultants may add to the above list, it nevertheless contains the basic essential qualities that a landscape architect looks for when selecting an ideal spot along the sea coast to place a beach and, as a result, a hotel and other tourist facilities. The need for accurate data for selecting a suitable site for beaches has introduced new techniques for coastal zone planning, supplementing traditional methods of observation, mapping, and measurement of the landforms, processes, and changes on the coast. These new techniques are described below.

- Remote sensing and satellite imagery has almost replaced aerial photography as an aid to mapping and measurement of coastal zones.
- Aqualung diving has been used to supplement the older methods of sounding and sampling in the offshore zone.
- Laboratory simulation of coastal processes using a scale model is another possible technique. It uses a water tank in which waves, tides and currents can be generated and monitored. This 3D model is particularly useful on a regional scale in exploring potential responses to selected beach processes.

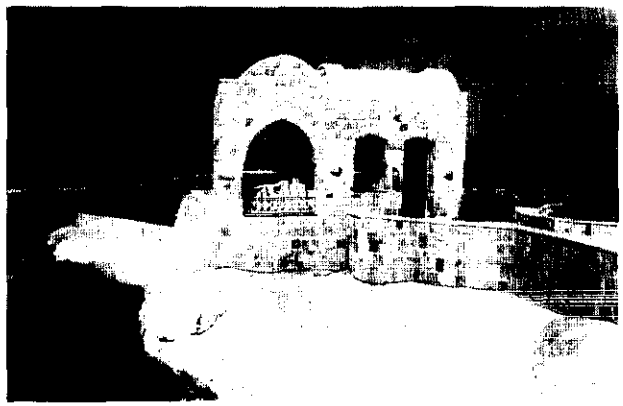
Best Practices in Beach Planning and Management

1. Acquire parts of the suitable beaches as public lands

Acquiring land for public use during the early stages of developing the Red Sea coast will avoid any future disputes raised against monopolizing a unique region like this by non-Egyptians only. Of the 5,000 miles of oceanfront in the United States, around 4,500 miles is in private ownership.



11.4 Landscape master planning leads to the identification of suitable areas to be designated as public beaches. This helps meet the demand of local communities for water recreation opportunities.
Source: Clare Gunn, Vacationscape, 2nd Edition, 1985.



11.5 Coastline, rock outcrops, and mangrove forests are all unique landscape amenities that should be protected. Establishing and respecting setback lines and coastal zone regulations ensure their protection.

11.6 Estimating the carrying capacity of a beach involves physical and psychological dimensions. The resultant of these dimensions determines the level of enjoyment and the quality of the human experience.

2. *Prepare a master plan for the beach*
   A master plan allows orderly progression of development and provides optimum recreational opportunities in the resort complex.
3. *Establish and respect adequate setback lines*
4. *Protect all vegetative cover along the beach*
   Sand erosion and drift of the beach is normally checked by the loose net of vines that enmesh them or by the fibrous roots of such grass and shrubs. When vehicles or the public destroys this fragile cover, the erosion is accelerated.
5. *Check, and if needed, monitor beach erosion regularly*
   Millions of dollars worth of beautiful real estate investment can vanish gradually by erosion. For example, dredging and pumping in close proximity can lead to beach erosion. Coordination of construction and stabilization of the beach frontage could help, but a reliable technique of checking erosion is essential.
6. *Re-nourish eroded beaches*
   Where beaches have been washed away by storms or by man's tampering with the inlets or water edges, it is possible that they can be restored.
7. *Establish beach use capacities*
   There are definable limits to the number of users to which a beach can be subjected. Overuse of swimming, boating, fishing, snorkeling, and water skiing or even sunbathing, can reduce or destroy the quality of the resource and the level of enjoyment and experience of the visitors.

12- Site Selection Criteria for Marina Facilities

Previous studies published by TDA assert that only a few places along the Red Sea coast are good for building marinas and related facilities. These studies primarily addressed the issues of designing and constructing the marine structures and briefly discussed techniques of minimizing their impacts on the estuarine and terrestrial ecosystems.

This chapter deals primarily with the characteristics of the site that can be considered suitable for marina development.

Site Selection Criteria for Marina Facilities

1) Navigable waters with no obstructions from rocky islands, coral reefs, etc.

2) Adequate water depth.

3) Minimal tidal influence.

4) Adequate foundation material for both land and water areas.

5) Natural shelter to protect from rough waves and wakes.

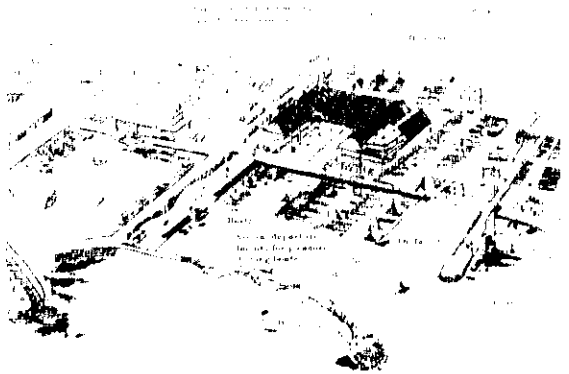
6) Adequate waterfront to allow easy access for boats.

7) Close proximity to the existing vehicular circulation system.

8) Minimum effect of water currents.

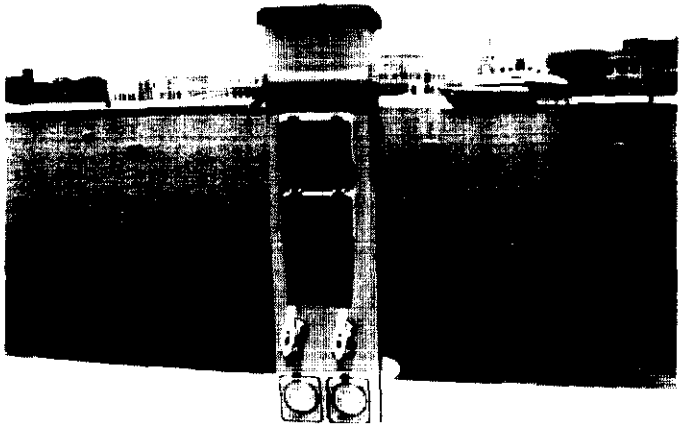
9) Connection to roadways that can handle the generated traffic and the typical boat trails.

10) Sufficient land area to accommodate all related facilities including dockyard, oil facility, club house, parking lot, shops, restaurants, and administration offices.



12.1 Marina facilities should be thoughtfully laid out and carefully planned since they tend to attract a variety of land uses and services.

12.2 The waterfront properties and water-edge land developments are usually the most popular area in a resort. It should combine business, civic, and cultural activities in a dynamic complex.



12.3 Berthing of boats involves a variety of services including electrical, fuel, and water supply.

Eventually, small boat use is expected to increase and become an even more popular recreational activity along the Red Sea. As the cost of boats goes down, and as potential boat users see launching zones and boat service areas develop, they will be encouraged to engage in this activity. Those who do not will most likely become involved in fishing.

As a result, clustering fishing piers with boat launching facilities and boat mooring piers is now considered a good practice.

Boat launching facilities consist of primary support facilities appropriate for boat launch areas and include parking, trailer storage, and ramps.

Fishing piers are bridge-like structures reaching from the shore into the water. They provide easy access for fishermen to deeper water close to the shore.

Boat mooring piers are shore facilities for short-term, water related visits to the shore.

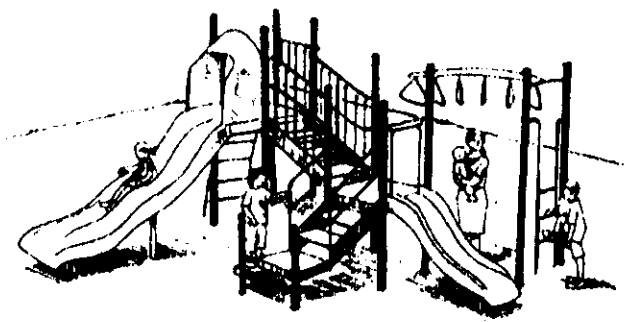
Because marinas vary greatly in their design, function, location and capacity, it is difficult to conclude which best practice can apply to all types of marinas. However, the recommendations above will be useful in most cases.

13- Site Selection Criteria for Outdoor Recreation Spaces

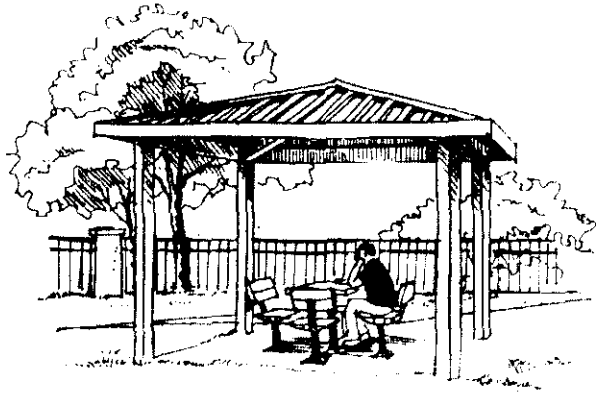
Recreation planning is a process that relates the leisure time of visitors to space. It blends the knowledge and techniques of the fields of design, planning, sociology and behavioralsciences to develop alternatives for using leisure time, space, energy and money and to accommodate human activities. Selecting a suitable site for each recreation activity should be carried out after a clear and comprehensive landscape program has been prepared. Recreation areas can be classified by their scope, size, client or site.

Selected Outdoor Recreation Facilities and their Characteristics

1. *Children's Play Lot: ½ acre to one acre*
   Usually includes: swings, sandbox, slide, climbing apparatus, wading or spray pool, playhouse, turf area, paved area for wheeled toys, benches. Ideally, it should be placed near the restaurant, the fitness center, or other adult facilities to allow parental supervision.
2. *Cluster Playground: 3 to 10 acres*
   Usually includes: play apparatus, turf area, paved court, playfield, sitting area, shelter, wading or spray pool, table game area, picnic center. This kind of playground serves a group of buildings that may have 100 rooms or more and should be placed in an area that is relatively sheltered from intense sun and severe winter wind. In addition to the cluster playgrounds and other smaller open spaces created by the various buildings of the resort, there is a need in each village for a



13.1 Children's playgrounds are essential in resorts that target families. Their design should aim at enhancing physical skills and social abilities of children of different ages.



13.2 A village park tends to be the hub of many active recreation activities, and therefore, requires a variety of supporting res t areas, shelters, and family picnic facilities.

13.3 Tourism center recreation complex attracts guests of the surrounding tourism villages as well as other travelers who may be passing by and stopping to eat a meal or rest for a short while.

central park that can bring some qualities of nature. Here, even in a coastal desert, children can play, birds can sing, and flowers can grow.

3. Village Park: 15 to 25 acres

Usually includes: separate sport fields, courts (e.g., tennis, badminton, basketball, volleyball), lawn areas (e.g., croquet, archery), outdoor swimming pool, band shell, family picnic area, children's playground, parking area, and a food concession center. A village park should become the heart of the resort and could serve as the favorite site for the temporary users who are only transient tourists on the road to another destination.

4. Tourism Center Recreation Complex: 100 to 150 acres

Usually includes: facilities for boating, swimming, picnicking, field sports, aquarium, nature center, clubhouse, recreation center, parking lot, maintenance yard, and open area for special events, and an amphitheatre.

5. Natural Environment Area: 5 acres minimum

Usually includes: picnic area, tent camping area, trailer camping area, hiking trails, sightseeing facilities, parking area. These areas will be selected mostly in the Deep Range of the Red Sea coast, particularly the mountains, the mangrove region, or the offshore islands. There is no maximum acreage limit since it all depends on the natural features on the site.

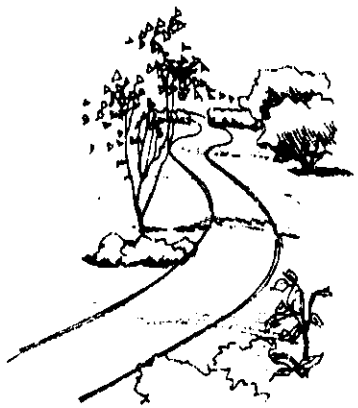
6. Nine-Hole Golf Course: 75 acres [or 150 acres for 18 holes]
Usually includes: fairways, roughs, greens, and tees, clubhouse, parking area and service roads, natural area, landscaped area.

7. Campground: 90 to 120 units per area
Four to seven units per acre consisting of one tent area, one table bench, one camp stove, one parking space, one rest room per each 30 campsites, drinking fountain, garbage cans, and bulletin board.

Outdoor Physical Recreation Activities in a Typical Resort

1. Water Sports
- Swimming
- Water skiing
- Motor boating
- Canoeing
- Sailing
- Scuba diving
- Snorkeling
- Fishing

2. Competitive Land Sports
- Golfing
- Archery
- Soccer
- Volleyball



13.4 Since hiking is one of the most popular recreation activities in natural environment areas, the design team should pay careful attention to its alignment and other aspects of its detailed design.

13.5 Mountain climbing is one of the challenging recreation activities that many tourists enjoy. The Deep Range of the Red Sea coast offers a remarkable opportunity for this emerging sport.

13.6 Sport and commercial fishing along the Red Sea coast are considered among the major attractions of this region. A clear and strict regulation will ensure their sustainability.

13.7 The worldwide popularity of golf courses raises a major issue to tourism development planners in the Red Sea coast. A careful assessment, of cost-benefit analysis and environmental impacts of introducing irrigated greens in that arid region, prerequisite of any investment in these projects.

- Tennis
- Basketball
- Target shooting

3. Moving Activities

- Walking for pleasure
- Nature walks
- Fitness walks
- Hiking
- Bicycling
- Horseback riding
- Mountain climbing

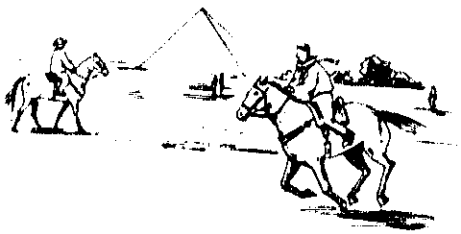
Best Practices in Planning, Designing and Managing Outdoor Recreation Areas

1. Children's play lots should be located within walking distance of the various guest rooms or residential suites that use them. Children should not be required to cross a parking lot or a vehicular road to reach the play lot.
2. Inclusion of night lighting for outdoor facilities in the cluster playground is a necessity. It greatly extends their use through the cool evening and tends to reduce vandalism, accidents, or other security problems.
3. The landscape program of the village park should be developed with the primary purpose of attracting the visitors of the resort and making it a center for recreation, education, and cultural activities.

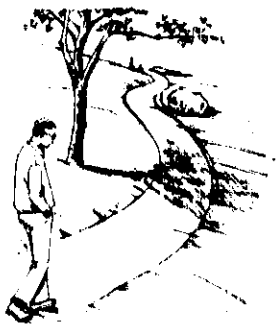
4. Recreation experiences in a resort area should maximize the alternative opportunities for each guest to participate in physical recreation, social activities, environmental education, and/or cultural learning.
5. A well thought out program should be developed to guide the recreation plan of each tourism village and tourism center. The program should ensure a balance between:

   - Outdoor recreation and indoor recreation,
   - Physical active recreation and passive recreation,
   - Social activities and quiet areas,
   - Individual sports and team sports,
   - Children's games,
   - Older youth and adult games,
   - Participant involvement experience and games,
   - Spectator involvement experience,
   - Water recreation and land recreation,
   - Organized sports and unstructured active recreation,
   - Winter activities and summer activities, and
   - Daytime and evening activities.

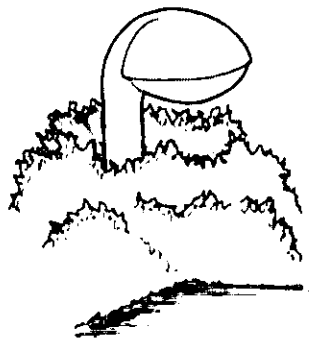
6. Drinking fountains are neither a luxury nor a generous aesthetic gesture. In outdoor recreation areas especially within an arid region such as the Red Sea coast, they are a necessity, and therefore, every effort should be made to place them strategically along the pedestrian paths and through the various outdoor recreation areas.



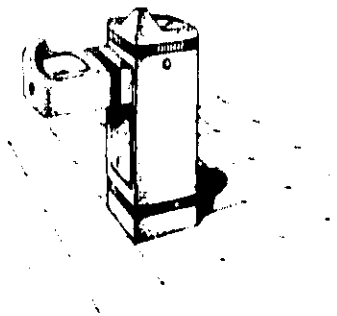
13.8 Horseback riding is a major recreationa l activity throughout Egypt. The Deep Range of the Red Sea coast presents an exciting opportunity for this sport to be added to other existing tourism attraction of the region.



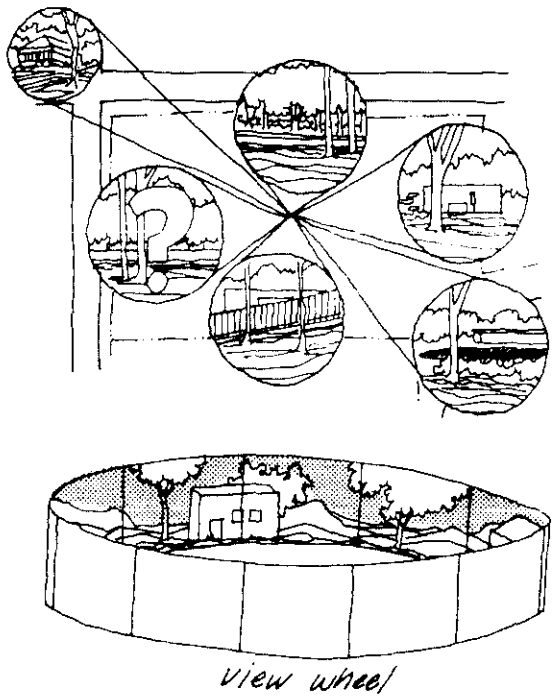
13.9 Nature trails, fitness trails, waterfront walks, etc. should be designed in such a way that it makes the user's trip a comfortable and stimulating experience in itself.



13.10 A well designed and well placed outdoor night lighting system around the outdoor recreation spaces extends their use through the cool evening of the Red Sea region.



13.11 The warm climate of the Red Sea region makes outdoor drinking fountains a necessary addition to major outdoor recreation areas.



14.1 The visual survey of a site can be carried out in different ways. One method is to sketch or photograph different ways. One method is to sketch or photograph different directions of the site to record a number of significant views from a specific vantage point. The view wheel is another method where a three hundred and sixty degree view wheel is prepared by patching a series of panoramic photographs together.

14- Methods of Visual Resources Management (VRM)

Today, most landscape planning projects and programs require a detailed visual analysis. In the case of tourism developments, a landscape architect who specializes in visual resource assessment should be included in the team who will design a major tourism center or will prepare the planning study of a geographic sector.

Visual resource management (VRM) is a relatively new field of study, which has emerged since the 1970s, particularly in North America. A number of U.S. government agencies including the U.S. Forest Service, National Park Service, and U.S. Bureau of Land Management developed and applied various approaches of VRM to their work to help preserve and enhance that nation's scenery. Many of these creative approaches are outlined in well-prepared manuals and sourcebooks that demonstrate the evolution of a new specialization in landscape analysis and evaluation.

In general, TDA has the choice among four primary approaches to visual assessment. Either one of these approaches may be applied to the challenging task of assessing the visual resources of the different sectors between Safaga and Shelateen. Based on such an analysis, TDA can proceed with confidence on encouraging tourism growth while preserving and enhancing their visual characteristics and scenic qualities. These four approaches are: 1) psychophysical, 2) expert, 3) cognitive, and 4) experiential. They are briefly described below.

1. Psychophysical Approach

This approach focuses on surveying the preference of the visitors for specific qualities and elements of the surrounding scenery. These may include the following landscapes:

- Panoramic landscape,
- Feature landscape,
- Enclosed landscape,
- Focal landscape,
- Canopied landscape,
- Detailed landscape, or
- Ephemeral (or short lived) landscape.

2. Expert Approach

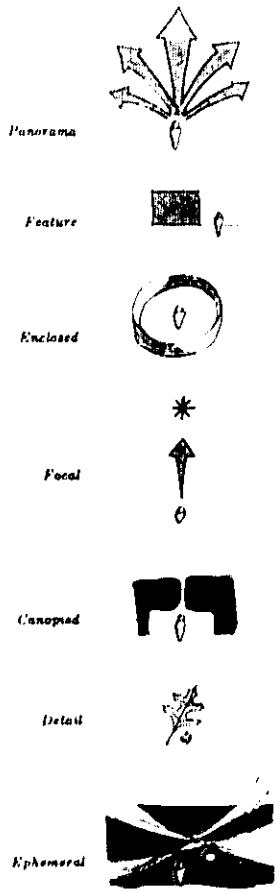
This approach involves evaluation of visual quality by trained experts whose background incorporates design, ecology and landscape analysis.

3. Cognitive Approach

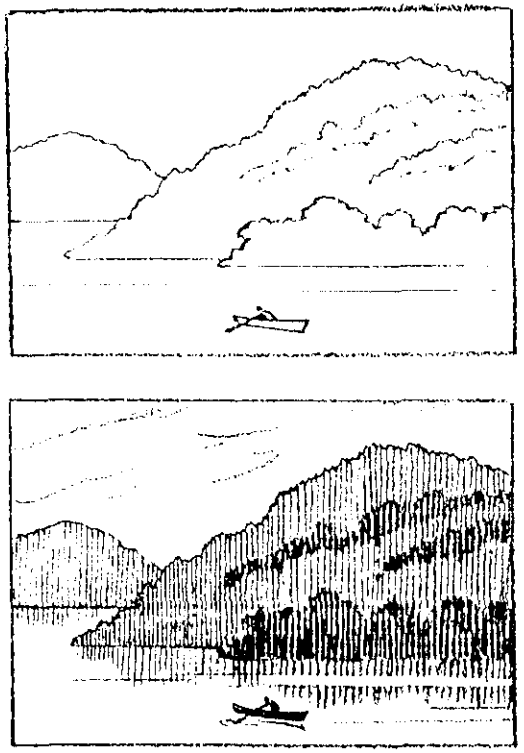
This approach to visual resource analysis emphasizes the human meaning associated with landscape properties based on past experience, future expectations, and the socio-cultural conditioning of the observer. It is perhaps the most difficult and time consuming among all available methods.

4. Experiential Approach

This approach stresses public participation as it considers landscape values based on interaction of visitors with the landscape. First, the



14.2 Surveying the tourist's visual preference by using the psychophysical approach is one of many approaches used effectively by the U.S. Forest Service for the last three decades.



14.3 The expert approach depends on the skills of the trained team of designers in analyzing and recording scenic views in terms of the conventional aesthetic elements, i.e., line, plane, form, texture, color, etc.

landscape analysis and evaluation team should agree on a number of factors that will be included in a list. Second, the public should rate or rank the different areas according to the following factors:

1) Land use index,
2) Topographic index,
3) Naturalism/urbanism ratio,
4) The percentage of the sky,
5) The percentage of water, and
6) Distance zones: middle ground, foreground.

Essentially, for any sector or area of proposed tourism development, the scenic qualities, the visual resources, and the landscape characteristics are surveyed and recorded by various graphic techniques and then analyzed and given a rating as to their visual significance.

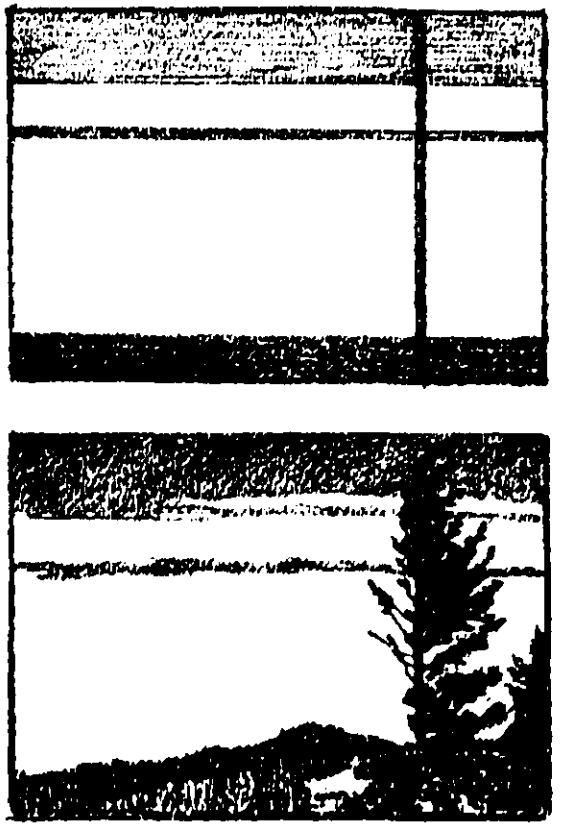
In dealing with the visual resource management of a region, such as the Red Sea coast, the procedures developed by the U.S. Forest Service are particularly sound, easy to understand, and readily applicable. These procedures are based on the premises listed below.

- Visitors of a tourism region have an image of what they expect to see, and this expectation should be fulfilled as much as possible.
- The visual experience should be considered according to the number and type of viewers, the duration of viewing time, and the relative quality and intensity of the viewing experience.
- All landscapes have a definable character.
- Landscapes with the greatest variety have the greatest scenic value.

- Each landscape has a visual carrying capacity.
- The visual carrying capacity indicates the limit of the landscape's ability to absorb alteration or urban development without loss of its visual character

Associated with the different approaches mentioned before, are systematic, step-by-step processes of evaluation that are both logical and convincing.

In conclusion, the Red Sea coast from Safaga to Shelateen contains rich visual resources that need to be surveyed, recorded, analyzed and evaluated before any further developments are planned and implemented. The recent VRM methods and techniques are especially helpful as aids to technical staff and decision makers in Egypt. The psychophysical or the experiential approach (first and fourth approaches) will be the most recommended course of action since short-term training can produce a satisfactory level of knowledge and skills.



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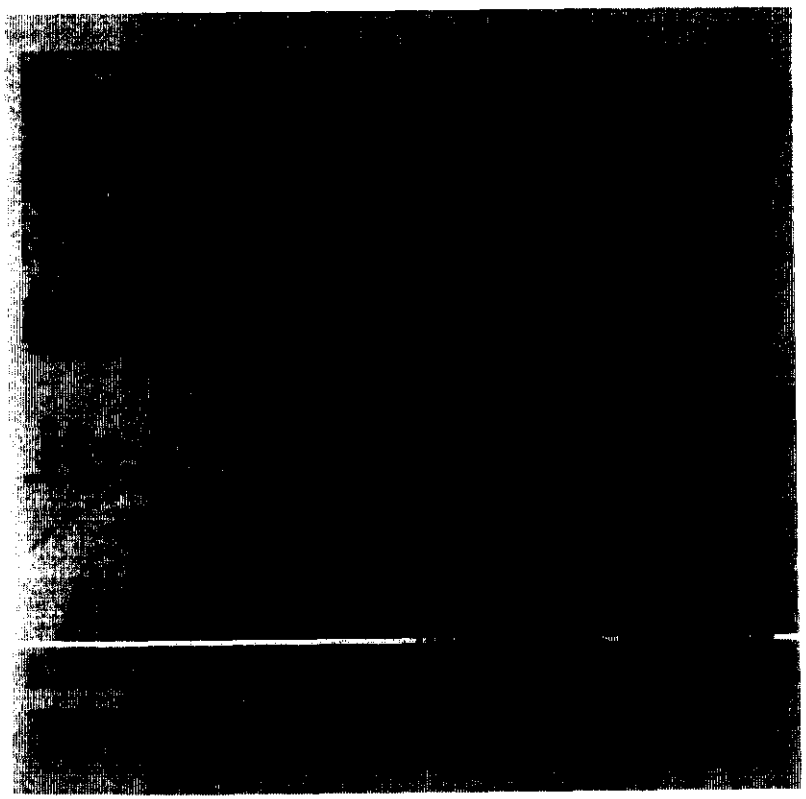
Best Practice for

Landscape Architecture

in Red Sea Tourism Centers



IV

The Challenges of Landscape Master Planning

15. Programming the Outdoor Spaces

16. Planning the Outdoor Circulation System

17. Designing the Outdoor Rooms

15- Programming the Outdoor Spaces

Under regulations established by TDA, 80% of the land area used for tourism projects along the Red Sea coast should remain open space. Buildings and light structures cover the other 20%. This large area of outdoor space represents a major portion of the financial investment in the project. Tourists are coming to enjoy primarily this outdoor environment along with the typical "3s": sun, sea and sand. However, most visitors do not swim, dive and sunbathe all day or every day. They need a wider variety of outdoor activities to occupy their time as individuals or to enjoy their vacations as groups.

Field observation suggests that some of the grounds of completed tourism projects function poorly, and actually discourage the very uses for which they are planned. Occasionally one comes across a beach without swimmers, tennis courts without players, or boardwalks without users. This condition could be a result of one of the following reasons:

- The activity may have been forced upon an unsuitable site,
- The facility was not well designed,
- The operation may be hampered by the conflicts it creates with adjacent facilities, or
- The design of the facility is not clearly expressive of its purpose.

However, experienced professionals and scholars in the field assert that the primary root failure of some landscape architectural projects lies in their poor programs. Therefore, a number of important questions need

to be raised and answered:

- What is programming?
- What makes a landscape architecture program a good program?
- What is the relation between programming and design in landscape architecture?
- How does landscape architectural programming and architecture programming compare and/or contrast?
- What are the components of a good landscape architecture program?

What is Landscape Architectural Programming?

A program is a written and graphic document. It serves as a tool for recording client needs. The more comprehensive a program is, the more successfully the landscape architect can plan and design the site. A program is an important step that ensures that the site performs.

In brief, a program is a set of instructions for the design, planning, implementation and operations of a landscape project, from its beginning as an idea to its working 10 or 50 years in the future. Programming is the process used to arrive at those sets of instructions. Programming requires both analytical and creative thinking. In brief, programming and design are inseparable.

The landscape architect can contribute endless programmatic and design opportunities working as a team with other design professionals. Both the quality of the outdoor living that visitors experience and the efficiency of the operation that managers try to achieve can be greatly improved as a result.

15- Programming the Outdoor Spaces

Best Practices in Formulating a Landscape Architecture Program

A program plays a central and decisive role in landscape planning and design. A good program is characterized by the following:

1. It begins with the actions that are expected to take place, by whom, and with what purpose. For example, activities may include swimming, snorkeling, water skiing, rowing, sailing or fishing.

2. It proposes a list of "behavior settings", or places where physical form and human activity are normally associated. For example, "a cookout area protected from wind", "a well shaded amphitheater", or a compact children's playground". This list does not fix concrete shape or size but it should specify:
   - The intensity of use,
   - The timing of use,
   - The desirable connections, and
   - The expected management and service support.

3. It should be clear, comprehensive and coordinated with the buildings program.

4. It gathers, selects and organizes pertinent facts.

5. It is more than a means of getting to know the problem. It is an instrument to guide the design.
6. It should draw upon the collective knowledge and views of developers, maintenance personnel, potential users, and designers of similar projects

7. It may specify a particular theme. For example, an Ancient Egyptian temple in the Sheraton of Suma Bay, a Moorish theme in Granada hotel in Hurghad. Applying historic themes to site design provides the landscape architect with a reservoir of ideas and forms.

8. It should address the needs of all potential users. Field visits to many tourism centers along the Red Sea coast indicate that the landscape architecture programs have focused on the needs of a narrow fraction of users: the young, mobile, and physically active tourists. Different types of disabled persons include the people in wheel chairs, the blind, the deaf, and other vulnerable groups such as toddlers and seniors. Such design consideration is taken for granted by European and American visitors since it is often legislated in their country as mandatory design requirements. It also makes good business sense by allowing a larger population of tourists to experience the site safely and conveniently.

In conclusion, while architecture and landscape architecture share a similar design language and processes, it is apparent that the landscape is much more abstract, and therefore, more difficult to plan. This difficulty, however, must be resolved if future tourism projects will provide efficient, enjoyable and environmentally sustainable landscape

A Comparative Analysis of Landscape Architectural Programming and Architectural Programming

Architectural Programs	*Landscape Architectural Programs*
• *Clients have specific needs*	• *Clients rarely understand what they want*
• *Well developed by architects who may be highly specialized in certain building types*	• *Few landscape architects specialize in programming*
• *Programs tend to be relatively fixed*	• *Programs tend to be open ended*
• *Programs serve one or a few users*	• *Programs invariably serve a large and diversified group of users*
• *Programs tend to have a contained field of operations*	• *Programs often accommodate multiple-use demands*
• *Most programs can be resolved within the building context*	• *Programs often require effort beyond the property line*
• *Architecture and building elements are much better understood by the lay person*	• *Landscape is a highly abstract concept. For most stakeholders the expectation rarely extends*

16.1 A significant part of planning a circulation system begins by conducting a survey of each mode of movement on the site.

16.2 The entrance driveway is a key element in any circulation system. It introduces the image and the dominant theme of the project.

16- Planning the Outdoor Circulation system

Guests of all tourism centers come expecting a relaxing and peaceful environment. A primary criterion for attaining such an environment is by providing a successful circulationsystem. Roads, bikeways, and pedestrian trails are the primary means of circulation within a resort area and if they are well thought out they become the backbone of the project's social life. In addition to providing an efficient and flexible movement system, these different types of circulation perform a number of design functions including:

- Space for human activities (e.g., waiting, socializing, entertaining, active recreation).
- Location for utilities (e.g., sanitary sewers, water, electricity, telephone lines, mobile phone towers).
- Network of safety services (e.g., fire and police alarms, street lighting, fire hydrants).
- Visual orientation, location, and direction.
- A neighborhood setting that may project the basic image of the resort, its identity, character, and theme.

Obviously, most roads and paths do not serve all these functions to a satisfactory level. Therefore, the design team should invest time and mental energy to maximize the utilitarian performance of all circulation elements and enhance their aesthetic functions Since walking is probably the most frequent means of movement within a tourism center, the landscape architect should note that:

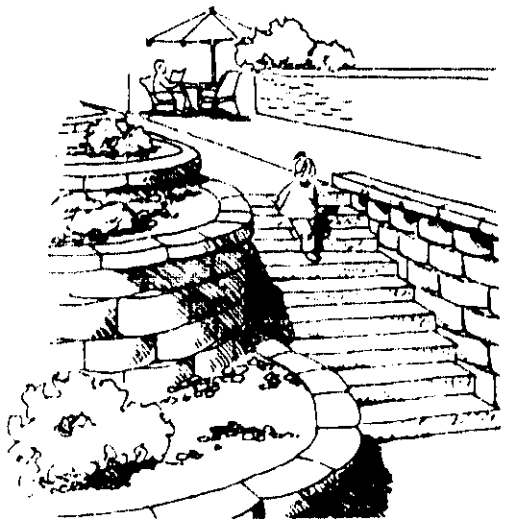
- Many places and spaces are seen by the circulating pedestrians;
- Most viewing activities are from eye level;
- Slow movement leads to an interest in details;
- The line of movement may be fixed, or it may be undirected and free;
- Most pedestrians are sensitive to the texture of their path, and determine the type and speed of their footsteps according to that texture;
- Moving at their own power, people are more conscious of distances to be overcome and the effort of climbing a hill; and
- Pedestrian flow may be induced, arrested, divided, pooled, channeled, directed, diverted or accelerated by thoughtful planning and creative detailed design.

The success of all types of circulation systems is related to different factors; however, safety, efficiency, amenity and cost are the most significant criteria.

Best Practices in Circulation System Design and Planning

1. Apply an interdisciplinary team approach to all circulation system design and planning

A successful development process for a tourism center depends upon close cooperation between the professionals involved: the engineer, the architect, and the landscape architect, each of whom has essential knowledge and skills to contribute.



16.3 Thoughtful alignment and detailed design of the circulation system can maximize the enjoyment of visitors and enhance the quality of the exterior environment.

16.4 Separating vehicular traffic from pedestrian circulation flow ensures safety of guests and efficiency of operation.

16.5 Developing a simple and direct circulation systemensures smooth movement, minimizes costs, and allows an efficient operation.

16.6 Creative outdoor design can turn the circulation system into a livable human space.

2. *Plan a hierarchy of streets, bikeways and trails*

These will vary considerably in function and capacity, from local residential streets, a secondary hiking trail, bikeway, service and truck route, or main entrance boulevard. Each serves its specific purpose and will have its own distinctive users, form and character. All, working together, should function as a comprehensive system.

3. *Focus on safety and amenity while deciding on the alignment of a circulation system*

As a secondary criterion, strive to achieve maximum efficiency and economy. Avoiding areas steeper than 10 percent and areas with poor soil can ensure safety. Taking advantage of landscape amenities can be achieved by relating to scenic views and preserving natural features. Economy can be achieved by following the topography instead of passing perpendicular to the contours.

4. *Separate vehicular traffic from pedestrian flow*

Allocate adequate pedestrian paths that freely meander in safe, continuous, and pleasant places to walk.

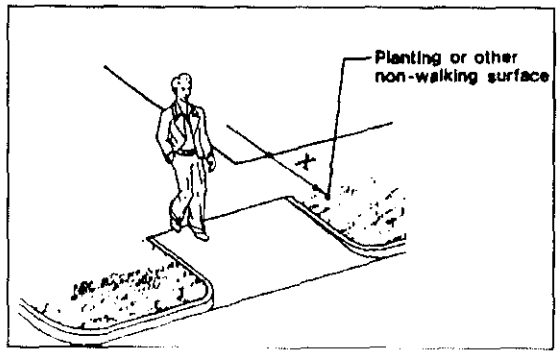
5. *Diversify the experience of people while using the circulation systems*

Selecting a direct alignment to use the shortest distance between destinations may be preferred in vehicular roads. Walking trails, bikeways, and other recreational systems of movement may choose a less direct path that enjoys much more scenic views and a diversified experience (e.g., shaded, exposed, climbing, ascending, different views, different orientations).

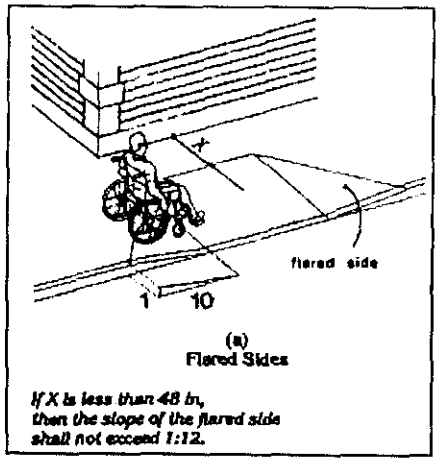
6. *Reduce the initial and running cost of the circulation system*
The circulation system is one of the most expensive elements of site development. The first strategy to economize in the circulation system is achieved by simply minimizing the length of the road per unit (e.g., lot, building, dwelling). Another strategy is achieved by creating a hierarchy in the circulation system. A plan with arteries and minor streets will be less expensive than undifferentiated grid.

7. *Treat the streets as a significant focus for site design*
Some designers have treated the tourism villages they planned as walled castles. This is an awkward image of a vacation destination. Perhaps the image of an oasis would be more appropriate where the guest finds a community in the middle of a vast desert landscape, a community clustered near or around water, vegetation, markets, and social centers. In such a concept, the street becomes a true community space, and its design emerges as a part of a system-wide tree planting scheme, a lighting plan, a signage system, and a decision to place all utilities underground.

8. *Evaluate the circulation before, during and after implementing the whole system*
The circulation system should be tested in every dimension and at various stages of project development. Mentally visualizing routine trips and noting their nature can be assessed in the master plan. Some of the useful questions are listed below:
•How does the guest get from the bus to the reception lobby? And then to his suite?



16.7 Perpendicular curb ramp with returned curb is an effective way to accommodate people on wheel chairs from one direction.



16.8 Perpendicular curb ramp with flares allows people on wheel chairs to approach from three directions.

- What is the trip like from the hotel room to the beach? The marina? The tennis court or golf course?
- Can a guest ride a bicycle safely?
- What impacts are imposed on the surrounding landscape by building a horseback-riding trail?
- Can one assess the social and visual impacts of a specialized pedestrian path?
- How would the circulation system as a whole be assessed? Does it provide for a balance of diverse modes of movement? Is it structurally coherent with the zones of activities and structures on the site? Does it connect with the surrounding systems?

9. *Plan circulation routes with due regard for the handicapped*

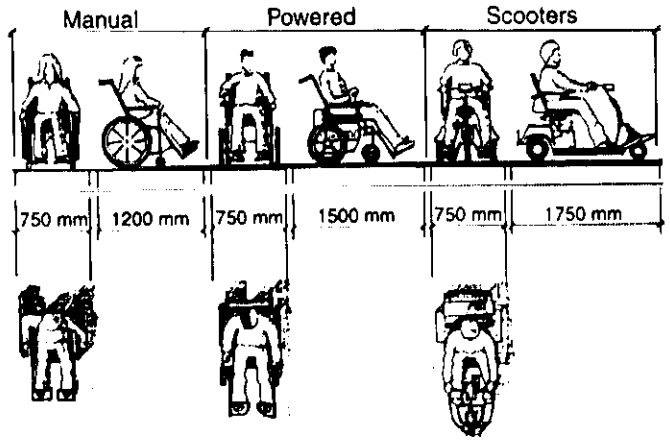
An elderly man with a cane, a woman in a wheelchair, a senior person pushing a walker, and many other visitors require special design arrangements to enjoy their vacation like other healthy tourists. Circulation routes should be flat or slightly sloped to accommodate the handicapped; circulation systems in most tourism centers along the Red Sea may require considerable modification. Free movement for handicapped tourists is a problem in tourism facilities and its recognition is long overdue among designers, investors, and administrators of the tourism sector in Egypt

In many countries today, authorities are beginning to require secondary access for the handicapped. When such decisions are made after the whole project is constructed, the solution is usually expensive to carry out and appears alien or as add-on to the original design. A preferred

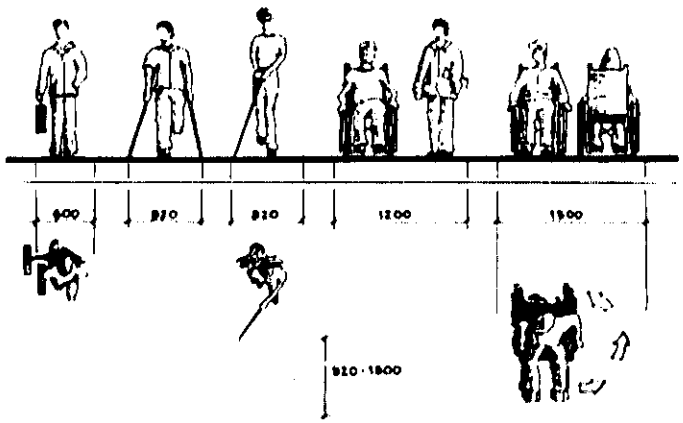
approach is to accept a barrier-free access concept from the start, and use handicapped access as a prime design concern.

The most critical concern in grading the circulation system for the handicapped is ensuring that there is a continuous route that does not exceed 8 percent slope. Special care should be given to some existing sidewalks that are cluttered by trees, benches, signs, light stands, or other potential obstacles to the handicapped. A minimum usable surface space must be provided to allow maneuverability around these obstacles. The following criteria are recommended to accommodate the needs of the disabled group of visitors:

- The minimum sidewalk width for a single wheelchair is 36 inches (915 mm).
- The minimum width for two wheelchairs to pass is 60 inches (1525 mm) (see Figure 16.1).
- The minimum space for a wheelchair to make a 180-degree turn is 60 inches (1525 mm) in diameter (see Figures 16.2 and 16.3).
- Ground surfaces must be stable and slip-resistant. Soft or loose material such as sand, gravel or mulch is not suitable. Irregular surfaces such as cobblestone or flagstone, which create hazards that impede smooth movement for persons in wheelchairs and trip hazards for others, are not suitable.
- Level is considered a 1:50 slope or less. Vertical changes without edge treatment are to be no greater than ¼ inch (6 mm). Vertical changes between ¼ inch and ½ inch (6 mm and 13 mm) must be beveled with



16.9 Accommodating the wheelchairs users requires observing certain lengths and widths while dimensioning the circulation system.



16.10 Universal access to recreation areas can be achieved if the landscape designer considers the needed widths of different pedestrian types.

a slope no greater than 1:2. A change in level greater than ½ inch (13 mm) requires a ramp and must follow the guidelines for such.

- All slopes other than those of ramps should be no greater than 1:20. All cross slopes should not exceed 1:50. (Driveways often create sidewalk cross slopes that exceed this guideline.)

17- Designing the Outdoor Rooms

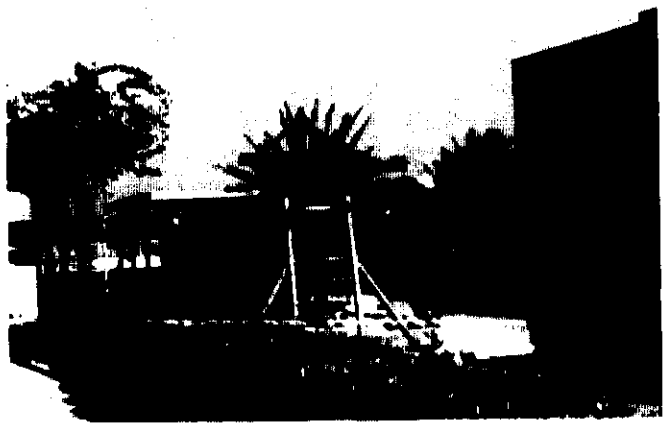
Outdoor space, like architectural space, can be seen and felt by light and sound and defined by enclosure. However, it is distinctly different from indoor rooms in numerous ways since it is:

- More extended than architectural space;
- Looser in its boundary;
- Dominated more by horizontal dimensions;
- Less geometric in its form;
- Less precise in its connections;
- Subject to constant change of microclimate;
- More limited in the kinds of materials that may be used for its floor, wall and ceiling;
- Defined by trees, hedges, buildings and landforms, rarely completely enclosed; and
- Defined by visual suggestions rather than visual stops (e.g., colonnades, arcades, bollards, or the imaginary extensions of things).

The spatial character of an outdoor room varies with proportion and scale. Its appearance is modified by a number of factors:

- The activity that goes on within it,
- The way a person passes through it,
- The color and texture of its walls and floor,
- The way it is lit, and
- The objects with which it is furnished

17.1 Thoughtful detailed design can enrich the visitors' experience and improve the landscape quality of the resort.



17.2 A children playground is more than a collection of toys and equipments. It should be a small-scale replica of the world, with a variety of sensory experiences.

17.3 The spatial character of any outdoor rooms is influenced by the activities that go on within it as well as other design elements, including color; texture; and three-dimensional qualities.

The importance of thinking about the site as a series of outdoor rooms is based on the notion that landscape design aims primarily at creating human experiences and a three-dimensional organization of spaces and not just outlining two-dimensional patterns on the ground or arranging plant materials around buildings. In terms of their functions, outdoor rooms vary considerably. For example, a single residential project includes the driveway zone, entry zone, outdoor foyer, the major outdoor living and entertaining space, outdoor dining space, outdoor food preparation space, outdoor recreation space, and outdoor storage space. Each of these spaces must be designed in such a way that provides the user with an outdoor room that is functionally useful, socially appropriate, and aesthetically pleasing.

The design of an outdoor room should be based upon certain established design criteria. In part, these criteria are applicable to the design of any outdoor space within a resort area. The elements of the program may vary from one space to another, but these criteria are common to all exterior spaces.

Major Concerns of the Landscape Architect when Designing an Outdoor Space

The four main concerns when designing an outdoor space are:

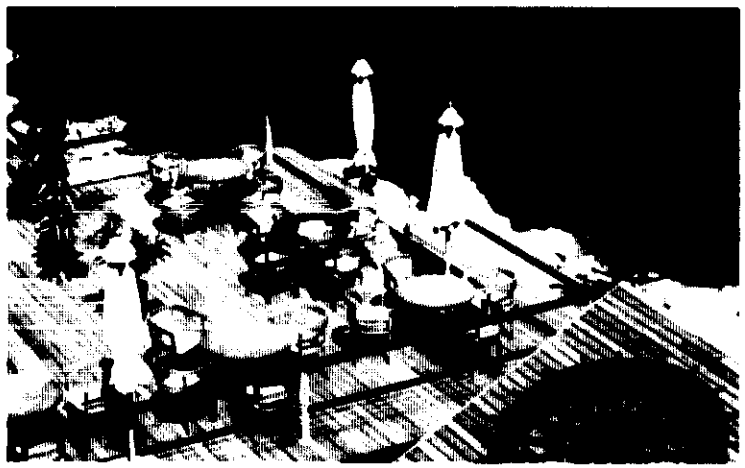
1) The relationship of each outdoor room to the total project site including natural features, topography, vegetation, climate, soils, water regime, wildlife, scenic views, pedestrian and vehicular circulation, and structures.

2) The relationship of different outdoor rooms within the site itself, and according to the user's intended activity or use.
3) The relationship of these internal activity areas to the surrounding landscape (e.g., the Red Sea, the mountains, the desert, and the main highway).
4) The functional relationship and visual composition of surfaces, landform, plants, outdoor lighting, signage, outdoor furniture, fences and walls, sculpture and fountains, and light structures within each outdoor space.

Obviously, constant innovation will be required in addressing the above design concerns and they may need to be reevaluated periodically and revised if needed. Until such time, their use by landscape architects and site planners, particularly as a check list, will be helpful. It enhances the chance of designing outdoor spaces that are imaginatively conceived, excitingly designed, and of the highest quality.

A variety of outdoor spaces may be included in a single tourism center, resort area, or hotel grounds. They differ in their function, size, orientation, treatment and user (e.g., number, age group, needs). These include:

- Children's playgrounds
- Picnic areas
- Camping grounds
- Fishing areas
- Beaches
- Canoeing area
- Rowing area



17.4 A primary criterion of designing a successful outdoor room is to maximize its interaction with surrounding landscape amenities.

17.5 Outdoor spaces are designed to meet a variety of active and passive recreational needs of different age groups and different visitors. A list of symbols indicating the available recreational opportunities help visitors plan their time.

- Tot lots
- Outdoor cafes and restaurants
- Private gardens
- Golf courses
- Swimming pools
- Rock climbing sites
- Parks and semi-public parks
- Marinas
- Terraces
- Roof gardens
- Formal plazas
- Amphitheaters
- Sports fields (e.g., volleyball, tennis, basketball, badminton, shuffleboard, horseshoes, tetherball)
- Hiking trails, biking trails, horseback riding trails, boardwalks, and jogging and fitness trails

In designing each of these outdoor spaces, the designer must ask some specific questions:

1) By whom will the space be used?
2) What are their varied desires?
3) How can that variety be met and maximized?
4) What will make the user's human experience more fulfilling?

Landscape architects have gained extensive experience in tourism projects in particular. That allows them to answer some of the essential questions

regarding the design of outdoor spaces in resort areas. For example, the human experiences that a tourist considers as more fulfilling may include:

- A free choice of activity,
- An opportunity to relax and release from the formality of urban living and the demands of the work place,
- A chance to engage in physical activities,
- The possibility to meet new people and build new friendships,
- Opportunities to learn about and discover different features of nature (e.g., coral reefs, wild plants, shells, rocks and geologic formations, wildlife, birds), and
- A chance to experiment with new lifestyles (e.g., safari tours, Bedouin camps, fishermen journeys).

In brief, the landscape designer must be sensitive to all the complexities of: 1) site analysis, 2) user analysis, 3) program analysis, and 4) design principles. Successful design of outdoor rooms depends on achieving a balance among these four concerns.

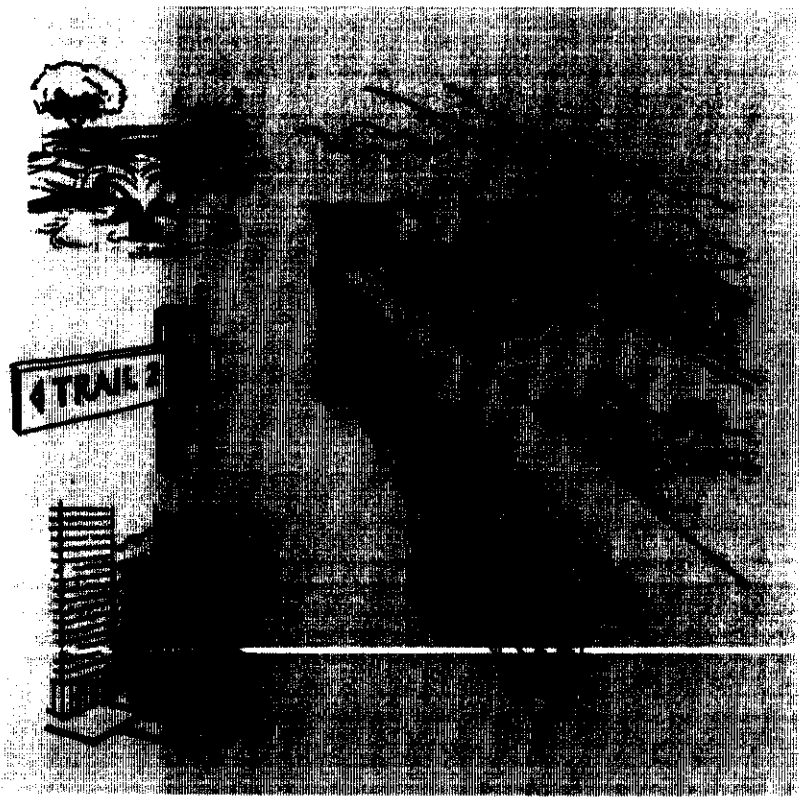
Best Practices in Designing Outdoor Spaces

1. *Define the boundaries and then approach the task of designing the space with the mindset that you are creating an outdoor room (i.e., you must think of floor, wall and ceiling).*
2. *Provide maximum protection from the climate, particularly sun, wind, dust and glare.*
3. *Let the site character suggest the design concept. First, decide what to keep, before adding the elements of the program. Existing topography, vegetation and wetlands should be treated as an opportunity not a constraint.*
4. *As you design an outdoor space, consider the views looking out from inside it, as well as looking in from the outside.*
5. *Plan for the inevitable seasonal change (i.e., summer, autumn, winter and spring).*
6. *Design for a complete daily cycle (i.e., dawn, sunrise, morning, noon, afternoon, sunset and night).*
7. *Provide a focal point to help in the orientation of users through the space. Use the design principles effectively. These are fundamental concepts of composition that have evolved through time and experience. They are applicable to a range of design fields including landscape architecture, interior design, industrial design, architecture, and visual arts, and include concepts like order, unity, rhythm, harmony and balance.*
8. *Provide a full range of amenities by developing a clear and comprehensive program for each space.*
9. *Determine the criteria, theme and qualities you want to achieve in each one of the outdoor spaces that you are designing.*
10. *Plan the entrances and approaches with care. Visualize the movement and choreography of users, managers, and maintenance crews within the space. Consider the needs of these people first.*

Best Practice for

Landscape Architecture

in Red Sea Tourism Centers



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Best Practice in Detailed Landscape Design

18. Earthwork and Landform

19- Paving

20- Water Features

21- Outdoor Lighting

22- Street Furniture

23- Outdoor Structures

24- Fences and Walls

25- Signage System

26- Parking Design

27- Planting Design

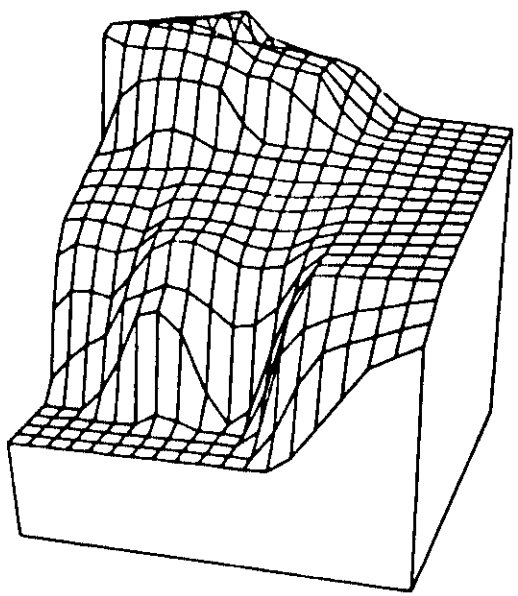
18- Earthwork and Landform

Grading is an integral part of the entire landscape design process. It is the act of remodeling the form of the land. Grading involves any degree of soil movement. It can be so minor as to be accomplished by a shovel or involve large earth movements that need giant machines. The principles in both cases are the same. A grading plan, based on a good topographic map of the area, directs all earth moving operations.

Grading is done for four main purposes:

1) To create flat areas to site certain elements of the project on (e.g., a building, playfield, parking lot).
2) To create circulation networks flat enough to travel on (e.g., roads, footpaths, bicycle trails).
3) To create special effect (e.g., mound soil to hide an offensive view or provide privacy).
4) To solve technical problems (e.g., save a tree, prevent erosion).

Every region has its own family of landforms, a combination of wadis, hills, convex or concave slopes, ridges, summits, caves, depressions, and cliffs. These are the products of a number of environmental factors, such as the base material, its stratification and its angle of repose, the climate, the work of wind and water, and the vegetative cover. Under natural conditions, the land terrain sheds excess water since the land surface is seldom flat. In all cases, some slope is necessary to allow Under natural



18.1 A grading plan starts by carefully assessing the existing topography and identifying various landforms such as wadis, hills, ridges, and summits. *Source: Norman Booth, Residential Landscape Design, 3rd Edition.*

18.2 Dealing with the difference in elevation between two levels can be handled by either using retaining walls or creating sloped areas.

18.3 Steps and ramps should aim primarily to the achievement of safety of users. Too steep flights of steps or too flat ones can cause accidents or undesirable physical stress.

conditions, the land terrain sheds excess water since the land surface is seldom flat. In all cases, some slope is necessary to allow excess water to drain. When a site planner changes the landform for one or more of the above-mentioned purposes, the drainage patterns of the area are affected. The natural vegetation and soil composition that would normally control erosion are disturbed and erosion increases at a faster rate. Therefore, careful grading and land forming are essential and should aim at:

- Identifying topographic features and addressing their problems and opportunities,
- Minimizing and balancing cut and fill in order to reduce costs, and
- Avoiding major disturbance of the natural drainage system, natural vegetation cover, and natural soil composition.

Best Practices in Grading

1. Reduce the area to be graded

This can be achieved by reducing the amount of land covered by buildings or by simply adding another story, which reduces the required flat land area by half.

2.Consider adding roof gardens and parking under buildings

The introduction of these elements reduces the need for grading more land for parking and private gardens although, at an increased cost. Also, roof gardens, in particular, help in insulating the building from intensive solar exposure and add a unique type of outdoor space to the tourism development.

3. Break a large, flat use area into several smaller ones

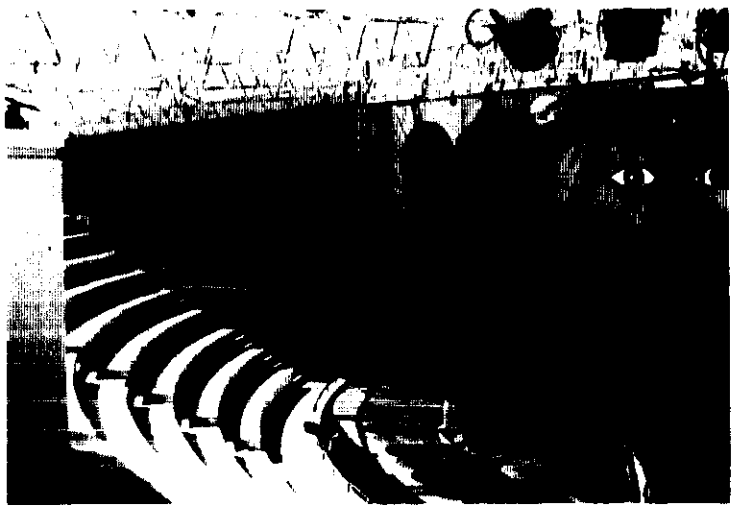
Instead of siting all the buildings and the outdoor activities on one large level, a landscape architect may split the project into different clusters. By placing each of these clusters on different levels, he saves most existing natural features on the site (e.g., vegetation, dunes, sabkhas, wadis, rock outcroppings) and reduces the need for cut and fill to only the circulation system areas among these clusters.

4. Change building orientations and the site configuration

To minimize the impacts and the amount of grading required, the architect jointly with the landscape architect should experiment with alternative forms and orientation of the building. Testing alternatives, ranging from placing the building parallel to the contours, all the way to running it perpendicular to the contours, will indicate which grading scheme will be better from ecological and economical points of view.

5. Regroup small land parcels

Along the Red Sea coast, most land has been subdivided into ownership parcels for marketing purposes rather than by ecological parameters. This system left many parcels too small to handle the kind of environmental problems that are facing tourism development along the Red Sea coast. Also, it created a situation where an investor/developer expects to use his parcel regardless of the environmental consequences. adverse natural resources impacts, serious ecological impacts, or a shortage in site amenities (e.g., a parcel without a beach front, a lot with predominantly unsuitable soils, or a site that is dominated by an oasis of palm trees).



18.4 Identifying different landforms helps in selecting appropriate site for different exterior activities, e.g. a concave slope is ideal for outdoor amphitheatre.

18.5 Flat roofs of different buildings in a resort represent an opportunity for a unique type of green spaces. Roof gardens add a pleasant outdoor room, reduce the need for grading, and help in insulating buildings

It is now recognized that dealing with one large parcel as a whole could address these and other development issues in addition to minimizing the costs of earthwork and construction in general.

Incentive zoning, such as Planned Unit Development (PUD), can grant extra privileges to investors who join together to create a large enough area. This approach allows them to solve some of the abovementioned problems in advance. In brief, PUD zoning provides each investor with an opportunity to share in the profit of developing the land, while still protecting the unique natural amenities for all to enjoy.

19- Paving

An important task while preparing the detailed landscape design of a tourism project is the process of finalizing the selection of paving materials. Only general consideration for the selection of material, their texture,pattern, and color takes place during the schematic concept phase (see Chapters 4 and 9).Selection of paving or hard surface is determined by different criteria including:

- Function of the paved area,
- Type of traffic anticipated,
- Conditions of the site,
- Availability of materials,
- Availability of skilled workers, and
- Costs of installation and maintenance.

Different types of paving materials are available including:

- Brick or pre-cast pavers,
- Concrete or stamped concrete,
- Stones (natural and cut),
- Terrazzo,
- Turf pavers,
- Asphalt,
- Gravel,
- Stabilized soil,
- Graded and compacted earth surface, or
- Wooden boards.

19.1 Stabilizing slopes can be achieved by planting vigorous ground cover or by applying stone rip-rap.

19.2 Selection of paving materials can make walking comfortable or uncomfortable, and thus discourage pedestrians from using the walkway extensively.

Comfortable and beautiful paving can make walking an enjoyable experience since the impact of the floor of a site is immediate and personal for most pedestrians.

Sand, stones and rock are the primary indigenous materials of all the sites along the Red Sea coast. Rock, in particular, displays a wide range of texture, color and grain. It appeals to most people over concrete and asphalt. A designer can use it in sets, blocks, slates, slabs, or crushed fragments.

Stones are stunning objects. Therefore, when they are used as a part of some natural landscape composition, the designer should be thoroughly knowledgeable about the properties, location, and impacts of stones on the functional and visual scheme.

Since smooth paving materials encourage walking while rough surfaces inhibit it, the texture is probably one of the most significant factors in paving selection. The texture of paving can influence pedestrians in many ways, it can:

- Guide the movements of pedestrians,
- Channel the direction of pedestrians,
- Prevent or discourage their encroachment on certain areas, or
- Slow down the flow of pedestrian traffic.

The decision to select a specific paving material for any given area on the site should always result from careful study and knowledge of materials. The floor of a site can be patterned, textured, colored and

laid like a rich rug underfoot. Furthermore, the landscape architect should be aware that paving materials influence considerably the user's activity, comfort, and visual perception.

While preparing the final developed design, the landscape architect should reexamine the material choices he made in his earlier schematic concept and invest more time in identifying each material's color, texture, and finished pattern. This may include identifying the exact material with the manufacturer's/supplier's name and other relevant background information.

The following tables briefly discuss the different paving materials that may be available for use in recreation and tourism projects. The discussion does not address the technical or construction engineering techniques associated with each type. Such information is available elsewhere in textbooks and specialized catalogues. This manual focuses on aspects that affect landscape development in general, and therefore does not replace other specialized sources in the landscape architecture library.

Material	Properties
Asphalt	• Most common hard surface • Least expensive paving material • Durable but needs resurfacing after a few years • Fluid material, thus can fill in awkward shapes • Easily laid • Can be given ranges of supporting capacities (e.g., people, cars) Predominantly black with few additional color variations

19.3 A large vocabulary of paving types, colors, textures, and patterns exist.

19.4 Careful thought should be given to the selection and manipulation of paving composition of every outdoor space.

Material	Properties
Asphalt	• Most common hard surface • Least expensive paving material • Durable but needs resurfacing after a few years • Fluid material, thus can fill in awkward shapes • Easily laid • Can be given ranges of supporting capacities (e.g., people, cars) Predominantly black with few additional color variations
Brick	• Durable and attractive to most people • Can be laid in a variety of patterns • Much more expensive than asphalt or poured concrete • Comes in a variety of colors • Can be laid dry or using mortar • Gives a warm and friendly atmosphere • Requires a stable base and in wet areas may need a sub-base as well • Least suitable for curvilinear and angular design themes • Requires containment if used on sand or with dry mortar
Stone	• Extremely attractive in terms of color and texture • Hard and durable • Very expensive compared to asphalt, concrete and wood • Has an indefinite life span • A unit material that is found naturally or quarried

19- Paving

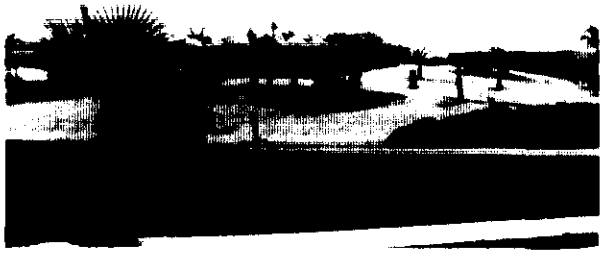
Material	Properties
Stone	• Includes a number of varieties, each of them has its physical and aesthetic characteristics, and thus requires different techniques to be installed and maintained • It includes field stone, flagstone, river stone, cut stone, cobblestone, granite sets, and pebbles • Most of the stone pavers are uncomfortable to walk on particularly by people wearing high heels and the elderly population, and they are not suitable for wheeled vehicles and horses • Suitable in areas where the intention is to slow the rate of movement, or as an accent or edge to another adjacent smoother surface
Concrete	• Durable and strong • Very flexible to shape • Offers a great diversity of color, texture, patterns and finish • Requires a process of curing before it is fully hardened • With the exception of asphalt, it is the most inexpensive hard surface • Needs expansion joints at appropriate spacing • Requires reinforcement and adequate base • It contrasts nicely with other paving material such as brick and stones

Material	Properties
Wood	• Popular, attractive and durable material • Modular yet somewhat flexible in its potential uses for the outdoors • Favorable in the arid environment for its thermal qualities • Ideal for decks, piers, boardwalks and fences • Very expensive if compared to asphalt • Needs curing, and if connected to the ground requires preservative • Comes in different kinds, sizes and shapes

19- Paving

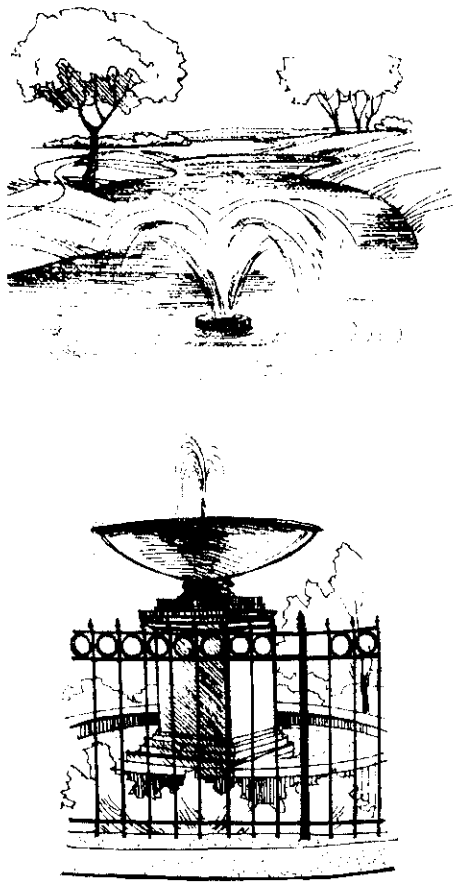
In addition to the five main paving materials that are listed above, a landscape architect has to consider some others that may be less known but are currently used in the Red Sea region. These include concrete blocks that have a variety of color and variation and may be laid in a variety of patterns. Gravel is another fluid and relatively cheap material. However, it is not always suitable for general pedestrian movement, although in some cases it is acceptable for driveways and parking lots. On the whole, sand is the most common surface across the Red Sea region. Its uses are informal and recreational, but it needs containment since it has no capacity to bind together. When dealing with sand areas, both the glare and the edge of these areas (e.g., beaches, children's playgrounds, volleyball courts) are always considered to be a special problem in detailed landscape design.

In conclusion, pavement fulfills both utilitarian and aesthetic functions in landscape design. It is important to understand the different types and characteristics of brick, stone, concrete, asphalt, wood and other surfacing materials so the right one is selected for the intended use and appearance. Whatever pavement material is used, it must be coordinated with all other elements of the site.



19.5 The most common surfaces across the Red Sea region are sand and gravel. They are both relatively inexpensive but require carefultreatment to compact and stabilize them

19.6 Blending indigenous rocks with typical desert plants is a good practice of ground treatment in the arid environment.



20.1 Water features allows the landscape architect to introduce visual dynamic qualities and pleasant sounds to the exterior space.

20- Water Features

Landscape architects use different water features as physical design elements in outdoor spaces. Water can introduce many aesthetic and functional dimensions in the landscape. It can add serenity or dynamic qualities. When it is moving, it generates pleasant sounds and impressive visual impacts. For many people, moving water is the greatest source of relaxation and enjoyable listening. Water, by its fluid nature, can take a variety of visual forms including:

- Flat, quiet, and still pools that reflect and mirror the surrounding landscape.
- Turbulent, gushing, or falling waters that generate a sense of visual dynamism and roaring sound.
- Exploding or spraying jets, which produce unique excitement since they defy gravity or create a foaming effect when air is mixed with incoming water supply.
- Programmed or dancing fountains that use modern technology to create an almost theatrical show. This type may combine moving water, sound effects, and synchronized lights by utilizing new timed-clocks, tape devices, electronic controls, and computers. Obviously, this elaborate and multidimensional system is expensive to design, construct and maintain, and therefore, it should be used in very selected locations only. These may include central plazas of large theme parks, formal entrances of central megastructures, or the forecourt of conference centers or major airports.

20- Water Features

In addition to the above visual effects of water features in the outdoor spaces, there are numerous possible utilitarian functions for water in the landscape. These include:

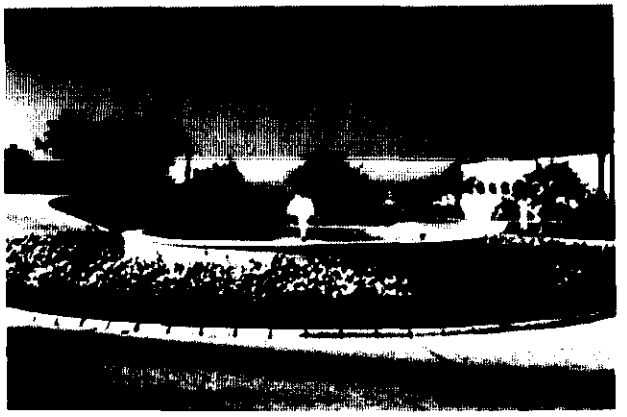
1) Human consumption,
2) Irrigation,
3) Climate control, and
4) Active recreation.

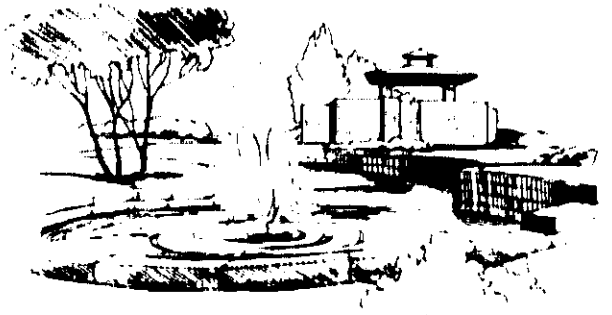
1) Human Consumption

In the hot arid regions, drinking fountains are almost a necessity near athletic fields, campgrounds, and public parks. Water is required in all these cases as an essential consumable element to support the outdoor activities. As a result, the water source, the method of transporting it, and the means of making it available to the users become a crucial design and management decision. Drinking fountains are not only a generous landscape design gesture that fulfills a functional objective, but can become an aesthetic element in the total landscape design as well. Placing drinking fountains along the pedestrian paths allows easy maintenance and greater use of the outdoor recreation areas by the visitors of the resort.

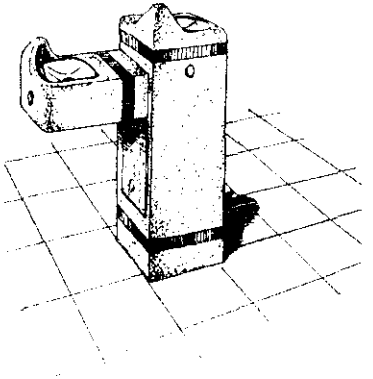
2) Irrigation

Irrigation of all plant materials is essential in all tourism projects along the Red Sea coast. Irrigation is also a means for reducing maintenance since fertilization programs can be carried out more efficiently through liquid solvents in the irrigation system. Various irrigation methods areused including: flooding, spraying, and drip irrigation. Both spray

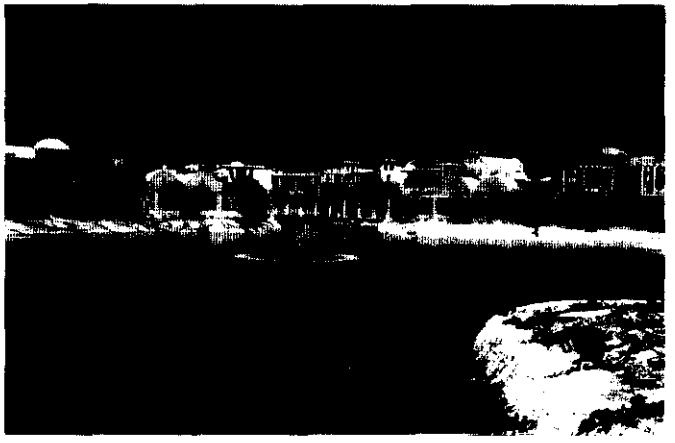




20.2 Major fountains should be placed in central important locations only since their initial and operation costs are significant.



20.3 Drinking fountains are considered an essential element of the outdoor program particularly in arid and semi-arid regions.



20.4 Lakes, ponds, lagoons and other large bodies of water are excellent modifier of the microclimatic conditions of any site, particularly in the coastal deserts.

irrigation and drip irrigation require that the heads or the plastic tubing be located strategically throughout the planted area, and thus become another factor in the landscape architect's list of design decisions.

3) Climate Control

On a regional scale, large bodies of water (e.g., ocean, sea, lake) modify air and land surface temperatures. This phenomenon causes the local temperature of any site along the Red Sea coast to be cooler in the summer and warmer during the winter.

Water can also modify the microclimatic conditions at a smaller site scale. Evaporation of moisture from a water body lowers the temperature of that surface and in turn the air temperature within the surrounding exterior space. Accordingly, if water is present in a pool, fountain, pond, or is constantly sprayed over a surface, the surrounding air temperature will be lower than a similar outdoor

space that does not include water in its design. The resultant cooling effect can be enhanced more if the prevailing wind passes over and through the water feature into a space where people are present and involved in an outdoor activity.

4) Active Recreation

The use of different water features in the landscape for recreation is very popular. Water can be used for swimming and other water games such as diving, snorkeling, water polo, water ballet, fishing, surfing, boating, or canoeing.

20- Water Features

Best Practices in Designing and Managing Water Features in the Exterior Spaces

1. Conserve and protect natural water systems

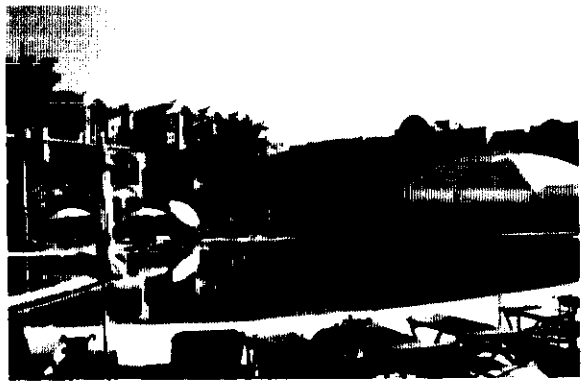
To make maximum use of the limited water resources in the coastal desert of the Red Sea, no structure should be built in wadis, salt or mud flats, swamps, sabkhas, or plastic and organic clay sites. These are the areas where flash flooding usually occurs.

2. Protect outdoor water features from severe climatic conditions

Pools, fountains, and water features exposed to the full sun and wind are extremely wasteful, and therefore, should be avoided. In an arid region like the Red Sea coast, full sun exposure could lead to 20 percent or more of the water being evaporated daily, and consequently, needing to be replaced. Even swimming pools should be placed inside some sort of enclosure that will protect them from the wind and intense solar radiation. Also, dust storms and saline water are capable of causing considerable and perhaps irreparable damage to water systems and the plumbing of outdoor water features.

3. Ensure the efficiency and effectiveness of the irrigation system

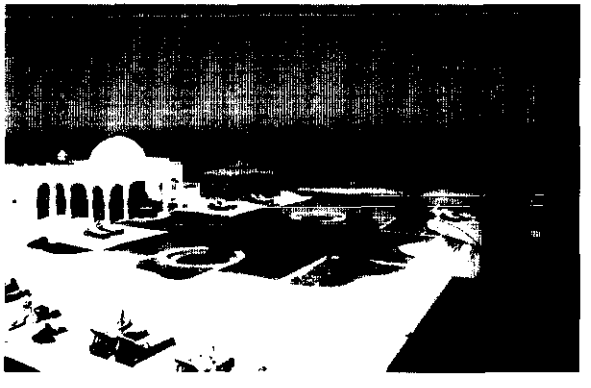
In a hot, arid region, such as the Red Sea coast, plants should be selected to serve at least one important function and preferably two (see Chapter 27). Also, the irrigation system should be designed in a way that ensures that each plant gets the right amount of water, neither too much nor too little.



20.5 Water games in general and swimming in particular are usually the central attraction of any resort. The challenge of the design team is to blend these activities with other elements on the site.

20.6 Preserving and accentuating existing wet lands, sabkhas, and natural lagoons protects the development against flash flooding and add a unique feature to the master plan.

20.7 The use of large courtyards for swimming pools and green spaces suggests a thoughtful approach to urban design. The surrounding buildings protect swimmers and plant m aterials from the strong wind, and provide shade to large part of the space.



20.8 Exposure to the full sun and wind increases the evaporation rate in swimming pools and fountains. Wherever possible, the design team should always attempt to provide adequate protection for these features.

4. *Avoid wasteful methods of irrigation*

Among the three commonly known methods of irrigation, perhaps drip irrigation is the most appropriate for the conditions of the Red Sea coast. Both flooding and spray irrigation waste a considerable amount of water. Depending on the precise conditions of use, spray irrigation loses between 20 and 50 percent of the water so applied to evaporation. Also, fixed and portable piping and spigots used in aerial spraying present severe problems and should be discouraged. When used with saline irrigation water, spray mechanisms and nozzles often freeze with salt encrustation and eventually clog the mechanism.

5. *Blend art work with outdoor water features*

Water features can be used as a setting for other landscape-enriching items. Sculptures are often placed in or around water features, as are water lilies, and other specialized plant items. Pebbles and boulders take on a new look when placed in water. Colorful fish can add motion, excitement and joy to outdoor water pools.

6. *Ensure high quality in designing, installing and maintaining outdoor water features*

Careful design is required to make these features proportionate to their surroundings and to ensure that they perform the intended objective of the landscape designer. All water features must be furnished with a water supply, which must be replenished frequently as the circulating or stored water evaporates. They require considerable maintenance in the form of cleaning and can be fairly expensive to install.

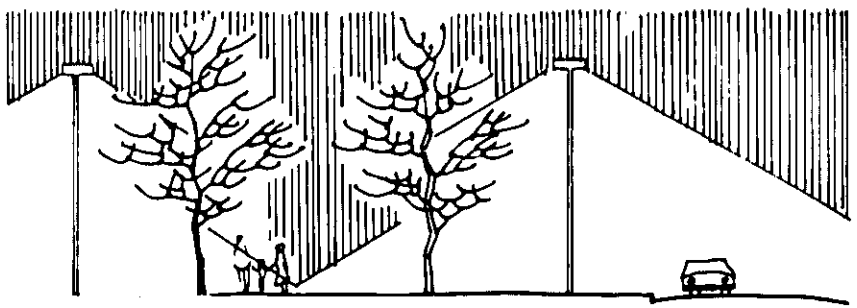
21- Outdoor Lighting

Outdoor lighting represents a resource that is rarely used effectively. A sensitive and artistic scheme of artificial lights can add a remarkable dimension to the experience of visitors and employees. Landscape lighting is not justa beautiful exterior decoration. It is an essential element in the landscape that serves many functions including:

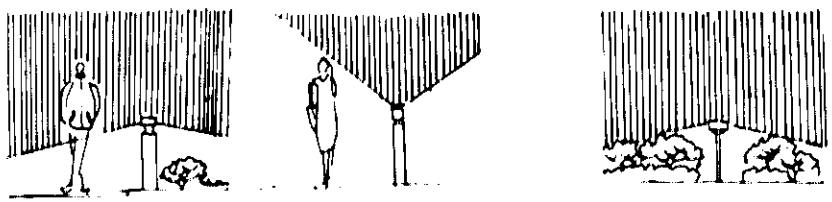
- Guiding people safely through the circulation system,
- Providing security for the grounds,
- Allowing longer nighttime use of the outdoors,
- Accentuating selective elements of the buildings (e.g., entrances, facades),
- Highlighting significant features in the landscape (e.g., fountains, sculptures, outdoor structures, trees, pools, marinas, signs), and
- Creating special effects for special occasions (e.g., Eid, Ramadan, Christmas, weddings, festivals, birthday parties).

Best Practices in Outdoor Lighting Design

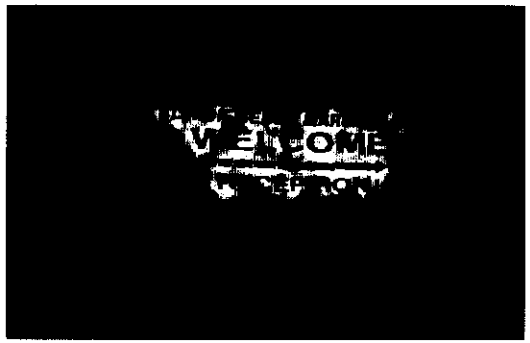
1. Ensure adequate functional lighting (for security and safety purposes) of entrances, walks, steps, and other circulation routes.
2. Provide adequate light at gates, bridges, intersections, ramps, dead ends, tunnels, and remote exterior spaces.
3. Consider retaining a lighting consultant in large and complex projects. Designing, installing, operating and maintaining the lighting system



21.1 Outdoor lighting for vehicular circulation must be planned to ensure maximum safety and visibility of both drivers and pedestrians.



21.2 Outdoor lighting for pedestrians varies in design and is mainly provided for their security.



21.3 Lighting in critical location of the site helps in communicating clear and effective messages to visitors.

21.4 Natural gas provides an economical source of energy for outdoor lighting. In addition, it accentuates the historic design theme of certain developments.

aspects of the lighting scheme, including: amount of light needed, wiring, equipment, codes, and lamp types and their characteristics.

4. Balance the economic advantages and energy efficiency of sodium, halide, and mercury vapor lamps with the human and pleasant, space-enhancing impacts of incandescent lamps.

5. Allocate the correct amount of light. Provide brighter illumination for dark surfaces and less intensity for lighter surfaces.

6. Select low key, warm, and simple lighting for residential use, and colorful, bright, blinking, moving, or changing lighting in public areas of the development.

7. Use light to produce dramatic effects in planted areas. This adds considerably to the quality of experience of all users. Many opportunities for decorative effects exist and a competent landscape architect should be able to tap these opportunities. For example, fine palm trees can be dramatized, sculptures can glow, and moving water can sparkle.

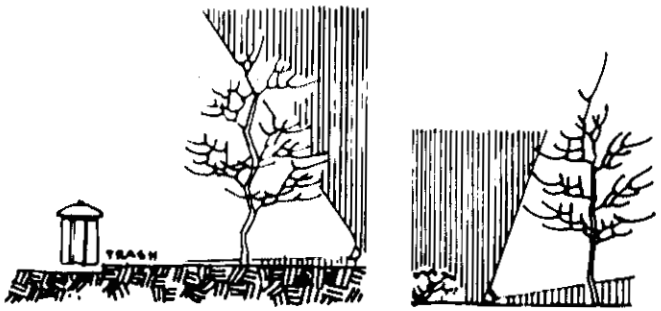
8. Floodlighting is a technique for lighting exterior walls, buildings or monuments by projecting beams of light on them. It is always recommended that light reach the surface of these features coherently from one major direction.

9. Coordinate tall lamps on the site with adjacent hotel buildings and outdoor facilities to prevent glare inside rooms and suites.

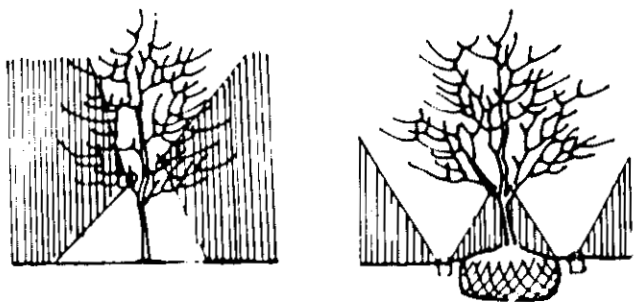
10. Turtle nesting occurs at certain locations along the Red Sea coast. In these areas, it is important that outdoor lighting associated with both tourism development projects and street lighting be designed to avoid illumination of the beach area.
11. Place outdoor lighting either above or below eye level. Avoid any outdoor light that is directly at people's eyes or at windows.
12. Consider the night skyline of the coast near major harbors in tourism areas adjacent to active ports such as Sukhnah, Hurghada, Safaga, Quseir and Marsa Alam the illuminated skyline of the resort as viewed from the sea is very significant.
13. Use warm light sources, generally associated with incandescent lamps, operated on low-voltage systems for all pedestrian-scale lighting.
14. Light the primary pathway, boardwalk or cornice generally paralleling the seashore continuously. Most secondary paths may be annotated by low-intensity lights that lead the eye rather than illuminate the outdoors.

The image of the tourism development can be enhanced by well-planned lighting effects. These can be achieved by:

- Landmark lighting occurring at selected points along the waterfront;
- Decorative lighting use at major facilities such as restaurants, boardwalks, and recreation complexes; and
- Unique and colored lighting effects associated with fishing piers, water parks, aquariums, amphitheaters, yacht clubs, and boat launch areas. Most grounds on a tourism resort are used at night as well as in the daytime and some areas even more intensively after dark



21.5 Outdoor lighting of plants can add dramatic effects of the night life of any resort.



21.6 Outdoor lighting varies in color, intensity, and direction based on the design objective.

(e.g., outdoor cafes, casinos, amphitheaters). A skillful landscape architect can use artificial light to achieve many design objectives such as:

- Modifying the visual quality of a space,
- Transforming textures,
- Highlighting entrances,
- Indicating the direction of paths,
- Announcing the presence of a special activity (e.g., playground, sculpture, fountain), or
- Reinforcing a special character.

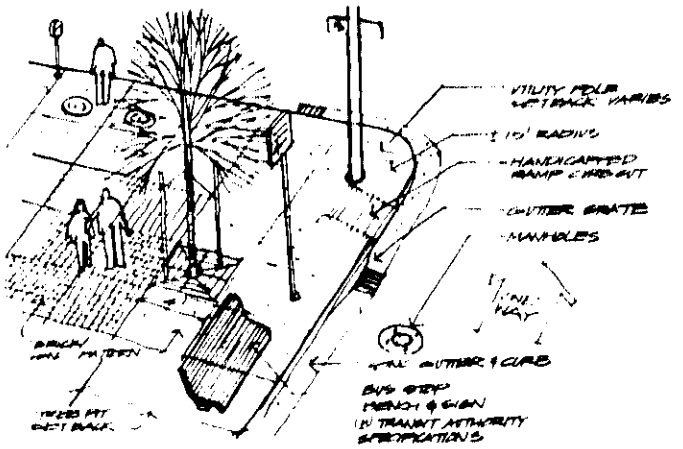
21.7 The skyline of tourism villages adjacent to marinas represents an opportunity for outdoor lighting designers to stress selected landmarks of their waterfront.

22- Street Furniture

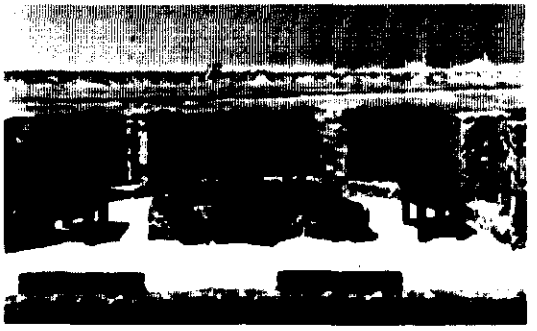
In the open spaces between buildings there is a world of diversified collections of objects. This paraphernalia of urban living includes necessary items that make these outdoorspaces livable. The outdoor space itself is just an envelope within which activities are carried out. But within this envelope, users need a whole universe of objects including:

- Objects for functional use (e.g., benches, tables, bollards, walls, fences, gates, lighting fixtures, trash cans, drinking fountains).
- Objects for comfort (e.g., shelters, kiosks, guard rails, steps, ramps, trellises, umbrellas).
- Objects for aesthetics (e.g., sculpture, fountains, flower pots), and
- Objects for information (e.g., information maps, flags, signs, directional signs, clocks, symbols).

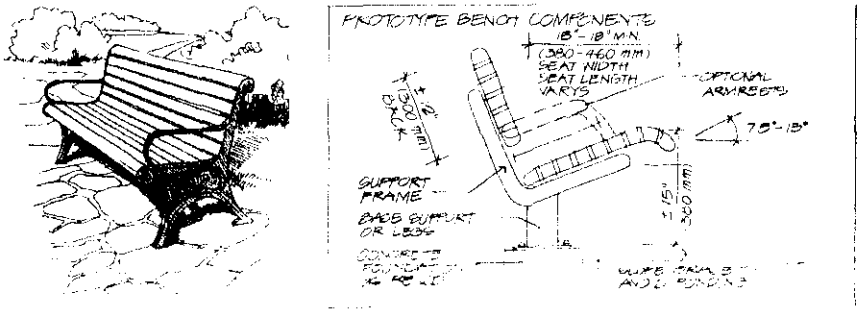
Outdoor furniture should neither be something that is randomly added at the end, nor an afterthought item picked up from commercial catalogs. Compared to the main buildings and outdoor activities, it may be small in scale. In reality, however, outdoor furniture is constantly used and seen by the guests of the tourism facility, and therefore, sets the dominant quality of the outdoor
environment. And like furniture in the house, it may increase rapidly in a piecemeal way that can clutter the space and overwhelm the view. In brief, attention to the detail and design of outdoor furniture is as



22.1 Designing and placing outdoor furniture requires thoughtful process of determining their functional requirements, predicting user's needs, and assessing environmental conditionsof the site. *Source: R. Harris and N. Dines, Time-Saver for Landscape Architecture, 1990.*



22.2 Most visitors of any resort look for a quality outdoor experience. This requires more than a bench to sit on. It includes a comfortable and shaded spot to enjoy and something interesting to watch.



22.3 Seating and bench design should be based on the dimensions of the human body and the comfort of different users.
Source: R. Harris and N. Dines, Time-Saver for Landscape Architecture, 1990.

22.4 Coordinating street furniture with signs, plants, lighting, and outdoor structures is a major challenge of detailed landscape design.

important to the qualities of the site's aesthetics as the buildings themselves. It often tends to be too numerous and too wide in range. Outdoor furniture also may serve many functions, and therefore, is considered a necessary element of a site. They can be well designed and related to the total scene on the site. Not least of all, outdoor furniture should help in establishing outdoor rooms that are both functionally useful and aesthetically pleasing.

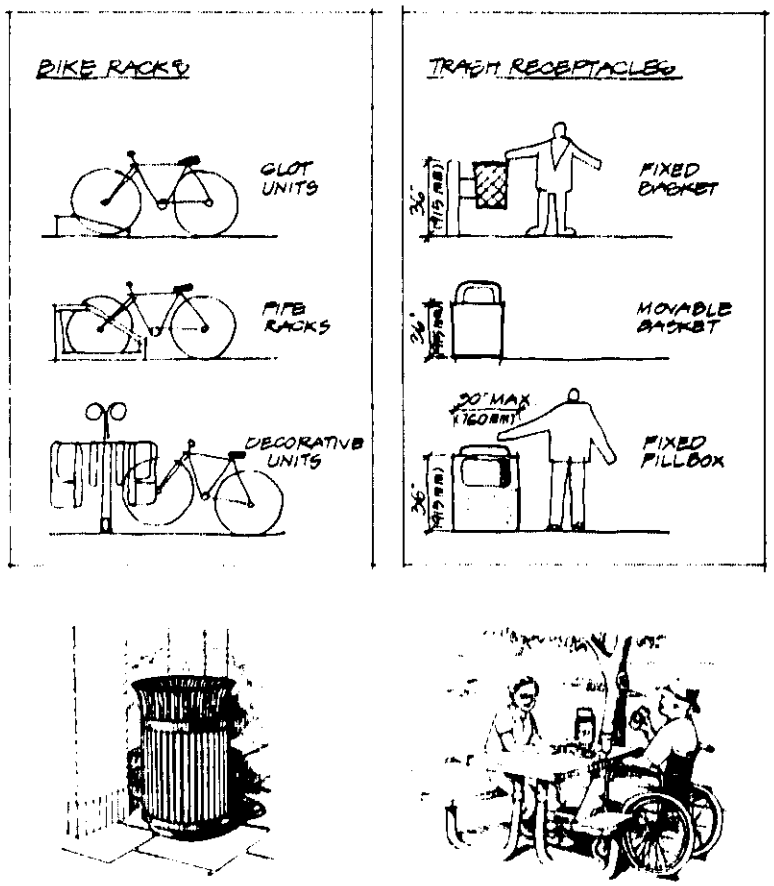
A tourism center or a hotel site is a kaleidoscope of overlapping buildings, activities, roads, and people in motion. Landscape design is supposed to harmonize and unify all these parts into a coherent whole. As the guests move around this multi-faceted composition of experiences, the outdoor furniture becomes the fixed point that can guide and enrich their movement.

Best Practices in Outdoor Furniture Design and Planning

1. Spend the time and money in selecting, designing and placing different types of street furniture. It is a good investment.
2. Guests are more impressed by these details than many other elements that are stressed by architects and engineers. The texture of a bench, the location of a trellis, or the design of a table affect the guest greatly because they use them and are in direct contact with them more than a building façade or a structural system.
3. Assign a team consisting of a landscape architect and an industrial designer to address all the issues of outdoor furniture on the site. They

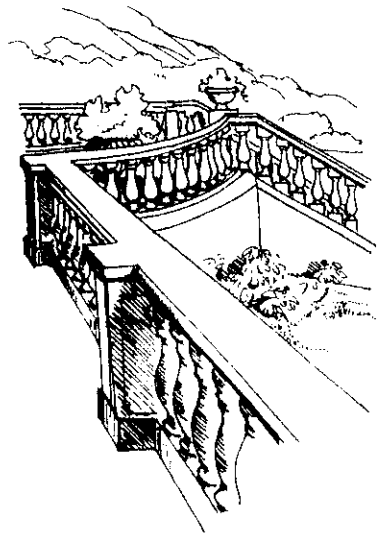
should coordinate and consult with the architect, engineer, and the future manager of the facility.

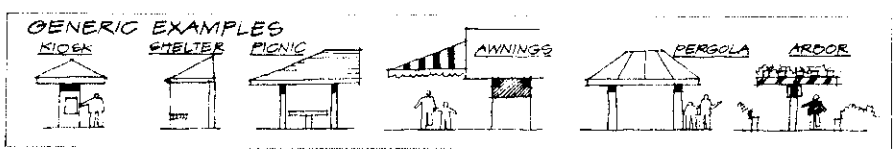
4. Focus on the details that are critical for the perception and use of the site. A designer must consider and try to visualize the daily experience of the user. This approach will reveal:
   - Where to place public telephones, trash cans, and beach showers so that they are accessible;
   - Typical paths for pedestrians, bikers and joggers;
   - Ideal locations for benches, lights, and drinking fountains; and
   - Trash collection methods used by cleaning crews and what path they will take.
5. Regulate and coordinate the design and use of outdoor furniture, outdoor lighting, and the signage system within a project, and if possible, throughout the tourism center. Collectively, a more pleasing composition of colors, forms, materials, textures and relationships will be produced out of these many, and typically, diversified objects.
6. Cluster signs, furniture, and lighting fixtures, wherever possible. If functionally feasible, and aesthetically appropriate, grouping outdoor objects is a good idea. This creates key points of activity and interest, reduces the visual clutter, and minimizes the obstructions along circulation paths and outdoor spaces.



22.5 A major challenge that faces the design team is to harmonize the long list of objects known as street furniture into a coherent composition.

Source: R. Harris and N. Dines, Time-Saver for Landscape Architecture, 1990.





23.1 Outdoor structures vary in their function and construction method. A familiarity with alternative prototypes helps in providing functionally useful and aesthetically pleasing outdoor space.
Source: R. Harris and N. Dines, Time-Saver for Landscape Architecture, 1990.

23- Outdoor Structure

Outdoor structures are single-purpose buildings that are primarily designed and used in the exterior space. Sometimes they are called exterior architecture. To some people, outdoorstructures may trigger a sense of history since many of these elements were used extensively in different eras of landscape architecture history (e.g., Italian villas, French palaces, English gardens). Today, outdoor structures are used primarily for functional purposes and often are designed to fit the modern vocabulary of architectural design of the 21st century. For example, an overhead structure can provide varying degrees of enclosure depending on the size and design of the structure. It also can serve as an outdoor extension of the ceiling inside.

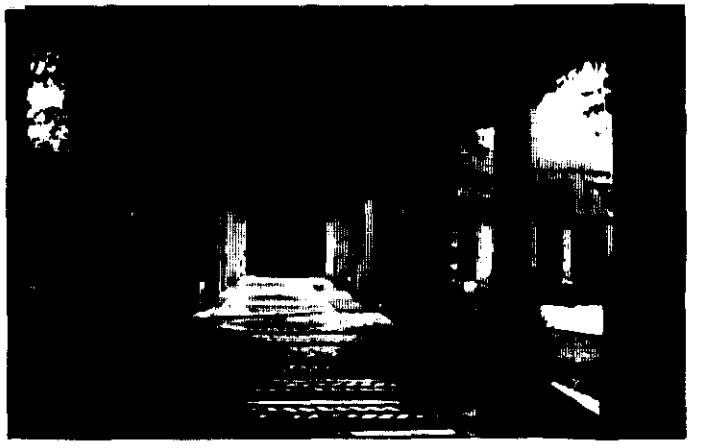
A site includes many objects that are an integral part of outdoor living. The challenge for a site designer is finding a successful approach to harmonize and coordinate them. Since these objects are placed near the users, their detail and arrangement affect the appearance of the whole. Gradually, if objects accumulate without design, it can create a sense of clutter. Just like other aspects of the detailed landscape design, these outdoor structures require an investment of design and supervision if they are to be successfully selected and sensitivity introduced as an integral component of the total landscape composition.
In a sense, these outdoor structures are incidental semi-architecture, which are needed for a variety of functions throughout the site.

23- Outdoor Structure

They include:

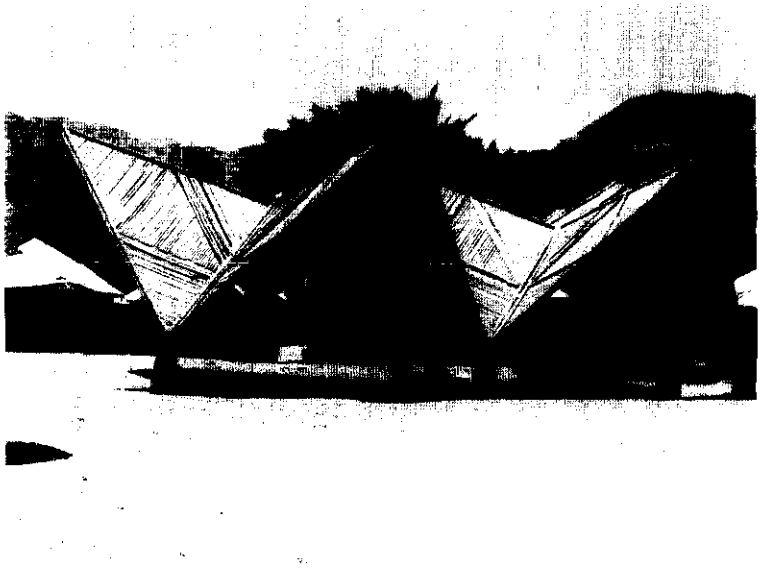
- Pavilions and gazebos
- Gates and portals
- Pergolas and arbors
- Wooden decks
- Music band kiosks
- Tents and canvas structures
- Picnic shelters
- Bus shelters
- Children's play equipment
- Telephone booths
- Bollards
- Seats and benches

Obviously, one would not expect to have all these types of structures in a single space of a tourism center or in a single outdoor area of hotel grounds. Nevertheless, they play a unique role in serving the visitors and meeting some of their essential needs. Outdoor structures can provide shade on a hot sunny day, information to new visitors, recreation, socialization and communication. Each of these structures performs a special function and takes its place in the resort landscape. Equally evident is their influential role within the total image of the site. These small structures can either clutter and uglify the tourism complex, or through coordinated, thoughtful and elegant design, can add an accent of gaiety and a touch of beauty to some of the most ordinary tasks that are performed in the outdoors.



23.2 A combination of trellis and climbing vine is effective in providing shaded space and a pleasant microclimate as well in connecting various buildings of the resort.

23.3 An outdoor structure can become a focal point in the exterior space and can provide a dynamic quality to the overall composition.



23.4 Outdoor structures add a unique type of space to the site. Coordinating it with other street furniture, lighting, and plants is the key to a livable outdoor space.

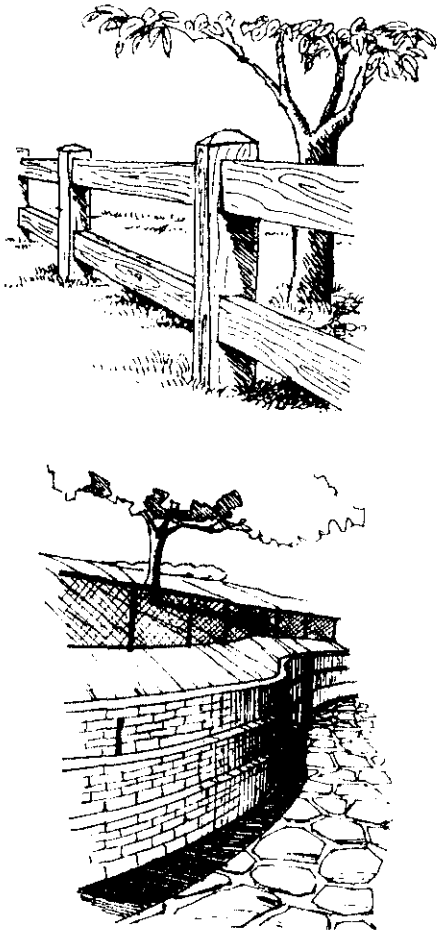
Outdoor structures can be built of many materials including wood, metals, concrete, brick, stone, concrete blocks, plastic, and canvas. The properties of each of these building materials are different and so the methods of working with each material – the shaping, fastening, preserving, maintaining and finishing – are also different.

Most projects entail the use of more than one structure. The table included below lists different factors that should be considered when selecting some of the commonly used building materials for outdoor structures.

Material	Factors to Consider
Stone	• Durable and strong • Harmonious with regional landscape • More expensive than brick or concrete • More difficult to handle • Types: Limestone, Sandstone, Granite, Quartzite, Slate • Building techniques
Concrete	• Flexible shape • Strong and durable • Diversified in color and texture • Select the right mix • Reinforcement needs • Finishing techniques • Curing requirement

23- Outdoor Structure

Material	Factors to Consider
Wood	• Attractive and versatile • Easy to work with • Strong and durable • Types: softwood, hardwood, plywood • Standard sizes and shapes • Joining techniques • Fastening techniques: nails, screws, bolts • Finishes: weathering, sealers, paints, bleaching and stains
Canvas	• Ideal for shading and sheltering • Strong and durable • Colorful • Stands most seasonal climates • Types: Vat-dyed, Painted, Yarn-dyed, Vinyl-coated, and Acrylic fiber • Preparing and framing techniques • Cutting, Hemming, Binding, Seaming, Attaching, and Lacing techniques
Brick	• Attractive and versatile • Resistant to weathering • Hard and durable • Types: building brick, face brick, fire brick, Roman brick, and others • Patterns: English, Running, Flemish, Garden



24.1 Fences serve many design functions. They may be simple to suggest boundaries between two zones or elaborate to create a physical barrier.

24- Fences and Walls

Fences and walls are hard vertical elements that serve a number of utilitarian and visual functions. Walls are mostly free standing with a minimum of connection to other elementsin the landscape. Fences are typically thinner and less massive than walls. Walls and fences are considered useful building elements that the landscape architect can use to articulate the third dimension of the property as well as the various outdoor spaces on the site.

During the analysis and conceptual design phases, it is important to clarify the rationale behind introducing a wall or a fence. The following series of questions could help in this task:

1) What is the purpose of the fence?
2) What problems would it solve?
3) What objectives would it achieve?
4) How can the new fence or wall improve the project's site?

Other questions may be raised later on during the detailed landscape design stage, including:

5) What structural system could be used?
6) What building materials should be selected? And why?
7) What color, texture, and design pattern should be chosen? And why?

Although walls and fences are shown in thin lines on the plan, they are some of the most important outdoor elements. Their location and size,

heir color and texture, are significant. Unfortunately though, fences are often added at the end with very little thought.

Design Functions of Fences and Walls

- *Serving as spatial edges, screening views, creating privacy, directing views, modifying exposure to sun and wind, and directing movement through the site.*
- *Creating a sense of privacy for the guests and residents of the tourism center.*
- *Providing security and protection for the people and the property.*
- *Protecting certain areas of the site by buffering the impacts of adjacent but incompatible zones that generate noise, glare, dust, or offensive views.*
- *Screening the site for climatic factors such as wind, sandstorms or flooding.*
- *Enhancing the overall appearance of the project by unifying different elements and zones.*

It is always a good practice to have both the design team and the investor discuss and agree on ranking of the above design functions in order of their importance to the proposed development. This ranking will help considerably in answering the seven questions listed earlier.

24.2 Fencing the property before construction helps in protecting the site against illegal dumping and solid wastes that are blown by strong wind.

24.3 Walls can effectively articulate the borders of a site and create a unifying element among various elements on the site.

24.4 Adding rows of plant materials to a solid fence provides aesthetic quality to the sense of privacy and security a solid wall creates.

Best Practices in Designing Walls and Fences

1. Articulating the borders

In a tourism development, an outside wall or fence represents the edg of an integrated center or individual hotel. Many people consider thi linear element a very important organizing feature. It plays the ke role of holding together various generalized areas. Plants can effectivel create the edge effect and function as a physical barrier along propert lines. However, inconsiderate individuals will certainly cross througl and trample them. Visually, fences and walls may function as barriers occasionally penetrable. They can either close one zone off fron another zone; or they may be only seams, or lines along which tw zones are interacting or overlapping.

2. Creating a sense of privacy

The height of a wall in relation to the eye level defines its message t the viewer. It can be perforated to permit vision or built solid to provid total privacy.

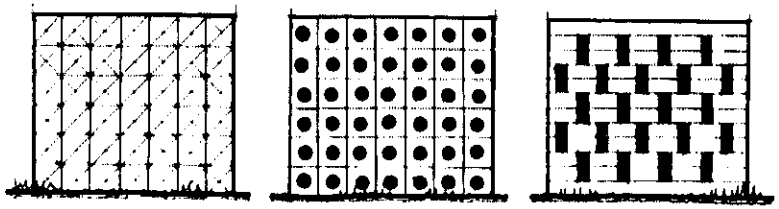
Although fences or walls are the most effective in providing complet privacy, plants are a more pleasant addition. It is a good practice t combine fences and plantings. This is a combination of the best o both worlds: the fence gives absolute privacy while plantings add aesthetic qualities as they grow.

Along the Red Sea, most designers of tourism projects have utilized brick or concrete block walls to fence their properties. Occasionally,they applied different patterns or stucco to add some color or texture to

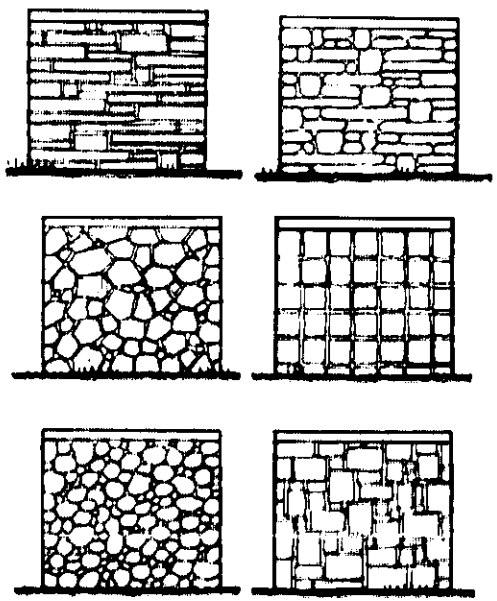
what seems to always be a long, linear and austere structure. Actually, a free-standing wall of any design becomes boring if not combined with other landscape elements (i.e., trees, rocks, landforms). It is hard to understand why so many of these developers use free-standing wall systems, which are more expensive than alternative promising systems. Since the problem is not the shortage of space, one might consider using earth berming, ha-ha, or a combination of retaining walls and plants that might project a more appealing image of the tourism complex from the highway. Also, earth makes a good fence, whether as a sparsely planted berm or as a rammed earth wall with an appropriate rip-rap and coping.

On the whole, there is a large selection of alternative fencing types from low, simple and symbolic to high, solid barriers. These include the following:

- Brick walls
- Stone walls
- Concrete walls
- Wooden fences
- Precast concrete with wooden panels
- Precast concrete with wires
- Wrought iron and mild steel
- Chain link and woven wire
- Strained wire fence
- ha-ha
- Earth berms



24.5 Concrete block walls may be designed in patterns that add interest and diversity of shapes to the exterior space.
Source: Norman Booth, Residential Landscape Design, 2002, 3rd Edition.



24.6 A large selection of building materials and patterns exist. A decision to use one or another has to be based on clear design criteria.

- Trees and hedges
- Any combination of the above

Again, the decision to select one or another depends upon the design objective and the clear purpose of the fence: a physical barrier, visual barrier, noise barrier, wind break, or space definition.

3. *Separating functions*

Another use of walls and fences is related to separating adjoining uses from each other. This is particularly needed where dissimilar or even incompatible uses end up placed next to each other, such as a night club and guest suites. A well-designed fence can reinforce the place where one property ends and another starts by establishing a barrier between them.

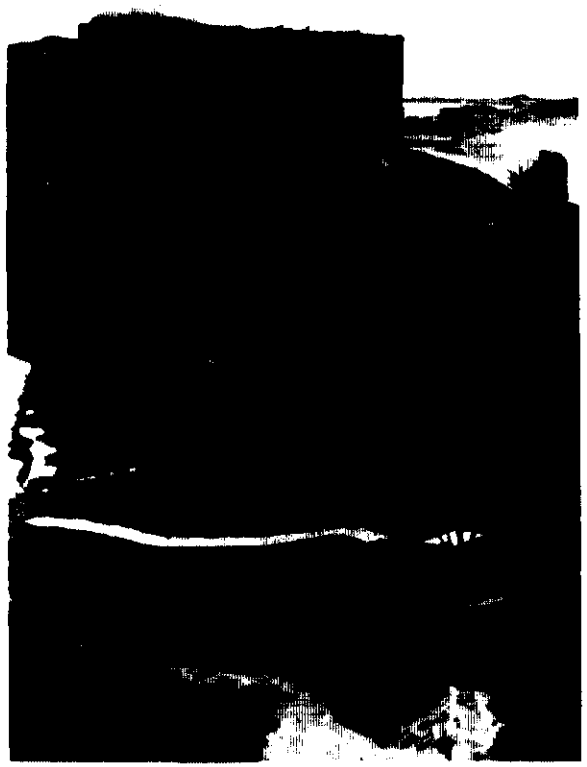
4. *Providing security and safety*

The need to create a "gated" community began in urban areas that are known for high rates of crime and violence. Tourism centers along the Red Sea are geographically remote, but the concern is presumably related to preventing people who are not registered guests from using all the recreational facilities within the resort area. This control can be done at the gate or randomly in different areas of the resort (i.e. swimming pools, tennis courts). In brief, boundary walls are not the only or the most effective way to provide security, and therefore an in-depth investigation is needed to assess their efficiency and reliability in achieving safety and security.

5. Enhancing the overall appearance of the project

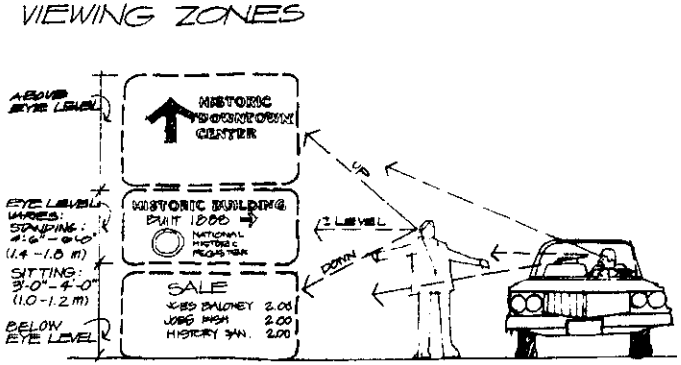
Walls and fences can serve as neutral backgrounds to other elements (e.g., trees, sculpture, signs). Another role that walls and fences may play is to visually connect other unrelated elements on the site and provide some clues about the scale of the structure. Also, they can be designed and detailed with attractive patterns of materials, textures and colors, or indented so that a composition of attractive light and shadow patterns will be generated. Such a pattern adds delightful changing effects throughout the day, varying from one season to another.

The design team should always remember that walls and fences do not always have to be placed in absolutely straight lines. Instead, they can accentuate the overall design theme or echo the geometric organization of the architectural concept (i.e., linear, angular, curvilinear). This way, the design of significant landscape elements such as fences and walls should be closely coordinated with the architectural composition of the project and reinforce its overall theme.



24.7 Fences do not necessarily have to be a vertical linear structure. Creating sloped or terraced landform can enhance considerably the appearance of the property boundaries.

25.1 Signs that are used through resort areas may add to the leisure mood by using bright color scheme and dynamic composition.



25.2 Designing signs requires a thorough analysis of viewing zones, sight line, and different cones of vision associated with both drivers and pedestrians.

Source: C. Harris, N. Dines, Time Saver for Landscape Architecture, 1990, McGraw-Hill Co.

25- Signage System

The appearance of many tourism developments and resort areas could be enhanced greatly if designers improve and unify the layout and color scheme of all signs on the site. Although signs are needed to direct and provide useful information to guests, in certain instances, the competition for the pedestrian's or the driver's attention has turned the signs into a sea of conflicting graphics and verbiage. In the end, the signs confuse and distract instead of informing and guiding the users.

Planning and designing signage systems should not be treated lightly or in a piecemeal approach. It is a matter of great concern for the image and quality of the entire development, the safety and enjoyment of all visitors, and the integrity of its architecture and site design.

Signs are not intrinsically ugly. They are perceived by some people that way because they are thoughtlessly designed, or because their message is ambiguous, redundant, or fiercely competitive in an attempt to dominate someone else's sign.

The landscape designer should aim at clarifying, regulating and amplifying the flow of information conveyed throughout the site, therefore ensuring that each sign is accurate, appropriately placed, and intelligible (i.e., communicates well). Signs that identify the name of the building or the type of outdoor activity are essential for advertisement and to help visitors

25- Signage System

find the right place. An effective and successful sign should be designed and placed in a manner that will attract attention to its contents. Resort areas and tourist villages always imply excitement, movement and composition of color and sound. Much of this quality can be achieved through the use of colorful signs, symbols and logos. The following specific recommendations can guide the process of designing and placing signs throughout the different tourism areas along the Red Sea coast.

Best Practices in Designing Signage Systems

1. Group informational signs into clusters

Classify your system into two categories: informational signs and directional signs. Plan, unify and coordinate each category in terms of lettering style, color scheme, lighting and overall design.

2. Ensure building-identification sign controls

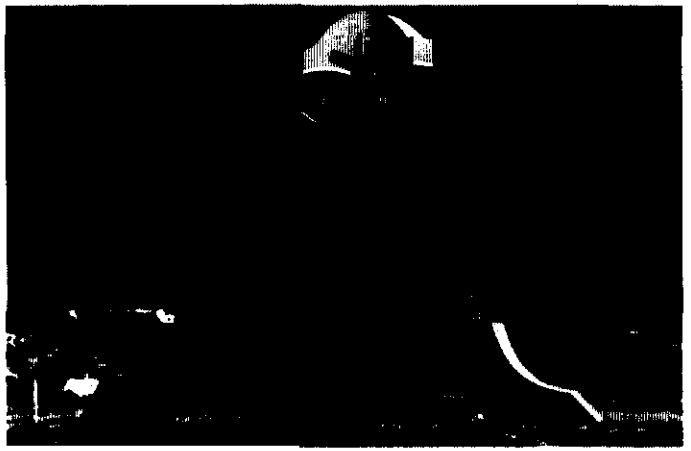
Provide codes that define the size, type, number, and placement of commercial advertisements (e.g., storefront signs, restaurants, beach facilities).

3. Provide travel information centers

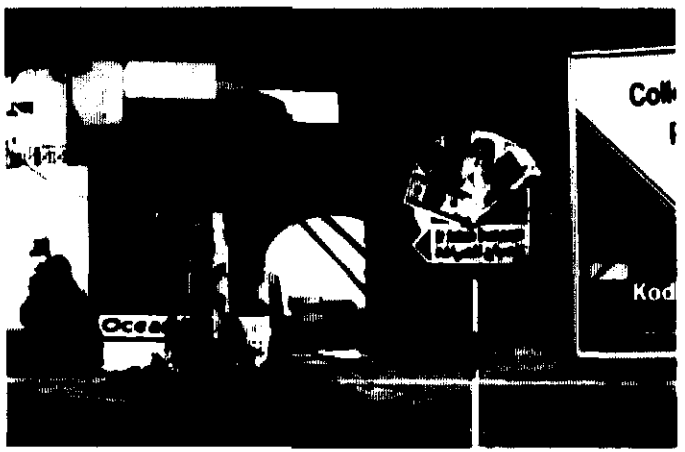
Tourists need information and directions to their destination. In strategic locations, establish travel information centers to disseminate current directional maps and information on lodging and local attractions.

4. Initiate design controls

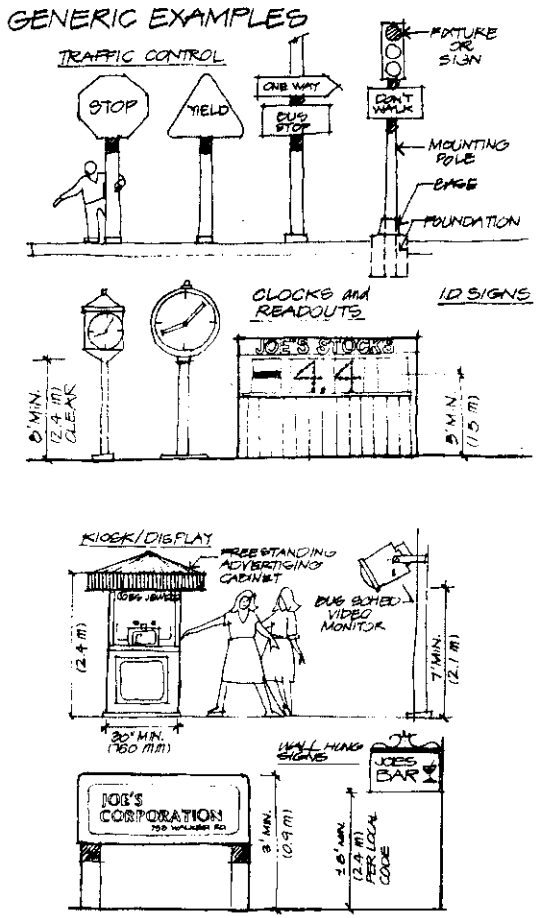
In areas managed by "Integrated Development Companies", in particular, prepare and issue a manual of landscape development standards that governs all new site construction and establishes



25.3 Grouping informational signs into cluster allows visitors to find their way before entering the tourism center.



25.4 Signs may confuse and distract visitors if they are not coordinated or holistically thought-out.



25.5 Signage system standards and guidelines may be included in the original landscape development master plan to ensure a sense of unity among various generic types of signs.
Source: C. Harris, N. Dines, Time Saver for Landscape Architecture, 1990, McGraw-Hill Co.

guidelines for future growth. In addition to signs, such a manual should also govern pedestrian paving, street furniture, lighting, and all other aspects of site design.

5. *Highlight needed information*
Visitors will need information about different facilities in the resort, and orientation/directions to their destination. Most elements of the site will need description or clarification (e.g., reception office, fitness club, casino).

6. *Create a hierarchy of signs*
Signs for primary vehicular movement (cars and vans) require different scales of graphics and letters, than secondary vehicular movement (bus, boat and bicycle), or pedestrian movement.

7. *Celebrate chosen character in signage design*
Signs should not only highlight major outdoor areas, but also add to and celebrate the tourism facility's chosen character.

8. *Clarify the purpose of each sign*
Symbols on certain signs should be incorporated to assure visitors that essential services are available close by, including: first aid stations, security, and other emergency functions.

Sign Types

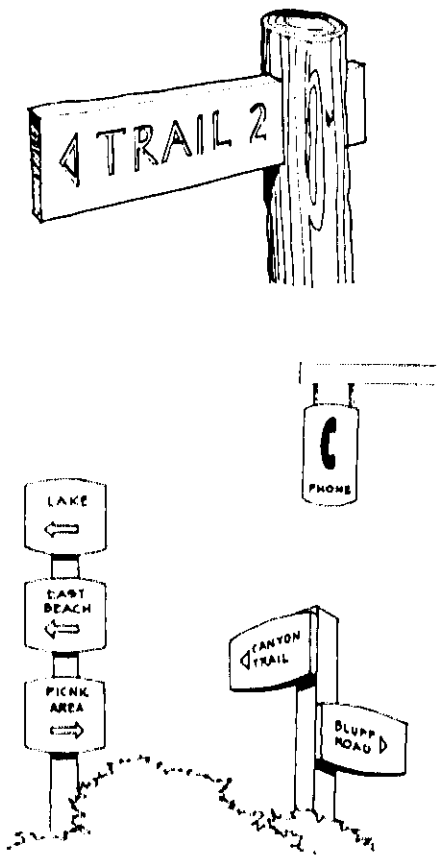
Directional Signs: Assist the visitors' orientation and ability to locate what is desired.

Identification Signs: Point out attention to an event, for example, pointing out the fact of arrival to the hotel entrance or marina gate.

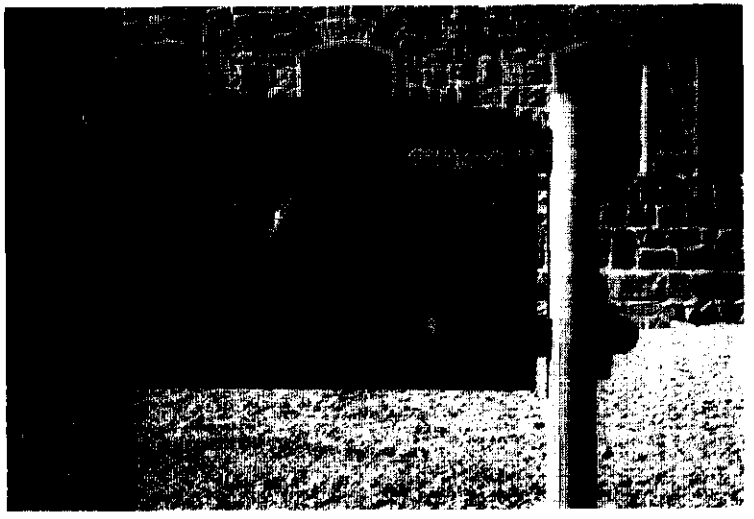
Informational Signs: Includes a wide range that aims at orientation and education such as overall maps, lists of services on the site, and explanatory descriptions of certain outdoor elements.

Regulatory Signs: Related to traffic or activities in outdoor spaces and includes parking signs, personal behavior expected, and warning signs (i.e., dangerous swimming, road hazards, no skate boards).

Confirmatory Signs: These signs are placed as reassurance that paths or choices taken will lead to intended destination.



25.6 Signs may be grouped in a variety of ways or placed individually. The decision should be based on the kind of information, the specific location, and the visual perception of the viewer. *Source: Al Rutledge, Anatomy of a Park, 1971, McGraw-Hill Co.*



25.7 A variety of building materials and construction techniques can be used in designing signs. Careful selection could make them an asset to the total character of the resort.

9. Determine the appropriate language

Signs in all tourism areas along the Red Sea coast should be at least bilingual in (Arabic and English) and/or clearly understood pictographs.

10. Select the appropriate materials and posting technique

Signs are made in a variety of ways using different materials, including:

- Incised in concrete,
- Applied as tiles,
- Made of glass-enameled steel, or
- Painted on wooden or metallic panels.

11. Signs can be posted using different techniques.

They may be:

- Applied to a wall surface,
- Hung on buildings,
- Supported up on standards, or
- Painted on roads or walks.

26- Parking Design

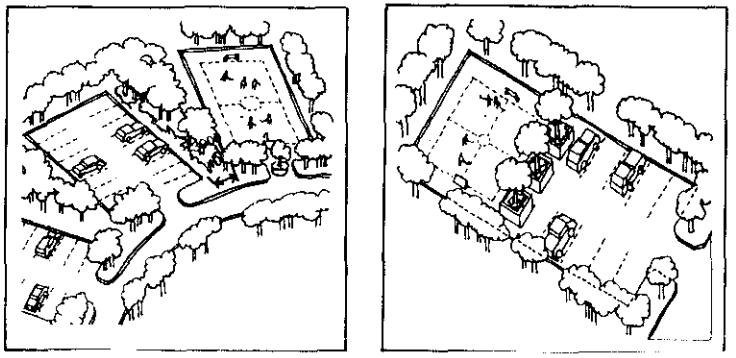
Parking of cars is a major site planning problem. The design and location of parking facilities for both temporary and long-term use is a major factor to be considered when aspiringfor a sustainable landscape development in tourism projects. This significance is not only because of the visitors' and workers' reliance on the car as the only means of transportation to and from the resort area, but also because of the considerable space that is required to accommodate the movement and parking of cars, vans, buses, trucks, and all other service vehicles. In addition, the tourism sector is expanding and diversifying rapidly along the Red Sea coast and new demands for parking of yet another potential mode of recreational vehicle (i.e., campers and small mobile homes) should be addressed as well.

Parking may be provided in various ways:

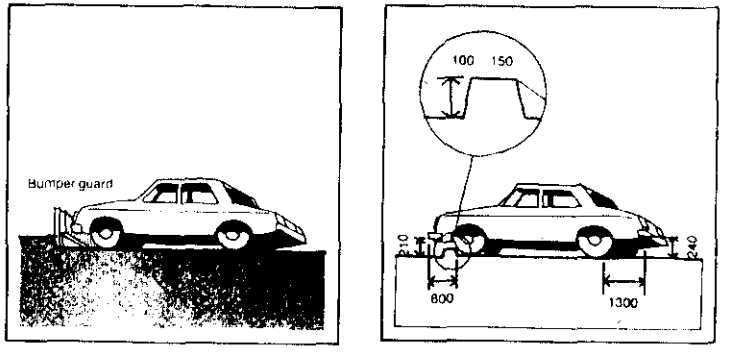
- On the street,
- In small parking bays along the road,
- In large parking lots,
- Underground below main buildings, and
- In multi-story garages.

Each type has advantages and disadvantages, however, large parking lots are the most economical.

26.1 Accommodating and parking cars consume a large area of the site, and therefore, every small improvement in their design and construction can make a significant difference in initial and running costs of the total project.



26.2 Flexibility in the use of the parking areas should be major design criteria. This allows multi-use possibilities of the space.
Source: Canada Mortgage and Housing Corporation, 1980.



26.3 Dimensioning various construction details of the parking lot is an essential step in detailed landscape design and it ensures effective use of the space.
Source: Canadian Mortgage and Housing Corporation, 1980.

Best Practices in Parking Lot Planning and Design

1. Provide safe access and egress

A right-angle entrance connection is best for two-way sighting. Place the entrance and exit at points that will ensure a safe sighting distance.

2. Develop a pleasant transition

The first impression of the visitors who drive to the resort occurs at the parking lot where they arrive and store their car. The landscape designer should plan an attractive space and a pleasant progressive experience from the parking lot to the hotel entrance.

3. Test all plan possibilities

The siting of parking lots is best accomplished by experimenting with alternative shapes and flow lines among the building, the entrance driveway, and the existing topography. Based on these alternatives, the most successful parking layouts could be easily sketched for adaptation in the final master plan.

4. Provide logical circulation

Ideally the tour bus bringing visitors from the airport will approach the resort area reception lobby, discharge the passengers, continue to the parking space, and finally the driver will return on foot – hopefully by a convenient route, to the lobby again. Equally preferred is that upon departing, the driver would be able to pick up the bus and circle back to passengers at the reception lobby.

5. Accommodate the car

The main objective of designing and building parking lots is to store the car efficiently and safely. As a result, the designer must fully understand all its requirements:

- Maneuvering dimensions;
- Ideal gradients;
- Optimum turning radii, aisle and stall widths; and
- Preferred paving materials.

6. Segregate different traffic types

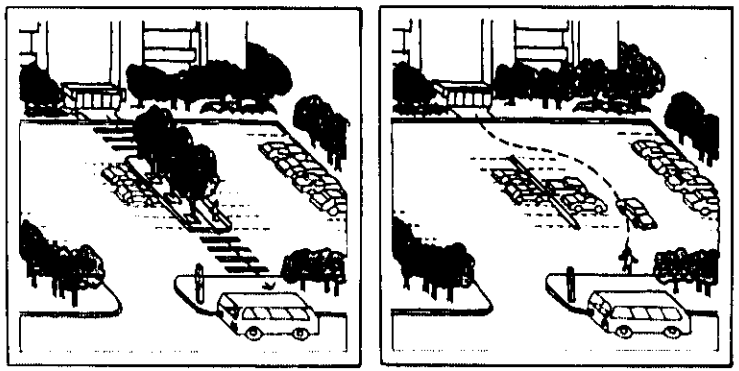
Passenger cars and vans are very different in dimension from buses and service vehicles (e.g., small carts, pickups, large delivery trucks). They also differ in their destinations. Service vehicles require convenient access to kitchen areas, collection stations, mechanical rooms, utility vaults, and similar locations. Ideally, try to separate service vehicle circulation and its parking areas from visitor parking areas.

7. Introduce landscape design quality to the parking lot

Many techniques can be applied to improve the landscape quality of parking lot. These include:

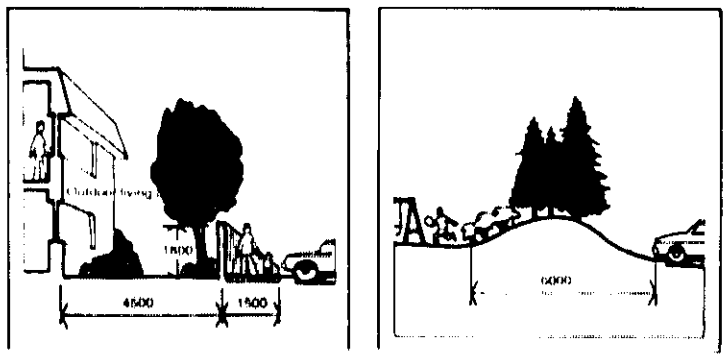
· Integrating different kinds of plant material (e.g., shade trees, screening shrubs, climbing vines on trellises) to improve the microclimate of the parking lot.

· Dividing large parking lots into several clusters or terraces to reduce their visual impact.



26.4 A major concern in parking design is to provide safe and experience for visitors as the move from the vehicle to the reception lobby.

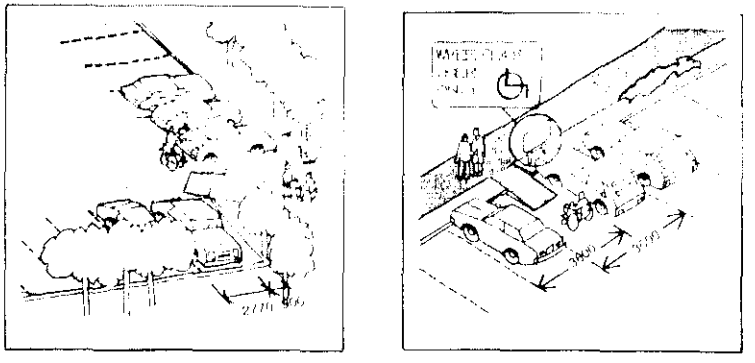
Source: Canadian Mortgage and Housing Corporation, 1980.



26.5 Physical and visual separation between the parking area and indoor or outdoor spaces can be achieved by combining perms and plants, or fences and plants.

Source: Canadian Mortgage and Housing Corporation, 1980.

26.6 Improving the microclimate of the parking area is essential in the hot coastal desert of the Red Sea. A combination of planting and light structures is an effective way to provide shade during the day.



26.7 A number of parking spaces should be designated for disabled persons and designed with the wheelchair maneuvering needs in mind.

Source: Canadian Mortgage and Housing Corporation, 1980.

- Using raised planting boxes to separate rows of cars.
- Screening large parking lots by using berms, evergreen hedges, or a combination of both.

8. *Consider the handicapped*

A larger number of elderly, people in wheelchairs, or other disabled persons are traveling and trying to be part of the tourism explosion worldwide. It is incumbent on designers of tourism centers to accommodate them. In terms of parking, design needs for the handicapped include:

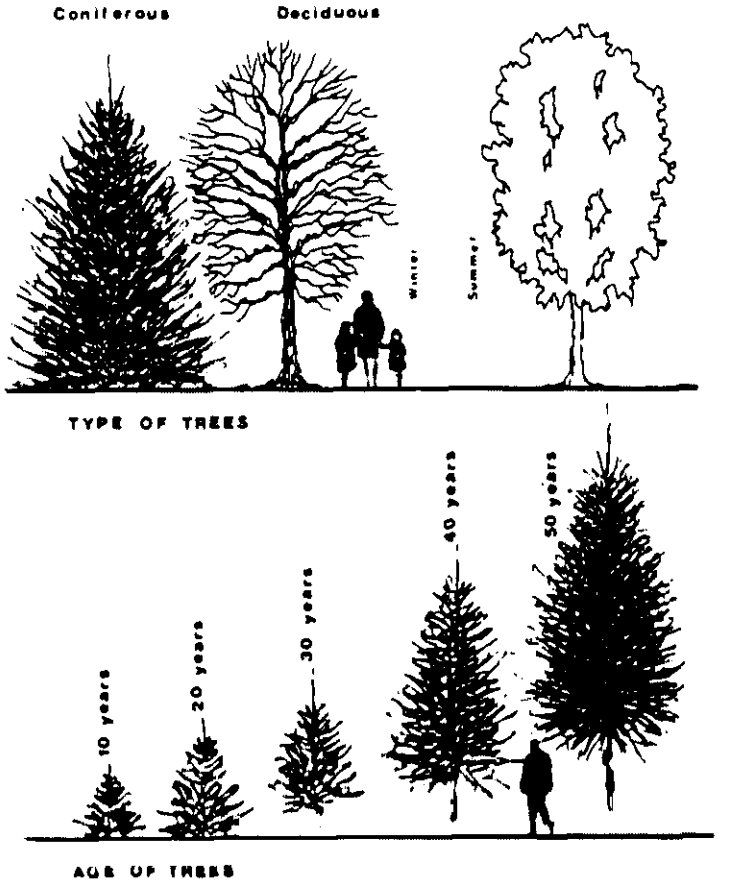
- Stalls of extra width should be provided and reserved,
- Depressed curbs should be constructed, and
- The closest spot to the hotel entrance should be allocated.

27- Planting Design

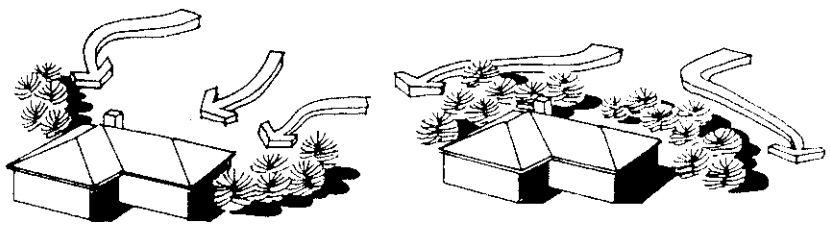
Plants are among the most complex components that landscape architects use in tourism projects. The harsh climate of the coastal deserts along the Red Sea adds additional constraints. This complexity is rooted in the following reasons:

- Plants are living, growing things, changing with each season.
- The Red Sea region's hot temperatures represent an even greater problem in developed sites than in the desert itself. A developed and built-up site has a harder surface to collect and radiate heat that affects the existing and proposed plants.
- Once a resort is open, the operation of motor vehicles, air conditioning units and other machinery will give off excess heat and generate air, water and soil pollution.
- Only a small number of plant materials are known to be tolerant to the harsh conditions of the Red Sea (i.e., hot arid climate, strong wind, salty sea breeze, limited water resources).

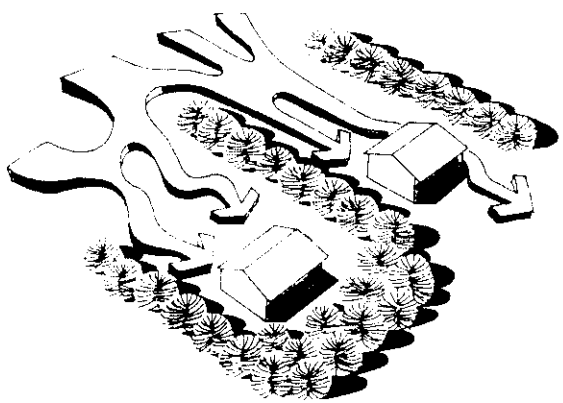
TDA has recognized the above constraints and realized that plants are the most vulnerable of the materials that are being used in tourism developments. As a result, it published a special volume titled "Best Practices in Planting Design and Maintenance in Tourism Development" to supplement this manual, which primarily deals with the field of landscape architecture in general. Therefore, this chapter will not attempt to summarize or repeat what has been already covered in more detail in other specialized documents. Instead, it will only relate the topic of



27.1 Plants are the most dynamic element in the exterior design. They are constantly changing over the years as they grow. Seasonly, they may undergo the cycle of winter, spring, summer, and autumn.



27.2 Well placed plants can control wind by obstruction, guidance, deflection, or filtration. These approaches can influence the design and operation of buildings and outdoor spaces.



27.3 Closely spaced plants create walls, canopies, or floors of varying heights and densities. In the outdoor environment they provide privacy, screen objectionable views, articulate exterior spaces, or guide pedestrian movement.

planting design to other topics since it is one of the significant components of the "Detailed Landscape Design Phase".

The process of analyzing and evaluating different tourism centers along the Red Sea coast suggests that landscape designers have mostly focused on the traditional use of plants (i.e., their aesthetic and visual qualities). However, plants have multiple functions when used in all fields of environmental design, including landscape architecture, planning, architecture, and civil engineering. The primary objective of planting design should be to use plants in solving environmental problems. Basic to this is knowledge of their characteristics, the kind of functional problems they solve, and how effective they solve them. This detailed information about the recommended plants for the Red Sea coast can be found in other specialized publications, while this chapter of the manual is written as a general guide only for those who desire a better understanding of the functions of plants in the outdoor environment.

Best Practices for Functional Use of Plants

1. *Treat plants as architectural elements that form walls, roofs or floors*
   Plants, singly or in groups, form walls, canopies, or floors of varying heights and densities. Similar to other architectural elements, plants can be used to give privacy, to screen, to reveal a view progressively, or to articulate a space.
2. *Treat plants as engineering components that control the sound, light, movement, and microclimate of the site*
   The engineer is primarily concerned with things like glare control,

air-conditioning and filtration efficiency, and soil erosion. When plants are well chosen and thoughtfully placed, they can control natural and man-made glare and reflection, soften or muffle noisy sounds, direct and guide vehicular and pedestrian traffic, absorb noxious gases, intercept dust and dirt particles, cleanse the air of impurities, and deter soil erosion by the cover they provide and the spread of their root system.

3. *Treat plants as design devices that control and influence the microclimate*
Shade trees, windbreak trees, and sand protection hedges are examples of plants used for climate control. It is well known that plants alter adverse microclimates, making the environment more pleasant and livable for humans. The plants affect the site through interception of solar radiation and through wind and temperature control. The application of plants for climate control may be demonstrated by various examples:
- A vine-covered wall is cooler than a bare wall.
- Evergreen trees planted close to a wall will create a dead-air space that insulates the building from abrupt temperature changes.
- Evergreen trees planted in clusters can increase, decrease, direct wind, or absorb sand storms.

4. *Highlight the use of plants as aesthetic features on the site*
As the Red Sea coast becomes more crowded with man-made objects, plants can be used to blend various unrelated elements, such as buildings, utility structures, streets, parking lots, and other inharmonious land uses. The ways in which plants may be used aesthetically are myriad.

27.4 The ways in which plants may be used aesthetically are myriad. A palm tree, for example, may be used as a positive element to be seen and to be noticed because of its form, texture, and unique elements. A row of foundation shrubs, on the other hand, is used as a negative component to frame or unify other elements in the landscape.

27.5 Plants are visually controlling elements.They can be placed to be largely unnoticed foreground, but accentuating and framing significant views behind.

27.6 Tree, shrubs, groundcover, and turf are among the best exterior solar radiation control devices. They may be used to control direct sun, or by intercepting reflected radiation from buildings and paved areas.

The following design ideas will suggest some of the potential aesthetic uses of plants:

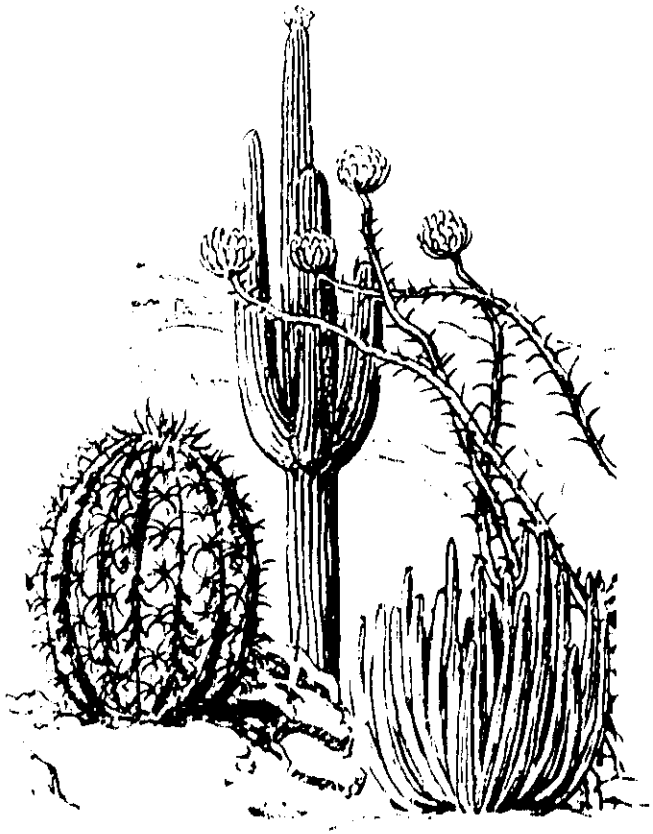
- Treat plants as positive elements to be noticed as unique features in the space.
- Treat plants as background to other important elements.
- Treat plants as foreground to frame other significant compositions on the site.
- Exploit the two-dimensional impact of plants including their shadows, reflections and silhouettes.
- Exploit the three-dimensional qualities of plants by viewing them as:
- sculptural elements
- textural elements
- colorful elements
- dynamic elements
- visual controllers
- complementing elements
- unifying elements
- emphasizing elements
- softeners
- decorators
- articulators
- indicators
- modulators

5. View plants as multi-use design elements

Other functional uses of plants exist but they are beyond the realm of this manual. However, most stakeholders of tourism developments along the Red Sea coast need to consider these uses in their future projects. These include the following:

- Appreciation and identification of plants to enhance environmental awareness and public education.
- Conservation to supplement organic materials in the soil.
- Provision of food and shelter for birds and other wildlife species.
- Supplying food for humans as in fruit trees and vegetable gardens.
- Creating pleasant scents that can particularly help blind visitors enjoy the outdoor amenities. For example, the presence of fragrant parts such as the blossoms of magnolia or the honeysuckle, and the leaves of eucalyptus, exude a pleasant odor in the outdoor space and add a unique dimension to the landscape design.

For more detailed information regarding Planting Design, refer to Best Practices for Planting Design produced by the Red Sea Sustainable Tourism Initiative (RSSTI).

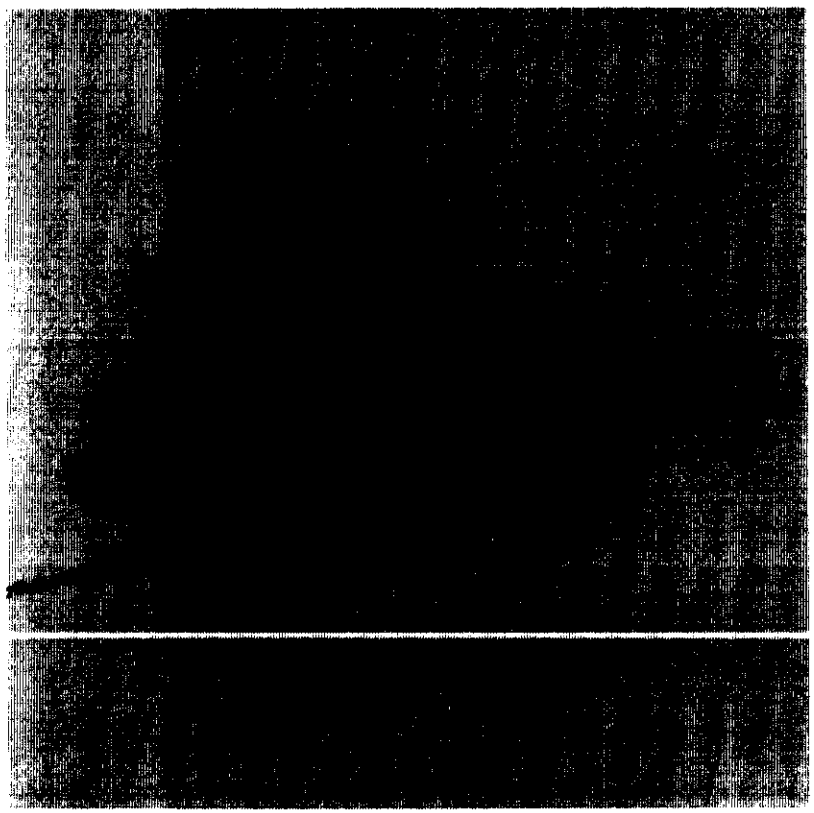


27.7 The uniqueness of desert plants and their successful adaptations to their environment is important to consider.Many of these native plants require only occasional supplemental water. Some stay a lush green on modest amounts.

Best Practice for

Landscape Architecture

in Red Sea Tourism Centers



VI

Best Practice in Landscape Implementation and Operation

28- Assessing the Environmental Impacts of Landscape Porjects

Compared to other development projects in the industrial or agricultural sectors, the environmental impacts of tourism projects in general and landscape development in particular are considered relatively modest. However, the rapid growth in tourism along the Red Sea coast has been extraordinary, and thus, warrants special attention considering its potential cumulative environmental impacts. Also, since this trend has continued for more than two decades and is expected to continue or even accelerate during the next decade, TDA is proactively facing this challenge and considering the preparation of a comprehensive Regional Environment Impacts Assessment (REIA) or Sectoral Environmental Impacts Assessment (SEIA) for the Red Sea coast as a whole.

Environmental Impacts of Tourism Projects

Tourism projects are often placed in category B when screened by the criteria of major funding agencies (i.e., the World Bank, IFC, UNDP, EU). However, these projects always warrant special environmental attention because of the close relationship between tourism and environmental quality, and because of the many links between tourism development and other sectors in the region (e.g., fisheries, ports and transportation, housing).

Obviously, not all landscape projects within tourism developments need a comprehensive environmental impact assessment (EIA). Typically those projects that do not need a comprehensive EIA include the following:

28.1 All plants require water, but individual species differ in their absolute needs. Since intensive watering increases soil salinity it is a good strategy to maximize the use of drought resistance species which requires little irrigation.

1) Landscape projects proposed for areas that are evaluated as not environmentally sensitive zones,
2) Landscape projects whose potential impacts are narrow in scope, and
3) Landscape projects whose impacts are well understood and are easy to prevent or mitigate.

In these three cases, alternative approaches to the typical EIA are usually more effective in integrating environmental concerns into the project planning process. Such alternative approaches include, for example:

- Specific landscape design criteria, standards, and/or ordinances;
- Landscape construction supervision programs;
- Specific environmental siting criteria; and
- Landscape inspection procedures and environmental auditing programs.

The main steps in the process of preparing the EIA section related to the landscape architecture component of any tourism project closely mirror the steps or sequence of events that are followed in the EIA process as a whole: identifying, predicting, evaluating and mitigating impacts.

The scope and content of the landscape architecture section of the EIA study should be established at an early stage. A review of the regional tourism plans and policy context affecting different landscape resources along with informal discussions and consultations with the staff of TDA, environmental conservation groups and local people, will all help to identify key issues and highlight valuable sources of information and expertise.

Best Practices in Environmental Impact Assessments

Landscape architects trained and specialized in EIA studies are the ones who usually participate and contribute to various steps of the EIA phase. Based on their collective experience, the following best practices are recommended:

1. Describe the proposed development comprehensively

An overall description of the development is needed. This should include a description of the setting, layout and essential characteristics of the development within its landscape context. The desirability of exploring alternatives and the time involved should be considered. The description of the development should also focus on factual explanation of the basic design elements.

Construction, operation, decommissioning and restoration are characterised by quite different physical elements and activities. A separate, self-contained description of the development at each stage in the life cycle will greatly assist in identifying, predicting, evaluating and mitigating impacts of the proposed landscape plan.

2. Control and monitor the landscape construction stage

The construction stage is a key factor in determining the future environmental quality of the development site. If not carefully managed, it can result in adverse impacts and perhaps irreversible damage. Articulating elements and activities related to the landscape project guides the identification of environmental impacts in a Comprehensive

manner, these activities include the following:

- Access and haul routes, including traffic movements;
- Cut, fill, borrow and disposal areas;
- Materials origins;
- Material stockpiles;
- Staging areas;
- Buildings;
- Outdoor structures;
- Ground modeling/shaping;
- Irrigation system, drainage system, and outdoor lighting; and
- Temporary parking and on-site accommodation and working areas.

3. *Control and monitor the landscape operation stage*

The management of the grounds of tourism projects is as important as its initial design and planning. A list of activities and landscape elements associated with this stage are mentioned below. Each item may cause one or more environmental impacts. These include:

- Access (e.g., roads, right-of-way, walks);
- Utilities and infrastructure;
- Buildings and outdoor structures;
- Delivery, loading and unloading areas;
- Material storage;
- Land management operations;
- Workforce parking;
- Landform and graded land;
- Planting (trees, shrubs, ground cover);

- Paved areas;
- Entrances, signs, and boundary treatments; and
- Areas of possible future development.

4. Control and monitor the decommissioning and restoration stage
The decommissioning and restoration stage takes a relatively short period and is usually carried out in rush to allow for the timely opening of the development to potential visitors. Nevertheless, this stage involves many elements and activities that may result in serious environmental impacts. These are listed below.
   - Access;
   - After-use potential;
   - Residuals of buildings and structures;
   - Disposal or recycling of wastes and residues; and
   - Restoration requirements, including building materials and plants.

For each stage in the project life cycle, similar types of data are needed to assist in the prediction of environmental impacts of the proposed landscape plan. Both qualitative and quantitative data are required, including:

- Final landscape design (e.g., layout, scale, style);
- Landscape materials (e.g., texture, color, shade, reflectivity, opacity);
- Schedule and duration of key site activities;
- Physical dimensions of major plants, buildings and structures;
- Volumes of material;

28.2 All members of the landscape maintenance crew need training on different facets of their job. Supervising and monitoring activities insure that adverse impacts of the landscape operation will be minimized.

- Number of rooms and parking spaces;
- Maintenance of plants, buildings, and outdoor facilities; and
- Periodic movement of materials and staff.

5. *Explore an adequate number of project alternatives*

As early as the conceptual design phase, various project alternatives should be explored. The main areas where alternatives exist for decreasing the potential for negative environmental impacts of the proposed landscape architecture plan are in the siting of outdoor activities, facilities, the selection of plant material and pavement types, and ground maintenance and day-to-day operations. These may include:

- Location and alignment of circulation elements,
- Size or location of various buildings,
- Size or location of various outdoor areas, and
- General site layouts and servicing arrangements.

6. *Evaluate project alternatives based on the "Do Nothing Solution"*

The datum against which the proposed landscape development should be compared is the "Do Nothing Solution". This is why baseline studies are needed since they describe, classify and evaluate the existing landscape resource, focusing particularly on its sensitivity and ability to accommodate change.

7. *Ensure simultaneous progress in the landscape design process parallel to progress in conducting the EIA*

When the EIA analysts work simultaneously with the landscape designers, the chances of achieving sustainable landscape development

are improved considerably. Indeed, baseline studies play an important part not only in the EIA process but also in the design process; providing an overview of the natural environmental constraints or opportunities that may influence the nature of the final landscape development.

8. *Draft a clear and comprehensive "EIA Terms of Reference" for the required section on landscape development*

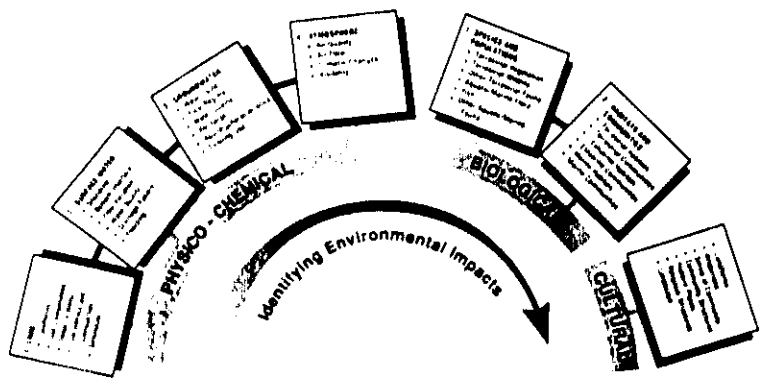
It is essential for the successful administration and production of the EIA study that a list of landscape development concerns is issued to the team of analysts. The terms of reference must determine, in advance, the desired length of the EIA report and request the EIA consultant to maximize the use of visual presentation techniques. This approach facilitates effective transfer of information since some of the stakeholders, may be non-technical persons.

9. *Determine systematically the potential impacts of the proposed landscape development*

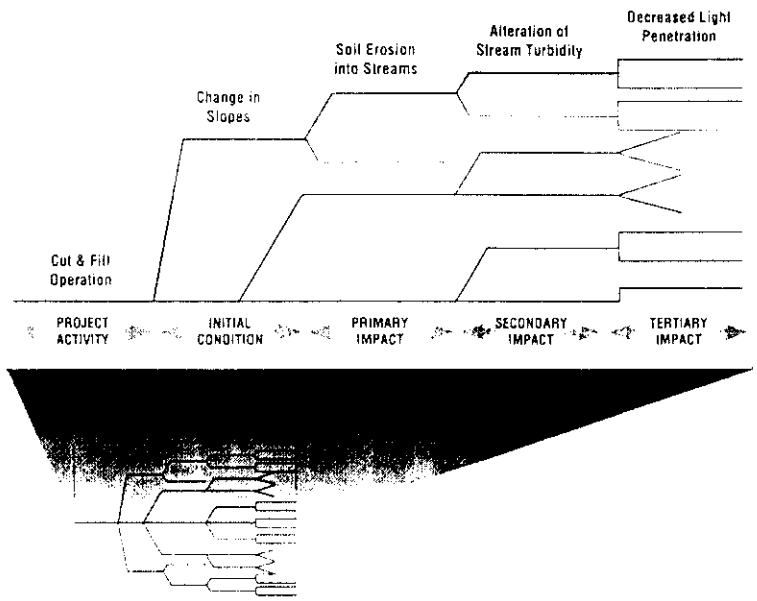
The special studies that assess the impacts of the landscape development may include the following:

- Environmental carrying capacity of sensitive ecological sites or cultural properties.
- Social carrying capacity, including attitudes of local people to the proposed influx of foreigners and potential sources of conflict.
- Physical carrying capacity of local infrastructure and public services (if not adequately addressed in feasibility studies).

Figure 3 A Series of Simple Checklists



28.3 The simple checklist method of identifying impacts is one of the most systematic approaches used by environmental analysts.



28.4 In some cases, the EIA specialist may need to identify and assess the indirect impact of the landscape project, in addition to the primary impacts. The Network Diagram method is usually suitable for such a purpose.

This stage in the process is aimed at identifying systematically all the potential impacts of the landscape development, predicting and estimating their magnitude as accurately as possible, and assessing their significance in logical and well-reasoned fashion.

The assessment should describe the changes in the character and quality of the landscape and visual resources that are expected to result from the development.

10. Assess secondary and tertiary landscape impacts, in addition to the primary impacts

These include the direct and indirect impacts of the landscape development as well as the effect upon the general landscape character and environmental quality of the surrounding area. For example, the main direct impact of a flood alleviation scheme may be a loss of vegetation due to embankment raising and strengthening. However, there may also be indirect, long-term impacts such as the drying of a wetland following changes in the hydrological cycle.

11. Maximize the use of quantitative analysis of impacts

Direct impact can be shown graphically on a plan and can also be described verbally in a clear and objective manner. Where possible the description should quantify the extent and duration of any damage or loss. For example, it may state how many mature trees will be lost as a result of landfill development, how long the construction will be active, and how much new planting will take place at restoration. This type of factual data will be

especially useful when comparing different scheme options and has the advantage of helping to put into context the degree of change that will occur. The EIA is essentially an exercise in communication and the presentation of findings should include the use of plain language and clear structure, and good illustrative materials. A concise non-technical summary will be an essential requirement as an aid to communication. The choice from the wide range of presentation techniques should be guided by the principles of value for money, simplicity, accuracy and suitability to the purpose at hand.

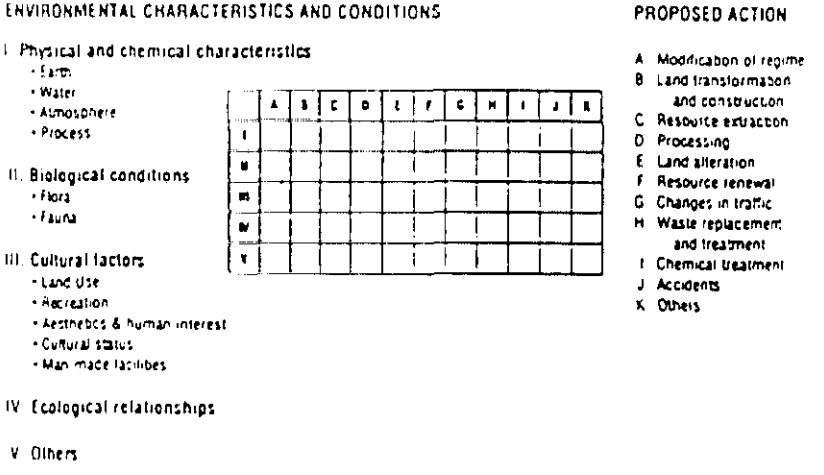
12. Treat mitigation as a tool for landscape enhancement

The purpose of mitigation is to reduce as far as possible the potential environmental impact of the landscape development, employing strategies of avoidance, reduction, remediation and compensation. Mitigation is not solely concerned with damage limitation but should also examine the potential for environmental enhancement through good landscape design as a separate objective. The need to monitor effects on the project's landscape resources should be considered. This may be required where there is some uncertainty surrounding the predicted impact or the effectiveness of the mitigation measures or where a particularly sensitive landscape resource may be affected.

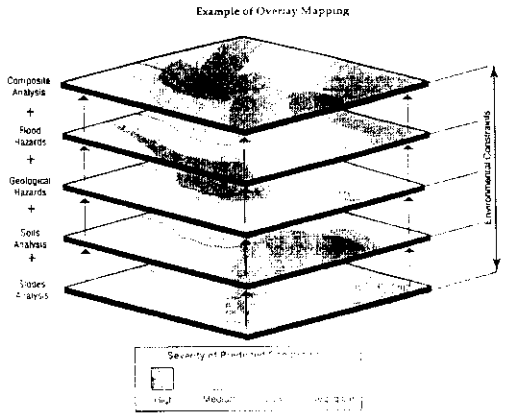
13. Define the carrying capacity of different outdoor spaces

Information on the physical and social carrying capacity of beaches and coral reef sites, in particular, is essential planning information.The landscape designer should consider this site limitation so that

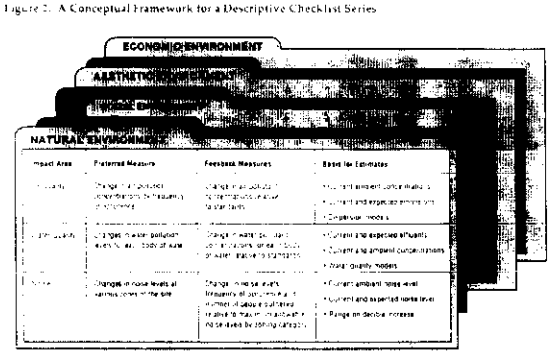
Conceptual framework of the Leopold matrix



28.5 The Leopold Matrix method is recommended for the environmental assessment of large complex landscape developments. It also has the advantage of producing quantitative analysis of impacts.



28.6 The overlay method can be used as an EIA tool or it can help in estimating the carrying capacity of an area in the landscape based on existing natural resources.



28.7 In a typical EIA the descriptive checklists are considered helpful in preparing the required description of the various environments, i.e. the natural, social, aesthetic, and economic. They also tend to organize data logically and comprehensively

the target tourist population can be sustained without overburdening existing resources and services. Similarly, the designer should estimate the carrying capacity of the proposed circulation plan to avoid traffic and pedestrian congestion, noisy zones, heat islands, and localized air pollution pockets.

14. Consult with potentially affected people

Relevant local organizations and residents are usually a good source of information, particularly during the scoping stage. Public involvement can be achieved through a variety of mechanisms, including information dissemination, consultation, and participation in the decision-making process.

Best Practices in Writing the Terms of Reference for EIA for Tourism Development Projects

A major challenge facing any tourism development investor and his primary consultant is related to fulfilling the requirement set by EEAA and TDA to prepare an EIA study. Since an EIA is a very specialized field of environmental studies, the investor must search and find a well-qualified consultant to prepare this study. Upon contracting such a specialist, he must agree on a clear terms of reference outlining comprehensively the different tasks required of him or her.

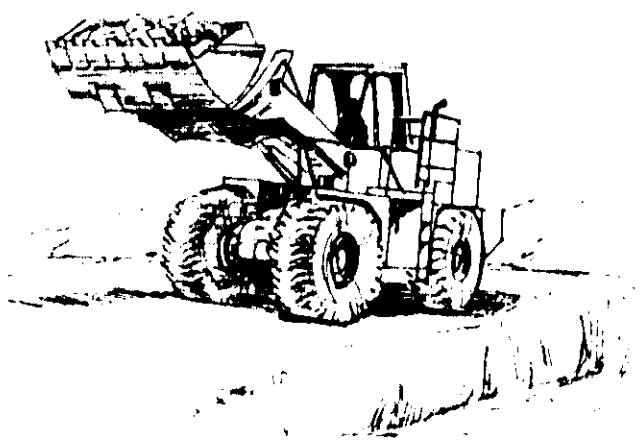
29- Landscape Construction

[redacted] DA, EEAA, developers, and design teams have often debated the environmental impact of a proposed development. One easy way to reduce that impact is to focus on the construction process itself. Careless construction practicescan damage valuable natural features on the site, lead to soil erosion, and may even pollute the Red Sea beach.

The landscape construction phase starts when the client approves a master plan.This phase comprises three distinct steps. These are:
1) Preparing the construction documents,
2) Overseeing the bidding and the selection of a contractor, and
3) Administering the construction contract.

The landscape construction documents are usually prepared as a package. The final package contains:
- Landscape construction drawings,
- Technical specifications, and
- Bidding documents.

The landscape architect may be required to perform other tasks including:
- Estimating probable construction costs,
- Coordinating the landscape construction document with the work of other consultants (i.e., architects, engineers) and other sub-consultants (i.e., irrigation engineer, lighting engineer, marine biologist), and
- Acquiring governmental approval of the project.



29.1 Environmental impacts of landscape development projects can be easily reduced if the contractor applies careful construction practices. Grading the land and other related earth work are particularly crucial tasks in terms of their potential adverse effects on the natural resources of the site.

The significance of clearly written specifications for a tourism project is well recognized among landscape architectural consultants. The specifications articulate in-depth information on the materials needed, the fabrication processes, and the methods and techniques of applying different products and materials. They also establish the scope of the project and clearly spell out the procedure to be followed to alter the original scope of work (e.g., deletions, change orders).

In brief, construction drawings establish the dimensions and identify the materials to be used (what and where), and specifications establish the procedures and performance standards required to construct the design as shown on the drawings (how).

The final step involving the administration of the landscape construction contract requires the consultant to carry out three major responsibilities on behalf of the investor or developer. These are:

- Evaluating contractor-supplied materials and equipment (e.g., plants, paving, irrigation systems),
- Monitoring actual construction performance (e.g., planting trees, laying sod, pouring concrete), and
- Documenting and evaluating the performance of contractors on behalf of the client.

During this period, the landscape architect may carry out other responsibilities if requested by the developer such as responding to unanticipated problems facing the contractor in the field.

29- Landscape Construction

The landscape architectural consultant's major role is to ensure that the objectives of the design are fully realized by the contractor.

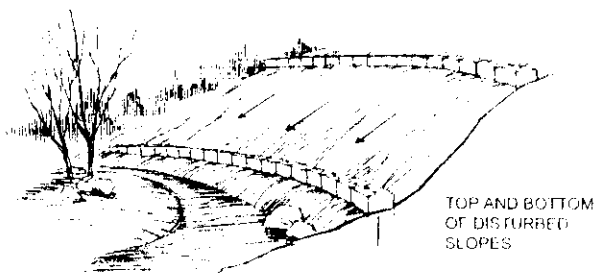
Not all clients will request the involvement of the landscape architectural consultant in bidding reviews and contractor selection. If such an involvement is requested, the landscape architect may carry out the following tasks:

- Assisting in conducting and soliciting bids,
- Organizing and managing the bidding materials,
- Answering any questions that future bidders may have
- Assisting the investor or developer in assessing different bids and recommending contract awards, and
- Helping the client in drafting the landscape construction contract agreement.

Best Practices in Landscape Construction

1. Developers and investors should retain the services of a landscape architectural consultant during the bidding and contract award as well as during the construction.
2. Supervising the construction should be firm, fair and fast. Investors should be aware that all projects encounter implementation problems. Supervision helps to identify and solve these problems on time. It also helps to gather accumulated experience to "feedback" into the design and preparation of future projects. This is normally a by-product of "Post Occupancy Evaluation" (POE) studies.

29.2 Protecting the natural features during the construction stage not only enhances the site amenities, but also minimizes certain environmental impacts like flash flooding and soil erosion.



29.3 If the grading plan involves distributing or creating a sloped embankment, hay or straw bales should be placed at the top and bottom.These bales help in preventing the eroded soil from washing across the siteor reaching the existing watercourses.

3. Field adjustments should be welcomed if this process is understood and agreed upon by all parties involved.
4. A maintenance team should be formed in advance and should be invited during the construction to gain a general understanding of the project installation and condition.
5. Earthwork/grading, hardscape construction, and plant installation should be done only in optimal weather to ensure that the condition of soil, plants, and construction materials, especially concrete, is not permanently impaired.
6. Soil must be prepared properly, especially for ground cover and plant pits. (see TDA's Guidelines for Planting Design).
7. Keep in mind that potential environmental damage is highest during the construction stage particularly the problems of erosion, dumping and compaction.
8. The dates and types of inspection visits should be stated and carefully carried out by the landscape architect on behalf of the owner. Landscape construction drawings and specifications do little good unless inspection is done properly.

Today, experienced developers, engineers, landscape architects, and others have instituted a variety of cost-effective methods for:

- Controlling soil erosion, and
- Protecting the natural features that enhance site amenities.

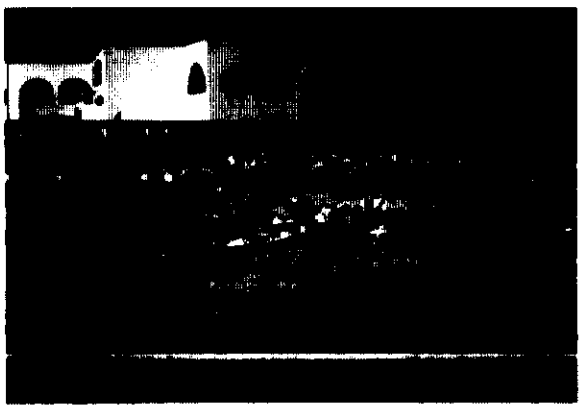
Erosion Control

Erosion control is the most serious environmental problem on construction sites. Erosion includes the soil that is washed, blown, or tracked off the land.

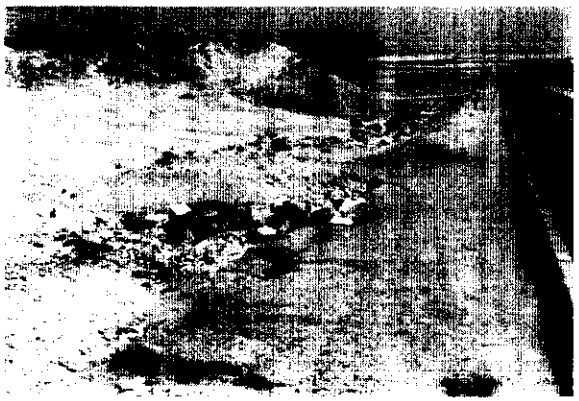
Best Practices for Minimizing Erosion during Construction

1. Confine the grading and excavation to the smallest area possible.
2. Cover disturbed and exposed soil soon after the ground is turned.
3. Keep fill separated from topsoil, organic matter, and rocks.
4. Properly stored topsoil should be used in areas that need landscaping.
5. Avoid reusing organic matter as fill since it can quickly decompose and become unstable.
6. Require the primary contractor to build a gravel or paved drive leading onto the site as well as a gravel parking area before disturbing the rest of the ground. Bulldozers and other construction equipment do not stay clean for long. Once this equipment is taken off the site, it can muddy the public highway, which is considered the primary spine for all tourism activities along the Red Sea coast. Contractors should clean and scrape their equipment before leaving the site.
7. Require earthwork contractors who transport earth, dust, powder, mud, sludge or debris from the site to wet down, cover, or take any other steps to keep it from spilling onto private and public land and along the Red Sea highway.

29.4 Designating and building a gravel driveway for moving the contractors' trucks and construction equipment is always recommended. Consequently, every effort should be made to avoid disturbing the rest of the grounds within the project boundaries.



29.5 Keeping enough dumpsters on the site helps in disposing construction debris and other related solid wastes properly and efficiently.



29.6 A huge amount of disposed overburden and construction waste have been dumped along the Red Sea highway. This road is the primary land approach to the tourism region along the coast, and therefore, should be protected from such visual pollution.

29.7 Contractors should avoid burying concrete rumble and construction debris. This practice leads to serious adverse impacts in terms of soil instability

Waste Disposal

Another major problem occurring during the construction phase is related to waste disposal. Some contractors use the practice of burying construction debris and other wastes as a norm on the site. Burying concrete rubble and other solid wastes results a soil that does not compact, and thereafter, anything built on such a site would not be stable. A more serious and polluting practice is when contractors bury drums containing fuel residue. If these are flattened and buried during the construction stage, and the water tables rise after the resort complex is completed and in operation. the chemicals could pollute the entire area's groundwater.

Best Practices for Managing Waste Disposal

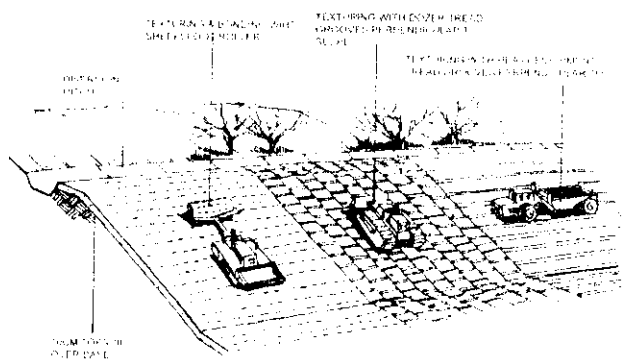
1. Require contractors to keep enough dumpster on the site throughout the entire project.
2. Arrange for site inspection visits by TDA and EEAA staff to ensure that wastes and other unused building materials are properly disposed during the construction stages.
3. Enact effective legal controls and enforce them. Since existing laws appear to be inadequate as proven by thousands of tons of dumped earth and disposed construction waste along the Red Sea highway, it is up to TDA, EEAA, and the Red Sea Governorate to assume responsibility and address this major continuing problem.
4. Require a performance bond from the primary developer of the project.Since enacting effective legal controls may need sometime before it is negotiated and approved by Egypt's National Assembly,

a temporary measure may be needed. The problem of dumping waste disposals throughout the region is urgent and pressing. A temporary measure can be taken which entails, as a condition of grating the construction permit, a performance bond. This is now an established practice in many U.S. progressive localities which require that prior to the start of work a bond be posted to cover the full cost of cleaning or restoration of private or public land that experienced dumping.

5. Promote environmental awareness among the members of the construction industry who are practicing in the region. Environmental awareness and training is lacking among contractors and developers worldwide. They need the opportunity to learn about land protection, preservation, reclamation, restoration, and how to achieve these objectives within their own operation.

For more detailed information regarding Solid Waste, refer to Best Practices for Solid Waste Management produced by the Red Sea Sustainable Tourism Initiative (RSSTI).

29.8 Every effort should be made to preserve existing sites regulations. Construction vehicles should limit their movement to the areas designated in the contract as areas for clearing, storage, or construction.



29.9 Creating a soded slope requires careful preparation in order to control soil and wind erosion as well as to avoid siltation.

Protecting the Natural Features on the Site

The vision of sustainable landscape development for any tourism project should be focused on landscape conservation. Each construction document, therefore, should provide for a reasonable level of environmental protection, pollution control, and landscape conservation.

Best Practices for Protecting the Natural Features on the Site

1. Maintain the quality of the land

All areas within the project boundaries, except those clearly intended to be modified by development, should be preserved in their existing condition, or so improved that they will be come compatible with both the new construction and the surrounding landscape.
than other regions. Avoid unnecessary stripping of the site's vegetation,

2. Prevent landscape damage

Except in areas that are designated for clearing, storage or improvement, the contractor should preserve the groundcover, existing landforms, landscape features, and indigenous vegetation. In coastal deserts, like the Red Sea region, plants are very rare and therefore more valuable whether intentional or accidental. Its removal destroys soil-holding roots and permits runoff and construction debris to damage the site.

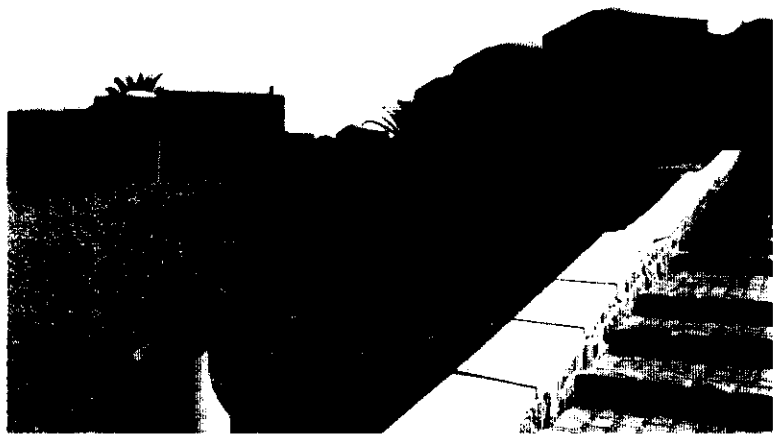
3. Control construction traffic, erosion, and siltation

Use mechanical measures such as earth moving to control construction traffic, erosion, and siltation. These include rip-raping runoff channels,

introducing sediment basins (sabkha), and ensuring proper grading and berms, neglecting such measures may lead to a condition where heavy construction traffic will loosen the soil causing a dusty environment and scarring the appearance of the site. Eventually, costly reseeding and reclamation will be necessary to remedy this condition.

4. *Maintain an orderly construction site*

After completing all construction tasks, the contractor should wipe out all signs of haul roads, storage areas, and temporary structures. Unused and discarded construction materials should be removed from the site. Plants, beaches, landforms or rocks that may have been damaged should be restored or replaced.



30.1 Using compacted and treated sand instead of grass in the open space is a good approach to developing the outdoors economically while accentuating the regional character of the site.

30- Landscape Maintenance and Operation

The management of the grounds of a tourism center is as important as its initial design to reduce maintenance. The original design, particularly the soft landscape scheme, should be simplified to reflect the coastal desert's ecosystem. A simplified design that is compatible with the ecosystem will be easier to maintain. This can be approached in a number of ways:

- Preserve all indigenous plants;
- Introduce other species only after ensuring that they are established exotics in this region to reduce the risk of failure;
- Consider using compacted and treated sand, rough grass, or wild herbs and groundcover instead of lawns in the open spaces;
- Tolerate non-aggressive desert weeds in the open spaces;
- Limit the use of paving and dense grass to where heavy traffic or intensive use is expected; and
- Narrow the use of insect control to only crucial times of epidemic outbursts.

It is always a good practice to involve a representative of the maintenance and operation team in the discussion during the design phase. Their views and comments shed some light and bring in unique factors that designers usually overlook.

In any case, any landscape master plan must include, in addition to the detailed landscape design, the following items:

- A landscape maintenance plan.
- A budget.
- A set of priorities in the form of a zoning map (e.g., low-maintenance zone, medium-maintenance zone, and high-maintenance zone).
- A timetable of routine upkeep.
- A set of guidelines for the intensive care of plants and their partial replacement, which are essential follow-up steps after establishing new plants.

Thoughtless or poorly contemplated decisions such as replacing a plant or a piece of street furniture might alter drastically the intended design objective, and incorrect use of pesticides might cause environmental damage beyond the plants treated. In brief, site maintenance and operation requires a trained professional not an unskilled crew. The most crucial person in that respect is the landscape maintenance supervisor. The responsibilities that he and his crew carry out vary from mowing grass to cleaning swimming pools and removing leaves, as well as maintaining healthy collections of plant materials. The qualified landscape maintenance supervisor needs to be a man of many talents and diversified training. Some of his duties are listed below:

- Supervising installation of new plants,
- Supervising the irrigation system,
- Supervising the turf maintenance,
- Managing the application of pesticide,
- Managing the application of fertilizer,
- Managing soils and topsoil,

30.2 In large tourism complexes the landscape architect should designate and classify the site into various zones. This is highly recommended since some areas may require intensive maintenance, others medium maintenance, and yet other low maintenance depending on the plants, soils and location.

30.3 Maintenance supervisors play the key role in every landscape maintenance operation. They manage the staff in charge or irrigation, installation, fertilization, pruning, and other landscape maintenance and operation tasks.

- Managing pruning and transplanting,
- Purchasing and managing grounds equipment, and
- Maintaining a close contact with the landscape industry.

Although there is no formal educational background that is commonly agreed upon, effective landscape maintenance supervisors agree on the need to have some university courses in woody plant materials, entomology, plant pathology, weed control, horticulture production, landscape construction, landscape maintenance, and management science. They also seem to agree it would be extremely useful if the landscape architect would have direct channels of communication with them during the design phase.

Best Practices in Landscape Maintenance and Operation

1. The maintenance of all roads, rights-of-way, exterior grounds of public and private buildings, golf course areas, and all beach, dune, conservation or preservation areas should be carried out by trained crews operating under the supervision of the grounds manager.

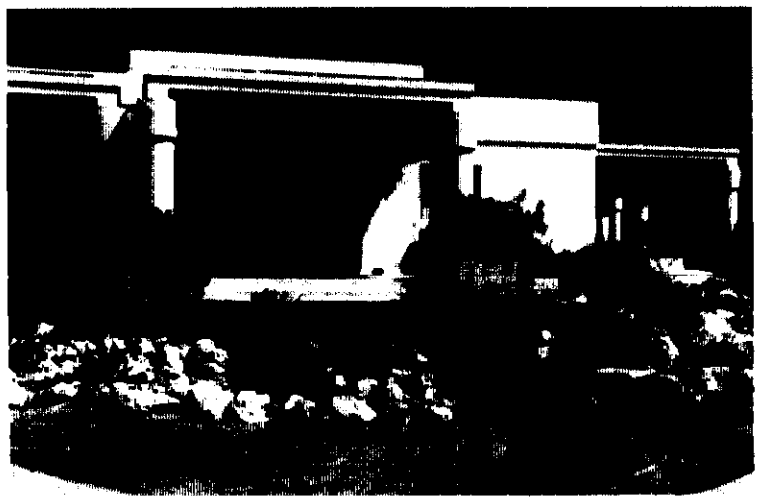
2. Administrative responsibility should be centered in a management company or a separate department. This entity should be governed by a charter, which may be made part of all sales and lease agreements.

3. The grounds manager should have the authority and adequate staff to enforce the standards required to ensure environmental quality and prevent all kinds of pollution.

4. Based on the allocated budget, the grounds should be divided into zones: low-maintenance zone, medium-maintenance zone, and high-maintenance zone.

5. The grounds manager should establish a record-keeping system, which should serve the following functions:
   - To remind the management how long a particular task took,
   - To record who performed the work,
   - To register when the work was done, and
   - To state what equipment and supplies were necessary to complete the job.

Based on this record-keeping system, a quick retrieval of accurate data can be expected. Also, it would be relatively easy to build the next year's budget.

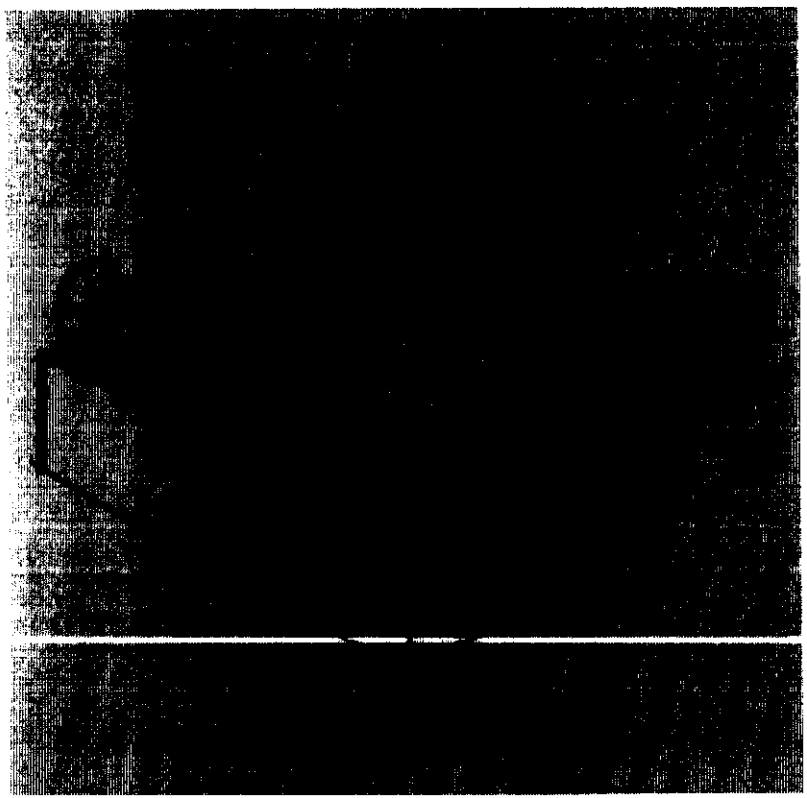


30.4 The maintenance of the landscape elements is as important as the original design and planning tasks. The diversity and fragility of some of these elements requires careful attention and specialized training.

Best Practice for

Landscape Architecture

in Red Sea Tourism Centers



Conclusions

There is a reawakening in the tourism development industry. It involves a rediscovery of the need for an interactive relationship between tourists and the environment. Accordingly, "Best Practices in Sustainable Landscape Architecture: A Manual for Tourism Development along the Red Sea Coast" is an important contribution to this reawakening. It is intended for those who are embarking on what will be a lifelong devotion to the sustainable development of the Red Sea landscape. It seeks to guide all stakeholders, including investors, developers, designers and managers, in conceiving and producing successful landscape architectural projects.

As such, this manual defines landscape architecture as more than just an exterior decoration or outdoor beautification through planting schemes, but as a design and planning profession of remarkable and unusual diversity. Landscape architecture is considered as the link between urban planning and architecture as it applies both science and art to achieve the best use of the land and to improve people's experience of outdoor spaces.

Landscape architecture has expanded its professional boundaries over the last century, and as a result, three clearly definable specializations have emerged: landscape analysis and evaluation, landscape master planning, and detailed landscape design. Each of these specialties requires different education, training, abilities and skills. What unifies these experts is their commitment to the wise application of cultural and scientific knowledge as well as their genuine concern for resource

conservation and stewardship, to the end that the resultant environment serves a useful and enjoyable purpose.
The text of this manual is divided into six parts. Part I consists of three chapters.

Chapter 1 and Chapter 2 define the conceptual framework of landscape architecture and provide definitions of the various key terms including landscape architecture, best practices, sustainable development, and the landscape development process.

Chapter 3 highlights best practices in selecting a qualified landscape architectural consultant by articulating a systematic procedure. It also provides criteria for evaluating different consultants based on their educational background, professional experience, relevancy of their professional practice, strength of their references, and the technical quality of their proposal.

Chapter 4 outlines and elaborates on the six typical phases of the landscape development process. These are: commission, inventory, analysis, design, construction and operation.

Chapter 5 explores the historical background of the concept of sustainable development, outlines its objectives, and lists criteria for evaluating the environmental sustainability of any landscape architectural project.

Chapter 6 and Chapter 7 deal with the roles of and the potential for compiling and applying best practices in tourism development, and provide criteria for selecting a landscape architecture project as a model

of best practices. The selection criteria are based on four basic factors including the project's impact, project's impact, partnership, sustainability, innovation, and potential transferability.

Part II consists of three chapters that survey the role and enumerate the tasks involved in the three types of landscape architecture practices: landscape analysis and evaluation, landscape master planning, and detailed landscape design. In addition, it provides an in-depth analysis of the attributes of the professional landscape architect that qualifies him/her to perform the tasks involved within each of the three specialties. This part also surveys and enumerates best practices in the three types of landscape architectural specialties.

Part III consists of four chapters that deal with the major challenges facing the landscape architectural consultant who specializes in landscape analysis and evaluation. These include site selection of key elements such as beaches, marinas, and other outdoor recreation facilities. Chapter 14 deals with the relatively new field of visual resource management (VRM). It surveys the four approaches of surveying, documenting, analyzing and evaluating the scenic values and the visual environment. These four approaches are: psycho-physical, expert, cognitive and experiential. It concludes that the Red Sea coast from Sofaga to Shelatin contains rich visual resources that need to be conserved. It further recommends that until such a time when local consultants build their experience in the field of VRM, applying the psycho-physical or the experiential approach will be the most appropriate methods to use.

Part IV addresses the key challenges facing the consultant who carries out the various tasks involved in landscape master planning. These include preparing the outdoor space program, planning the outdoor circulation system, and designing the outdoor rooms. It lists comprehensive criteria for a good landscape program, best practices in circulation system planning, and guidelines for designing for the handicapped and best practices in designing outdoor spaces.

Part V is the largest part since it deals with the challenges of detailed landscape design with its typical extensive list of elements. These include earthwork, grading and drainage of outdoor areas; paving materials selection and installation; water feature types and design issues; outdoor lighting types and techniques; street furniture varieties and siting; outdoor structures' functions and construction methods; design and construction of fences and walls; planning and design of signage systems; parking lot design criteria and best practices; and planting design issues and guidelines.

Finally, Part VI covers the crucial challenges of implementation including the assessment of environmental impacts of a landscape project, the landscape construction phase, and the landscape maintenance and operation phases.

The three chapters contain best practices in conducting environmental impact assessments (EIA), best practices in landscape construction, best practices in minimizing erosion, best practices in protecting natural features on the site, and best practices in landscape maintenance and operation. On the whole, this manual is broad in scope, as any publication presenting an overview of the field of landscape architecture must be.

Coverage of most issues is concise, given the limitation of space and time, and the practical purpose of its focus. However, the value of this volume is in the inter-relatedness of its parts to develop an appreciation for the role landscape architecture can contribute to sustainable tourism development along the Red Sea coast and elsewhere in Egypt. It is also hoped that individual chapters may encourage the reader to explore various topics further in more detail. With this in mind, a bibliography is provided at the end of the manual to assist readers who want to further their knowledge of any of the topics covered.

In conclusion, surveying and evaluating existing tourism developments suggests that it is not too late. Neither along the Red Sea coast nor in any other region in Egypt has the damage to the landscape passed the critical point of no return. Nor are we running out of land — yet. This region is still blessed with great reaches of unbroken wilderness in the mountains and in the Western desert. The Red Sea coast still stretches for thousands of miles and still retains its natural form and condition. This is not to claim that everything is managed well. Until recently, there has been almost no attempt at scientific land and resource planning.

From now on, there is a need to conserve, reclaim, restore, replace and consolidate. There is need to formulate an environmentally sustainable landscape planning strategy for long-term growth and development of the Red Sea coast — an evolving regional plan to bring the tourism industry, cultural heritage, natural landscape, and visual resources into better balance. This is a major challenge for Egypt as it enters the 21st century and beyond.

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