CHAPTER SEVEN

RESEARCH SUMMARY AND CONCLUSIONS

This chapter includes the summary and discussion of the findings. Conclusions and recommendations, as well as a vision for future research, are presented.

7.0. SUMMARY OF RESEARCH

As a result of today's global environmental problems, there are concerns about sustainability approaches for tourism development. For many reasons, the implementation of sustainability principles in the area of design and planning for coastal tourism zones has been limited. Therefore, this study was conducted to develop a sustainable design model to assist stakeholders in envisioning and implementing more sustainable development practices for coastal resorts.

The researcher conducted a comprehensive literature review of existing related research to develop the study's theoretical base, identify sustainability indicators, and identify carrying capacities. This study developed the carrying capacity thresholds concept of the ecological, social, psychological, physical, economic, and managerial aspects of coastal resort development acceptable to the environment without causing negative impacts. This research also developed an on-line survey tool that provides a better communication and contact tool with coastal zone stakeholder groups such as designers, resorts managers, and visitors. A field study was conducted to draw an image of the current beach resort development in Egypt and USA.

This study examined the relationship between perceived environmental problems and sustainability concerns related to coastal resort development in the United States (a developed country) and in Egypt (a developing country). A model was developed that linked these coastal zone sustainable design indicators with acceptable carrying capacity levels. By integrating long-range environmental considerations into proactive design and planning processes, this research provides a tool that can help stakeholder groups understand and assess environmental risks and opportunities so informed decisions about facilities design and planning can be made. The concern of governmental officials about developing implementation tools for sustainability

continues to grow due to recent changes in the global environment that negatively affect development worldwide.

The perceptions of designers/planners, managers/owners, and visitors of American and Egyptian coastal resorts concerning environmental sustainability issues were examined. The relationships between thirty-four independent variables (sustainability indicators) were studied. These indicators can be broadly grouped into three parts: 1) conservation of natural resources and utilization of the natural environment; 2) preservation of cultural and social resources; and 3) efficient development of eco-design principles in the built environment. These 34 indicators are linked to corresponding capacities: ecological, social, psychological, physical, economic, and managerial.

The findings and discussion are synthesized from the study and reflect the differences in perceptions between the American sample and the Egyptian sample on environmental problems and sustainability concerns. There were significant differences between American and Egyptian respondents in their perceptions of environmental quality of beach resorts. Its result was anticipated because of the globalization of this concern. The designers/planners' perceptions of the developmental effects of carrying capacity and ecotourism were not significantly different between American and Egyptian respondents.

7.1. CONCLUSIONS

A. Visitors

Findings concerning the stakeholder group, Visitors, are presented first. The responses of visitors to beach resorts in Egypt reflected six points:

1. The majority of visitors showed great concern for environmental issues as their responses pointed to the need for beach resort developments that are environmentally sensitive to the local natural and cultural resources. This concern in some sites in Hurghada and the North Western Coast of Egypt specifically reflected the degradation happening to the coral reefs and the aquatic system.

2. Most visitors expressed dissatisfaction with the current development patterns and the associated social and environmental impacts. In fact, 70% of visitors did not perceive that most current coastal resorts are developed in a manner that is environmentally sensitive.

3. Many visitors indicated that they did not know about environmental problems or sustainable development, indicating a real need for greater efforts to improve public awareness and knowledge on these issues through the design, the media, or with the help of published materials and guidelines concerning environmentally sensitive areas.

4. The visitors' awareness and knowledge had a significant relationship with their concern for environmental effects of tourism development and beach resorts design and the environmental and social quality in both the U.S. and Egypt. The higher the level of awareness and knowledge, the greater the level of concern. The education level was significantly tied to the publics' as well as professionals' concerns for the natural environment in Egypt. The higher the level of education and the greater the number of years on the job was reflected in increased levels of concern.

5. Local communities are a central concern when examining sustainable tourism development. Local community involves different groups with different levels of interest and concern, some of whom may be in conflict with each other. These issues need to be solved to unite locals in responding positively to sustainability implication efforts.

6. Tourists bring benefits as well as problems. They have rights to enjoyment, but they should also have responsibilities. Sustainable tourism can't be achieved without the active support of tourists. As recreational tourism along coastal zones grows rapidly, the increased awareness of environmental responsibility might lead to support and viable actions at a global level as well as on a more local scale.

B. Designers/Planners and Managers/Owners

Findings from the stakeholder group, Designers/Planners and Managers/Owners, are presented next. The responses from these two stakeholder groups reflected five points:

1. The vast majority of designers and managers of American resorts were Americans, while designers and managers worldwide participated in designing and managing Egyptian resorts. This is reflected in the great number of international hotel and resorts chains that invest and operate resorts and hotels in Egypt.

2. There was no significant effect of gender and age on designers and managers' perceptions of the importance of environmental and sustainability issues.

3. There was a positive relationship between the educational level, professional field, and length of experience of designers and managers and their understanding and awareness of development problems and alternative solutions.

4. Designers and managers exhibited high levels of interest in receiving the survey findings. They were highly motivated to learn more about the incorporation of sustainability practices into the development, design, and management of their resorts. This clearly supports the argument for a more practical approach and implementation tool that can specifically assist designers and planner to better respond to sustainability issues.

5. The role of the current design rules and planning regulations in sustainable tourism development is largely negative. It is clear that quantitative and qualitative data might contribute in a positive and pro-active way to assist governmental agencies in providing greater cooperation and action toward the implication of sustainability principles in their policy planning for development control. This may require pressure from local authorities and agencies with more sincere interests in the implementation of sustainability principles for the protection and the conservation of natural and cultural resources.

One of the major steps in sustainability implementation is the difficulty of understanding its reality. Designers/planners believe the major reasons that sustainable design principles aren't

used more often in coastal resort design are: a) ignorance of sustainability issues and their importance in protecting our natural resources, as well as the recreational tourism industry as a whole; b) sustainable principles are often applied in forms that are indirect and not well recognized; c) not having knowledgeable and able person in the right position; d) lack of information; e) no real standards for many resort destinations; f) lack of a quality official database and pertinent site information; g) no monitoring system or follow-up procedure from governmental agencies to protect the environment after their initial approval; and g) decisions made on an economic basis only by business people who do not realize that they are killing the goose (the environment) that lays the golden egg (the money).

C. Differences between Egyptian and American Samples

1. The feedback from the Egyptian surveys and field study revealed higher levels of concern about the social consequences of development rather than its environmental impacts. Feedback from the American surveys showed the highest levels of concern about ecological issues.

2. Of the 34 indicators of sustainability, the American sample placed greatest importance on 10 indicators, 4 of which fall within the ecological carrying capacity category. The 10 indicators and their corresponding carrying capacity categories are: Ecological: a) ecological integrity, b) terrestrial wildlife, c) utilizing site nature and climate characteristics; d) streams / drainage ways; Physical: e) efficient use of resources; f) pollution control; Managerial: g) traffic and transportation, h) maintenance; Psychological: i) providing for spiritual harmony; and Economic: j) satisfying basic human needs in the area.

3. Of the 34 indicators of sustainability, the Egyptian samples placed greatest importance on 7 indicators, 4 of which were in the social/cultural carrying capacity category. The 7 indicators and their corresponding carrying capacity categories are: Social/Cultural: a) historic features, b) local architecture, c) preserving cultural resources, d) preserving local customs and traditions; Ecological: e) utilizing site nature and climate characteristics;

Economic: f) encourage less consumptive lifestyle; and Managerial: g) quality of facilities, services, and activities.

4. Managers/owners in the U.S. and Egypt had different perceptions regarding the adequacy of incorporating carrying capacity measures.

5. The majority of the Egyptian respondents perceived that they had a less adequate means for sewage treatment and garbage disposal than the American respondents.

6. The majority of the Egyptian respondents showed negative attitudes toward government protection efforts by local, regional, and national governmental agencies. The majority of the Egyptian respondents also felt that government regulations and the enforcement of environmental protection laws were inadequate, and that tourism development businesses in general were not trustworthy and did not view environmental quality satisfaction as a primary goal. American designers and managers were less critical of the government's efforts and believed that the laws and regulations placed less restrictions on them than did their counterparts in Egypt.

7. Coastal ecotourism activities get very limited attention from the government and the majority of the public in Egypt. This requires that official efforts be broadened to include the acceptance of ecotourism among public and tourism investors as well.

8. Resort environmental quality was the biggest important concern for both American and Egyptian *designers*. Relationships between environmental problems/concerns and ecological, social, psychological, economic, and managerial perceptions of capacities were noted. The results revealed that both American and Egyptian respondents expressed negative attitudes toward their current development pattern although the American sample expressed somewhat stronger concerns. Many American respondents had experienced problems related to natural environment (ecological) elements, such as protection of the beaches, sand dunes, and wildlife.

9. In some coastal zone destinations in Egypt and the USA, resorts can justify their use of resources with a commitment to their sustainable management. These destinations are well established, developed, and managed at the highest standards of environmental excellence. In order to maintain these standards, a monitoring technique addressing each of the individual sustainability indicators becomes essential.

D. Government Agency Role

1. There are concerns related to the role of governmental agencies and the establishment of up-dated regulations and rules associated with restrictive law enforcement in environmentally sensitive areas (destinations). In some cases respondents suggested rewarding the better quality resorts.

2. The existing classification system of hotels and resorts (the "star" system) should be a reflection of environmental quality, preservation of natural and cultural resources, and efforts made toward sustainability. This reward program could be incorporated into the existing system or be developed as a separate program by establishing a set of criteria for the implementation of greening or sustainability practices. For example, resorts would be classified as a "5 star" resort if it scores high in terms of resource conservation and environmental protection actions in addition to services and quality values. Such programs would encourage resort investors and managers to pay more attention and expend more effort on supporting sustainability principles and practices. This government support program would encourage investors to consider sustainable actions within daily resort operations and management.

E. The Development Process

1. In the proposed model, the carrying capacity concept is applied as a dynamic tool rather than a static figure. Carrying capacity threshold levels are identified for each indicator category (ecological, social, psychological, physical, economic, and managerial). The focus shifts from one threshold level to another as the objectives change over time. The evaluation process for sustainability indicators and acceptable levels of capacities should include monitoring techniques and protective measures.

2. The developmental process of coastal resorts is a dynamic one by nature of its capacity limits and sustainability measures in two ways: first, indicators of measures applied to a specific project may be not applicable to other settings; and second, indicators applied within a specific period of time may not be extended to another stage of the same project.

3. Beach resorts projects experience a certain degree of sustainability within their developmental stages that can be measured and adjusted by controlling the acceptable carrying capacity level. There are different values of carrying capacity thresholds which affect the quality measures of the ecological, social, psychological, physical, economic, and managerial conceptual limits of environmental capacity, and can affect the overall quality and the degree of sustainability of these projects (which capacities experienced acceptable levels of change, which ones go beyond these limits, and the overall capacity decision).

4. Carrying capacity limits, other than quantitative values of densities, should include qualitative values of development decisions, such as its response to environmentally sensitive design considerations and sustainable design principles, and some administrative aspects that affect the sustainable quality of these types of projects.

5. Projects that concentrate on more ecological considerations, show more concern about their natural settings and surroundings, and pay significant attention to the conservation of natural resources are more likely to experience high degrees of sustainability.

6. Projects that are designed with respect to local cultural values and provide social facilities and high degrees of accessibility to basic needs locally are more likely to experience higher degrees of sustainability.

7. Projects developed within their eco-design of the physical, economic, and managerial capacities, have early management involvement, and provided sufficient facilities and services are more likely to experience higher degrees of sustainability and experience environmental quality than resorts that over-extend their acceptable capacity limits.

8. Coastal zones, specifically, beach resort development, in order to maintain an acceptable level of sustainability, needs a collaborative comprehensive effort not only by designers and planners, but also, resort managers, visitors, local communities, and official public authorities for both long-term strategic as well as short-term routine decisions firmly rooted in sustainability principles.

9. The future design and planning patterns of beach resorts may be influenced by the magnitude of climate change; the rates at which change occurs; the extent to which critical thresholds of change are exceeded (such as rising sea levels associated with the greenhouse effect that may erode beaches and affect the infrastructure of beach resorts). These serious consequences constitute substantial challenges for beach resort destinations working toward the implementation of sustainable design and planning efforts.

The On-line Survey Tool

One of the great benefits of the on-line survey instrument was that it worked as an interactive tool to connect the researcher with his survey participants in a dynamic fashion for information exchange and knowledge up-date. The open-ended survey questions allowed visitors, managers/owners, and designers/planners groups easier access to the survey and the opportunity to express their opinions in a more substantial manner. This provided the researcher with a great amount of additional information for answering research questions and provided directions for future research considerations as well. The comments and suggestions as well as facts suggested by participants helped to clarify issues of implementation obstacles and provided suggestions for resort quality improvement and more.

7.2. RECOMMENDATIONS FOR STAKEHOLDER GROUPS

A. Natural Base Development: The Built Environment

1. Fit development design and planning characteristics of the built environment to the site and its surrounding nature.

2. Use materials for building, finishes, and landscape that are similar to natural and common materials.

3. Use a large percentage of building and landscape materials from the local community; using local employment, food, building materials and styles, construction techniques, and shopping products.

4. Develop a design plan that respects both the nature of humans and the nature of nature and that emphasizes the natural constraints and opportunities.

5. Incorporate natural characteristics of the site into designs to create more comfortable environments through the efficient use of the flow of natural resources of a site into the built environment, therefore finding a more proper balance of human needs with environmental opportunities and liabilities. This requires a better understanding of the natural systems and the way they interrelate in order to work within these constraints with the least amount of environmental impact.

B. Waste Management

1. Manage waste by establishing comprehensive programs that can assess each kind of waste and the possibilities for reducing, reusing or recycling the waste. Recycling achieves many goals such as reducing collection; saving natural resources, minimizing loss of energy, and refunding cash value. Manage waste by following a plan that first determines the recycling potential of the resort, and then takes steps to design a waste recovery system; select a recycling coordinator; justify the program; and estimate the benefits and cost.

2. Consider the context of a site when planning development. The comprehensive development of tourism destinations and site selection should include: preservation of the main tourist attractions; reasonable economic feasibility; competition; maintenance of the operation for as much as possible year round; avoidance of environmental and noise pollution; avoidance of building too close to big residential areas; easy accessibility; and easy access to infrastructure supplies as well as needed services.

C. Planning

1. Develop a participatory design and planning process. This requires that stakeholders share knowledge about linking long-term sustainable behaviors with natural processes and human activities that should guide future development design and planning.

2. Institute tourism planning at the local level based on overall development goals and priorities identified by local residents in the area. The involvement of native people in the tourism industry should depend on the understanding that their traditions and lifestyles are respected and protected. Programs would encourage the use of local capital, entrepreneurial ability, and labor in the tourism industry.

3. Design and planning rules and environmental acts should be co-regulated toward achieving the goal of a sustainable built environment. This requires cooperation between resort designers / planners / managers and governmental officials in pursuing higher environmental standards.

D. Education

1. Implement a promotional campaign designed to educate the general public.

2. Communicate an environmental message to all people: staff, guests, business partners, and the local community through hotel and resort programs.

3. The resulting sustainable development and eco-based building design would serve as a "classroom" to demonstrate environmental conservation, understanding and respect for indigenous cultures and resources, and ways to live environmentally better in the future.

4. Teach environmental issues and sustainability principles at all schools levels in both America and Egypt. This should be provided to educate citizens and tour operators about sustainability needs and current issues of environmental problems to encourage worldwide focus on international tourism and its impacts, good and bad.

5. Expose students to professionals from other countries, on-site experiences through abroad programs and studies, or international publications as a major part of the curriculum on sustainability principles and indicators.

6. The media could play a significantly positive role in the debate of sustainable tourism. These debates should embrace the issue of sustaining the market in the destinations and the quality of life for tourists.

E. Sustainability Values & Local Community

1. Sustainability values should be apparent to visitors in all their daily activities.

2. Sustainable development values should be shared with locals. Also, tourism facilities and services should be made accessible and affordable to local people.

3. The attitude toward tourism by several sectors of local host communities (political, environmental, religious, cultural, ethnic, and others in an are) can make or break the potential for sustainable tourism development.

4. Natural and cultural resources are under pressure not only from tourist numbers, but also from the encroachment of tourist activities and the further development of support facilities, services, and infrastructure as well as threats from non-tourism activities.

5. Beach resorts must be developed as an integrated part of the local community, not as separate facilities and activities for visitors only but also for use by the local community and surrounding area.

F. Socially Sensitive Tourism Development

1. Identify ways to maximize the positive socio-economic impact of tourism and promote sustainable community development that utilizes both anthropological and environmental

expertise, provides cultural and natural learning experiences, and benefits the well-being of indigenous people.

2. Consider and respect the regional context of development impacts and complete an environmental assessment before approving any activity. This requires a monitoring system based on appropriate and updated indicators.

3. Establish an environmental qualification "star" ranking program corresponding to the stars system currently based on services and facilities quality. This system would designate each resort's star value based on their compliance with environmental legislation, encouraging sound environmental practices and positive changes in knowledge, attitudes, and practices of resort management. Resort developments associated with a regular monitoring system that records environmental impacts and compares resorts' performances against policies, objectives, and targets on a regular basis would be preferable.

4. Network and subscribe to information services to keep up with best available technology that minimizes consumption of energy, water, and the generation of waste through the establishment of benchmarks and measurements.

5. Assume that much can be learned from nature. When nature is incorporated into designs, spaces become more comfortable, interesting, and efficient. Like nature, design should evolve and adapt to interact more intimately with its surroundings. By definition, sustainable design seeks harmony with its natural environment.

6. Conduct a detailed analysis of the specific site's climatology and topography and determine how these features relate to their context so as to provide better and more efficient information for its designers and users.

7. Take a critical look at the present development regulations and design rules. Decision-makers (designers/planners/managers/developers/investors) need to be more aware of their options and be able to act more effectively in their individual interests. They bear

the responsibility of utilizing their rights, accepting their responsibilities, being informed of the existing laws and regulations, and being active in updating those rights and responsibilities for the ultimate fairness of all environmental and sustainability trends.

8. Address the social dimension of tourism in sustainable tourism development, particularly, in relation to the socio-cultural impacts of tourism and host-guest relations. The beneficial effects of tourism on tourists and the indigenous community can be numerous. Sustainable tourism means socially fair tourism and that this involves equity, equal opportunities, ethics, and guests and hosts being equal partners toward more socially equitable tourism. This requires an integration of the social dimension of tourism with the environmental and economic dimensions to provide a holistic sustainable tourism model.

7.3. RECOMMENDATIONS FOR GOVERNMENTIAL AGENCIES

This research was conducted with the specific intention of improving the future design and planning of coastal resorts and tourism development in Egypt. Any attempts to answer environmental and tourism problems in Egypt are hampered by the complexity of the tourism industry and the poor representation of environmental agencies in an official status. Recommendations for improving this situation in Egypt are provided below:

1. Create an effective nationwide governmental agency in Egypt organized to centrally manage natural and cultural resources using sustainability principles. This government sustainability monitoring agency should be located within coastal zones under development with communication branch offices that are geographically spread throughout the major coastal resorts and tourism centers along the Egyptian coastal zones. This agency should have a system to track sustainability indicators and carrying capacity information and measures. This governmental official agency should resolve carrying capacity design problems by enforcing built environment laws and regulations, and compensating environments for losses.

2. Develop and implement an accurate and standard tourism information system that can determine tourism data and monitor responsibilities of communities, groups, individuals, and governmental efforts at local, regional and national levels. Develop regulations to

improve the quality standards of many resort developments in Egypt. Establish and improve safety standards for coastal resorts.

3. Collect data on the measurement of actual consumption, target consumption, and corrective actions. With this information, improve techniques and maintain the quality of tourist facilities and services. Data can help to manage communal resources collectively, and create a product chain that consistently offers sustainable product elements.

4. Determine on which issues consensus can be reached using reliable and valid data. Wherever consensus is possible, there is hope for strategic alliance.

5. Challenge business partners to help in the environmental mission and to look at how they might change their own activities to be more environmentally conscious. Good public relations are an indirect way of recouping some of the investment resorts needed to make improvement in some aspects of resort operation.

6. Improve the present Environmental Act in Egypt and enforce compliance with the current regulations. Increase efforts to develop new regulations for the design and planning of Egyptian coastal resorts.

7. Re-evaluate current building regulations and laws. Future design and planning programs must address new issues and critical views concerning environmental protection and sustainability concerns.

8. Support collaborative work between governmental officials and designers/planners in Egypt to develop better models for beach resort and to incorporate the principles of sustainability in the process of design and planning.

9. Mobilize and empower designers, managers and visitors to effectively participate in environmental policy making, and in the determination of their individual roles of actions.

10. Sponsor environmental advisory panels where resort managers and other decision-makers meet regularly with consumer leaders, usually activists and academics, to share concerns and explore ways in which resorts can better serve visitors. Cooperation should become a mutually satisfactory action.

11. Establish a better organized, active, effective, and productive sustainable design movement in Egypt. Cultivate strong environmental organizations to more clearly express and support sustainability interests. A sustainable design movement should be primarily concerned with fighting environmental problems to protect natural and cultural resources from unplanned and poorly planned development and the degradation of recourses for future generations.

12. Avoid extraordinary development that exceeds the limits of the environment capacity and avoid operation services, facilities, and activities that fail to meet acceptable sustainability measures.

13. Address problems such as misinformation about sustainability issues, endangerment of the environment, unnecessary activities, and over consumption life styles. Increase the citizens' awareness of the positive effects of sustainable capacity control as a way to counteract the accumulated increase in environmental and cultural problems.

14. Use a decision-making model for sustainable design that provides policy-makers with a broad perspective in order to appropriately and accurately weigh the importance of each sustainability indicator, and also, to make decisions on the priorities and weight of the capacity thresholds and their acceptable limits.

15. Link government agencies together in Egypt to work cooperatively to solve environmental issues related the protection of natural and cultural resources.

16. Increasing the demand for tourist recreation facilities along the Egyptian coastal zone, particularly, in the more sensitive areas such as Sharm El-Shiekh and Hurghada requires

a natural focal point for beach resort design and planning and a better understanding of the major physical coastal processes necessary to produce optimal environmentally-sound recreational destinations and to formulate the link between carrying capacity control and sustainability principles. The proposed Sustainable Design Model adequately addresses most critical issues of design, planning, construction, and management. In this respect, the calculation of carrying capacity thresholds (the quantification of sustainability indicators) for beach resorts is of great significance for creating an optimal recreational environment.

7.4. MODEL USE

The study's sustainable design proposed model is a framework for a methodological process that may be used to determine development size and quality determination on a micro-scale with homogenous characteristic zones. As a complement to this model, a monitoring system should be established to follow up any changes that may occur to the environment over time. The monitoring timeframe intervals should be put in action prior to serious environmental or social problems showing up within the area. For each individual coastal setting, there would be a designation of the relevant sustainability indicators of significant importance to the quality of the developments' environment. (A highly participatory process including experts, professionals as well as the public was used to select the thirty-four sustainability measures, but dozens of others were suggested, and one may need to include many of those topics important to a specific destination).

Although the proposed model structure is general it serves as a method for identifying the level of the acceptable carrying capacity based on the quality of the development and its impact to the natural and cultural environment once specific site data is obtained. These indicators, sampled on a regular basis, will provide a guide to whether a tourism destination is moving toward or away from a sustainable future. Of course, none of the proposed indicator lists completely cover the entire environment, and there are certainly infinitely more things that could be tracked. This on-going procedure for sustainable design implementation is meant to give an overall indication of whether the development is moving in the right direction. The sustainable design model also provides a methodological procedure for measuring significant trends without entailing major new expenses for data-collection.

Conceptual models of resort evolution have been used to picture tourist flows, and social and economic impacts and changes in resort morphology. Tourism/environment relationships are often perceived as being linear, with greater levels of tourism development correlated to greater negative environmental impacts. Coastal resort evolution by application of a resort cycle model reveals a more complex human-environment relationship. Minimal geomorphic disturbance characterizes initial tourism 'exploration', although a subsequent 'rapid development' stage is usually accompanied by the greatest negative impacts upon coastal zones. During more advanced stages of the resort cycle, accurate perceptions of environmental degradation lead to increasing efforts at environmental preservation, e.g. shoreline armoring, beach nourishment, dune stabilization, etc. However, because of prevailing adverse physical parameters as well as previous human-induced environmental degradation, these efforts are usually costly and rarely successful. Resort cycle analyses are useful in understanding both the evolution of resorts and also the corollary geomorphic and related environmental impacts. Such analyses for forecasting evolutionary trends and geomorphic impacts are greatest at sites with unregulated tourism development, especially in developing countries such as Egypt.

7.5. RECOMMENDATIONS FOR FURTHER STUDY

Based on the findings of the study, the following recommendations are made:

1. The designers/planners' concerns on the questionnaire are rather broad; further research should be conducted to identify more specific concerns in order to develop site relevant measuring scales. For example, instead of asking about overall concerns regarding many factors, the data needed could focus on concerns regarding a specific site or a specific set of indicators such as ecological-related indicators or managerial-related indicators.

2. Since the present study included the perceptions of only three groups (designers/planners, managers/owners, and visitors), follow-up studies should consider environmental and sustainability problems as perceived by other groups, perhaps local residents, governmental officials, or special interest groups (i.e., environmentalists).

3. Further research regarding environmental protection programs by government and business should include continuous assessment of stakeholder concerns and development

of their policy based on the results of the assessment. Environmental protection program planners in the government should consider further research regarding stakeholders' knowledge about sustainability principles and indicators. Managers need to follow-up by recording and researching environmental protections through self-monitoring or surveys within their resort area and within the regional zone as well.

4. In order to effectively disseminate the sustainable design modeling procedure for design and planning coastal destinations in Egypt, follow-up research should first identify the preferred information source for each individual Egyptian coastal zone.

5. The objective is to develop more applicable generalization. At present, the conceptual decision model developed in this study incorporates sustainability indicators and carrying capacity into a sustainable design model for beach resort development and is relatively simple. Continuous effort to develop more sophisticated models is a defined need in order to prevent the future extinction of existing resorts and the development of new resorts that are managed in a sustainable manner.

7.6. SUMMARY

This chapter summarized the salient points from the study and provided recommendations for three groups: the stakeholders (designers/planners, managers/owners/ and visitors), the Egyptian government, and researchers. A Sustainable Design Model (SDM) was developed as part of this study and makes the unique contribution of incorporating validated sustainability indicators for coastal resorts with six carrying capacity categories. The intention was to provide an alternative method for planning and designing tourism development in coastal zones by integrating both quantitative and qualitative measures into the model. The model is particularly apt for tourism development in Egypt, as traditional development there has led to significant concerns about the protection of both natural and cultural resources.