CHAPTER THREE

SUSTAINABILITY AND CARRYING CAPACITY

3.0. INTRODUCTION

In spite of numerous studies in coastal recreation examining different aspects, carrying capacity research in the area of coastal recreation is somewhat limited (Stewart, 1993). Moreover, the issues of sustainability, sustainable tourism development, and carrying capacity control in coastal recreation were not clearly addressed. There is a need for extensive research using the body of this literature to help update the current concern of sustainable development needs.

This research primarily focuses on the broad dynamic concept of carrying capacity and how it is linked to sustainability indicators and applied to developing a model for beach resort design and planning. Carrying capacity represents understanding the physical, economic, social, ecological, psychological, and managerial aspects of the environment. Prior to introducing the overall topic, it is important to review the concepts and theories dealing with these dimensions. Three key questions are: (1) what is sustainability? (2) What is carrying capacity? and (3) How are sustainable actions implemented in the design and planning of beach resorts?

This chapter presents the meaning of sustainability as applied to beach resorts and the three approaches (environmental, economic, and social) to implementing sustainability in these destinations. These approaches are then linked to six carrying capacity categories: physical, ecological, social, psychological, economic, and managerial. The following chapters discusses the implementation and monitoring of the linkages between the concepts of sustainability and carrying capacity within the contexts of tourism development, and the progress that can be made toward a sustainable future.

3.1. SUSTAINABILITY

Understanding the applicability of "Sustainability" and "Carrying Capacity" in tourism development has become essential in environmental design and planning of beach resorts. These

concepts will be prevalent in the development of this study's conceptual model and they frame the discussion present in later chapters. In order to understand how sustainable development can be achieved requires that the reader gain an understanding of the concepts first.

3.1.1. Sustainability Approaches

Knowing "what sustainable development is" and "why we need it" leads to an understanding of how it can be implemented. Several agencies and individuals have developed lists for sustainability criteria, indicators, and measures. Sustainability is an abstract concept that is difficult to aggregate empirically as it is difficult to assign quantitative values for some of its components. In tourism development, many economic values may be measured with reasonable accuracy, such as total revenue affected directly by numbers and the types of tourists. Other values such as social impacts, local identity, ecological integrity, health hazards, or beauty values are not quantitative values and are difficult to measure numerically. For example, within a given time frame overall quality can be measured as better, worse, increased, or decreased.

Approaches to sustainability that measure aggregate sustainability impacts as a grand index and provide a "magic number" to decision-makers are not appropriate in this case due to the complexity and the fact that they do not convey enough detailed information to assist decision-makers. One of the major methodological problems in this procedure is the use of variables that are expressed by different measurement scales, both quantitative and qualitative. Most sustainability evaluation methods that provide final index scores by simple additive operations are mathematically and theoretically limited.

This study suggests the use of sustainability indicators linked to components of the built environment numerical values that are accessible and can accurately measure (i.e., number of rooms, shoreline length, beach area, facility design quality) and have a direct influence on the outcome of quality sustainable development. The proposed research approach for sustainability measurement is to disaggregate sustainability into individual indicators categorized by ecological, physical, social, psychological, economical, and managerial aspects, and evaluate each indicator in correlation with the numerical elements of the carrying capacity without re-aggregation. Each group of sustainability indicators represents one dimension that is to be linked to appropriate and acceptable quantitative values of corresponding carrying capacity thresholds.

For example, the biophysical carrying capacity will be evaluated based on the acceptable level of the biophysical sustainability indicators, the ecological capacity also will be measured by the acceptable level of the ecological sustainability indicators, and so on.

3.1.2. Defining Sustainability

"Sustain Ability" is a clear explanation of the concept of sustainability, the Ability of human beings to Sustain. Sustainable development is defined in *Our Common Future* "as meeting the needs and aspirations of the present without compromising the ability of future generations to meet their own needs"(WCED, 1987, p. 40). Creation of an environmentally responsible future requires a vision of our global community and efforts to develop, promote, and implement broader concepts of sustainable practices. Sustainability possesses many aspects of meaningful approaches summarized in the following thoughts:

"… no generation can contract debts greater than may be paid during the course of its own existence." -- Thomas Jefferson, September 6, 1789

"Sustainability refers to the ability of a society, ecosystem… functioning into the indefinite future without being forced into decline through exhaustion. . . of key resources." -- Robert Gilman, President of Context Institute

"…a more collaborative and holistic systems approach because such problems are diffuse, multidisciplinary, multi agency, multi stakeholder and multi sector in nature."-- Beth E. Lachman, Critical Technologies Institute, "Linking Sustainable Community Activities to Pollution Prevention: A Sourcebook," April 1997.

"Sustainability is the [emerging] doctrine that economic growth and development must take place, and be maintained over time, within the limits set by ecology in the broadest sense - by the interrelations of human beings and their works, the biosphere and the physical and chemical laws that govern it . . . It follows that environmental protection and economic development are complementary rather than antagonistic processes." -- William D. Ruckelshaus, "Toward a Sustainable World," Scientific American, September 1989.

"The word sustainable has roots …combination of physical, cultural, and, perhaps, spiritual characteristics, inspire people to care for their community." -- Muscoe Martin, "A Sustainable Community Profile," from Places, Winter 1995.

The focus and scale of sustainability efforts depend on local conditions, including resources, politics, individual actions, and the unique features of the community. The sustainable development has been applied to issues as varied as urban sprawl, inner-city and brown field redevelopment, economic development and growth, ecosystem management, agriculture, biodiversity, green buildings, energy conservation, watershed management, and pollution

prevention. Many of these issues and other community problems that rose from tourism development cannot easily be addressed by traditional approaches to development. Traditional development approach mainly focuses on economic benefits and growth. While a sustainable development approach may include issues related to environmental protection, natural resources conservation, and social and culture values preservation. This research attempts to provide a tool to assist decision-makers in altering traditional patterns of development by introducing sustainability indicators and carrying capacities into the mix.

3.1.3. The Need for Sustainable Development

After the World Commission Report of 1987 entitled, *Our Common Future*, the international community attempted to initiate more sustainable approaches to world development. This became a central organizing principle for global environmental policy. The Rio De Janeiro Earth Summit (1992) focused world attention on critical issues of sustainability and natural resources to develop a plan of action for future global partnership to achieve concrete sustainability goals. The world was confronting worsening conditions of poverty, hunger, ill health and illiteracy, and the continuing deterioration of the ecosystems on which we depend for our well-being. Governments attempted to forge an action agenda based on sustainable development principles (Lindsay, 1993). Sustainable tourism was proposed as a solution for tourism development. The challenge of tourism development is how to make such development and the accompanying uses sustainable to prevent degradation of natural resources and exploitation of local human and cultural resources (Inskeep, 1991). How do we ensure that such resources are to be maintained for the future generations?

The world is overloaded by a high rate of population growth that rose exponentially within the last century [see Figure 3-1] putting stress on our fragile ecosystems and diminishing the quality and the quantity of our natural resources.
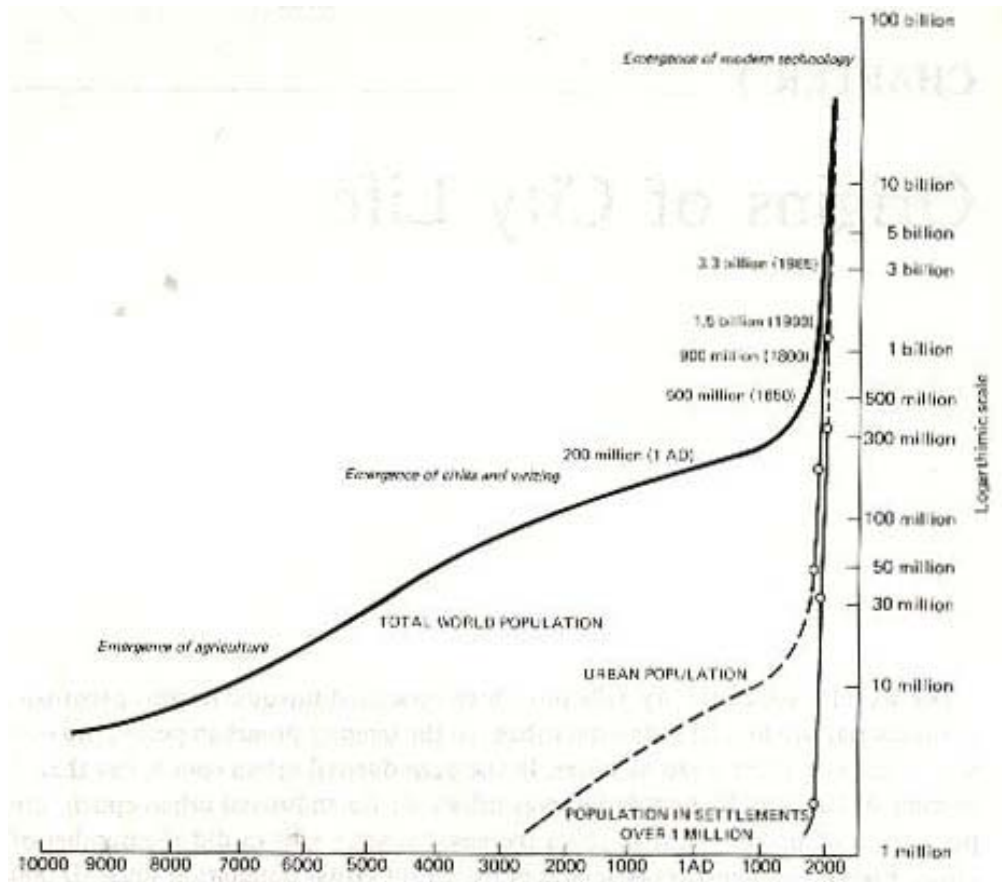
Figure (3- 1): World Population Growth Since 10,000 B.C.

[Source: The Regional Plan Association. The Region's Growth, New York: 1967, p.13]

The human population has been increasing at an exponential rate. The current population of the Earth is about 5.8 billion people, and is predicted to be 10 billion in the year 2075, thus inflicting tremendous strain on our planet's resources and the environment. Vitousek, et al. (1986) have determined that the human population influences about 40 % of the planet's terrestrial net primary productivity. Doubling the size of the Earth's human population could significantly increase this level of exploitation (Daily & Ehrlich, 1992).

Daily & Ehrlich (1992) expressed the human impact on the environment by the following mathematical expression ($I = P * A * T$) where P is the population, A is the per capita

consumption of resources, and I represents the resulting impact. Thus, as the population increases the resulting impact to the natural and cultural resources may increase too.

In terms of natural resources and human level of production, consumption, and needs, Figure (3-2) illustrates where we are now and how far we are from ensuring adequate resources for future generations to survive. Many of the current destructive developments are being practiced worldwide. As a result, our air, water, soil, and overall environments are poisoned, causing human sickness and species extinction. There will be a greater shortage of food and energy with the estimated population growth. It is evident that there is a real need to use sustainable approaches for human development uses.
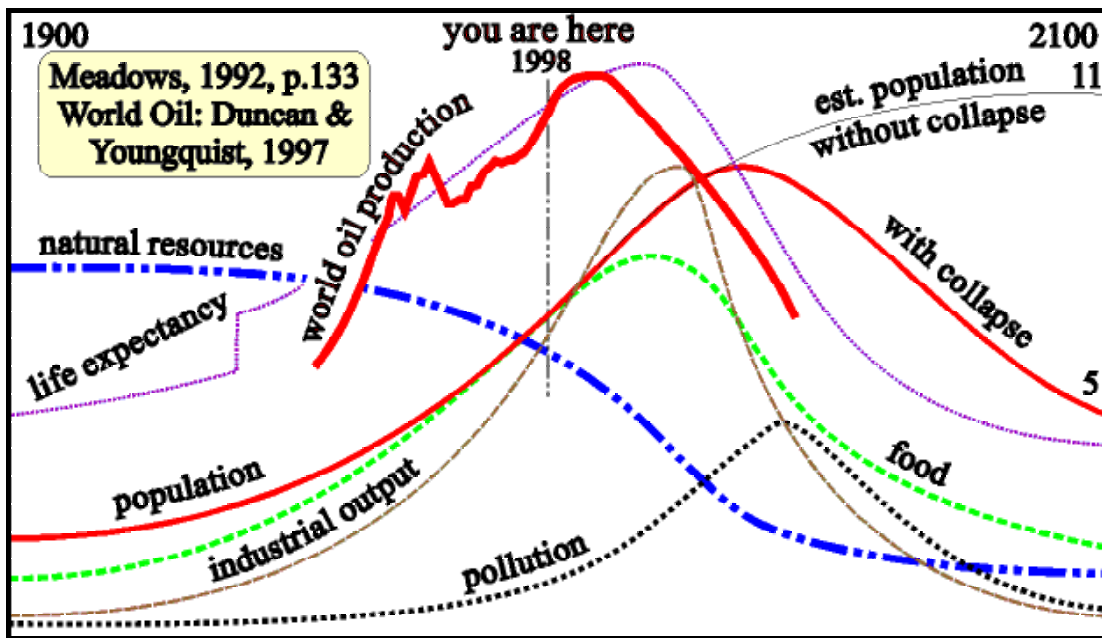

Figure (3- 2): Earth Resource Levels of Production and Consumption

[Source: Meadow, 1999]

Human being can only live 2-3 months without food; 2-3 days without water; and only 2-3 minutes without air. If the existing resource must be if altered to preserve it, the limits of acceptable change have already been reached or exceeded. Energy is the primary exchange agent in ecological systems and land is the source for food and fiber. Energy uses are categorized into

transportation (47%), industrial (29%), residential (15%), and commercial (9%). Renewable resources are limited to 20% from the hydro and 5% from the solar (Meadow, 2000).

Hall and Kinnaird (1994) discussed the urgent need for the "balance" between environmental protection and the continuing developmental needs of mankind. Sustainable development refers to development that increases only at the rate that allows the quality of the environment and community life to be sustained indefinitely, based on two principles: 1) the community is not compromised, and 2) the environment does not deteriorate.

In the tourism industry, the spontaneous and unplanned use of certain destination areas has resulted in uncontrolled sprawl, destruction of natural environments, inadequate infrastructure, polluted waters and a deteriorating tourism product. However, in an attempt to reduce the problems of unplanned tourism, some sites are now being planned as integrated developments (Smith, 1992). Studies are being conducted that examine the behavior of tourists, the establishments that respond to the requirements of travelers, and of the impacts on the economic, physical and social wellbeing of the host communities (Mathieson & Wall, 1982).

Tolba (1987) stated that the concept of sustainable development encompasses:

- Help for the very poor because they are left with no option other than to destroy their environment;
- Self-reliant development, within natural resources constraints;
- Cost-effective development using differing economic criteria to the traditional approach; that is to say development should not degrade environmental quality, nor should it reduce productivity in the long run; and
- The great issues of health control, appropriate technologies, food self-reliance, clean water and shelter for all.

In *Our Common Future* (1987), achieving sustainable development was said to require:

- A political system that secures effective citizen participation in decision making;

- An economic system that provides for solutions for the tension arising from disharmonic development;

- A production system that respects the obligation to preserve the ecological base development;

- A technological system that fosters sustainable patterns of trade and finance;

- An international system that fosters sustainable patterns of trade and finance; and

- An administrative system that is flexible and has the capacity for self-correction.

The research undertaken in this dissertation produces a tool for action, not debating the finer points of the definition. A number of tools have been developed to deal with the sustainability problems (Lusser, 1994), such as:

- Environmental quality management systems

- Industry regulation (through legislation and voluntary self-regulation)

- Visitor management techniques

- Environmental impact assessments

- Consultation / participation techniques

- Codes of conduct

- Sustainability indicators

- Carrying capacity calculations

There are some hard facts underlying the ability of development to perpetuate itself indefinitely into the future. The physical resources that support life must be maintained: they cannot be depleted; and they cannot be made unusable through degradation. Sustainability is conducive to reduced environmental impact. This is one premise that supports the research undertaken.

3.1.4. Sustainability Background

Many people consider the year 1962, when Rachel Carson published his book, *Silent Spring[1]*, as the seminal year in which people began to understand the close link between the environment and the pesticides used in agriculture. This book brought together research on toxicology, ecology and epidemiology to suggest that agricultural pesticides were building to catastrophic levels. This was linked to damage to animal species and to human health. It shattered the assumption that the environment had an infinite capacity to absorb pollutants (IISD, 1997).

The International Institute of Sustainable Development (IISD, 1997) presented a timeline that illustrates the growth of the concern about the concept of sustainability in major stages. Some of those significant stages are presented in Table (3-1) below:

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[1] *Silent Spring* provided some of the first public evidence of how pesticides, used without proper control or knowledge, were poisoning our environment.

Table (3- 1): Sustainable Development Movement Timeline

[1968]	Paul Ehrlich publishes book, Population Bomb, on the connection between human population, resource exploitation and the environment.
[1969]	USA passes the National Environmental Policy Act (NEPA) creating the first national agency for environmental protection - the EPA.
[1970]	First Earth Day held as a national teach-in on the environment.
[1972]	United Nations Conference on Human Environment held in Stockholm of eco-agenda rooted in the regional pollution and acid rain problems. It provides the first international recognition of environmental issues. The concept of sustainable development is cohesively argued to present a satisfactory resolution to the environmental vs. development dilemma. The conference leads to the establishment of numerous national environmental protection agencies and the United Nations Environment Program (UNEP). The Rene Dubos and Barbara Ward write, Only One Earth. The book sounds an urgent alarm about the impact of human activity on the biosphere but also expresses optimism that a shared concern for the future of the planet could lead humankind to create a common future.
[1985]	Antarctic ozone hole discovered by British and American scientists.
[1986]	The IUCN Conference on Environment and Development is held in Ottawa. Meeting participants define sustainable development as the emerging paradigm derived from two closely related paradigms of conservation: 1) one reacting against the laissez-faire economic theory which considers living resources as externalities and free goods, and 2) one based on the concept of resource stewardship. Accident at nuclear station in Chernobyl generates a massive toxic radioactive explosion.
[1987]	Our Common Future (Brundtland Report) is published, tying problems together and, for the first time, giving some direction for comprehensive global solutions. It also popularizes the term "sustainable development." The Montreal Protocol on Substances that Deplete the Ozone Layer is adopted.
[1992]	The U.N. Conference on Environment and Development (UNCED) is held in Rio de Janeiro. It results in the publication of Agenda 21, the Convention on Biological Diversity, the Framework Convention on Climate Change, the Rio Declaration, a statement of non-binding Forest Principles, and the parallel NGO Forum signs a full set of alternative treaties.

3.1.5. Sustainable Tourism

Sustainable tourism is an extension of the concept of sustainable development and has become a major issue in recent years. Sustainable tourism is the tourism that allows visitors to enjoy an attraction, community, or region in such a way that the local natural and artificial environment and social culture can be sustained indefinitely. It guides careful planning and

control of tourism development to ensure sustainable quality, quantity and productivity of both human and natural resource systems over time. This research is based on the premise that tourism is sustainable through well-planned development. Hunter (1995) stated that sustainable development is essentially about the tourism management of change over time.

Phillips (1988) highlighted principles or base measures for effective, sustainable tourism including:

- The tourist experiences should draw upon the character of the environment, its aesthetics, culture, vegetation and wildlife.
- The tourism development should assist conservation, supplement local people's incomes, bring new use and value to historic structures and enhance reclamation of derelict land.
- Planning, design and setting of tourist developments should be compatible with and, if possible, enhance the local landscape.
- Control of tourism should remain as much as possible in local hands; this control and the ensuing benefits should be spread through the community and, equally, those who do benefit should contribute to environmental conservation and enhancement.
- Tourism investment should support the local economy and encourage a steady dispersal of activity, avoiding congestion and minimizing impacts.
- The tourism industry should actively assist the understanding of both the local populations and the tourists' education.

Sustainability in tourism allows visitors to enjoy a destination in such a way that the local environment and culture can be maintained indefinitely. Sustainable tourism development can be understood and approached through careful control of site design and planning in which the following criteria are considered:

- Preservation, protection, and enhancement of resource quality
- Respect for local culture and traditions environment
- Integration of tourism development with other economic sectors
- Fair distribution of tourism development benefits

To meet these criteria, sustainable tourism development will need a new agenda of thought and action. It will be necessary to develop powerful tools and techniques in this area (Lusser, 1994). Achieving sustainable development goals entails the development of a sustainability indicators list and the development of a corresponding measuring tool of carrying

capacity thresholds as proposed in this dissertation. This would help to support successful tourism development particularly in coastal destinations.

3.2. CARRYING CAPACITY

Discussion of the impacts of tourism and the tourism development often leads to the question of capacity. Many of the current problems of tourism stem from the pressure of numbers of tourists. The idea of capacity springs from the notion of quality, since it is implied that when capacity is exceeded, quality is reduced. The CC concept determines the acceptable level of use or change for a resource beyond which that resource will be significantly degraded (Wise, 1988).

3.2.1. The Concept of Carrying Capacity

The concept of carrying capacity was introduced in biology to define the limit a species population attains given the environmental resistance indigenous to its location (Lein, 1993). In environmental planning context, carrying capacity has been defined as the ability of a natural or man-made development to absorb population growth and their activities without significant degradation (Schneider, 1978), or similarly, the degree of human activity that a region can sustain at an acceptable quality of life (Bishop, et al., 1974). In the field of recreation and leisure research, Stankey (1982) reports that the first reference to recreational resources having limitations to their ability to sustain continuous use can be traced to comments by Sumner (1936, 1942), who noted that "park areas cannot hope to accommodate unlimited numbers of people" and that the use of wild land areas must be kept "within the carrying capacity or recreational saturation point." Subsequent early work on the topic had a strong biological focus - it was directed primarily at maintenance of naturally occurring conditions - and as a result, gave a predictably physical resource orientation to the early studies. In the early 1960's increasing research attention was directed at the social aspects of capacity. That is, it was increasingly recognized that growing use levels would alter the nature of the recreational experience offered by a particular place to the point that it was different from that which originally attracted participants.

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Carrying capacity (CC) is also interpreted as the maximum number of tourists that can be accommodated without causing environmental degradation or leading to a decline in visitor satisfaction (Hovinen, 1981; Murphy, 1985). Carrying capacity is a well-established concept in the general field of resource management and in the particularly in recreational resources (Edwards, 1987). The research in this dissertation redefines carrying capacity within the context of sustainability principles as "Sustainable Carrying Capacity."

3.2.2. Dimensions of Carrying Capacity

Perhaps one of the earliest formal definitions of carrying capacity was that put forward by James and Ripley (1963) who simply defined it as the biological and physical limitations of the land to support recreational use (cited in Pratt, 1976). However, examination of several other authors' works have revealed various other dimensions to the carrying capacity concept. A degree of impact on the user was noted in a definition by LaPage (1963) who maintains that there are two essential components to be considered: 1) the aesthetic recreational carrying capacity, which is defined as that level of development and use beyond which measurable decreases in satisfaction occur as a direct result of gross numbers of recreationists; and 2) biotic carrying capacity, which may be defined as that level of development and use beyond which the site's capacity for sustained high level of satisfaction becomes impaired due to damage to the natural site.

Lime and Stankey (1971) have defined carrying capacity more concisely, as the character of use that can be supported over a specified period of time by an area developed at a certain level without causing excessive damage to either the physical environment, or the experience for the visitor. Clark (1978) agrees, but further recognized that management objectives for recreation also need to be considered and defined carrying capacity as the level, type and/or character of recreation use that can be supported over a specific time, by a specific area which maximizes user satisfaction within administrative and resource constraints. Fearnside (1986) defined the CC as "the maximum number of persons that can be supported in perpetuity on an area with a given technology and set of consumptive habits, without causing environmental degradation" (p.73).

Perhaps the most comprehensive definitions of carrying capacity have been put forth by Pigram (1983) and Shelby and Heberlein (1984). The latter authors propose a generic definition

and describe carrying capacity as the level of use beyond which impacts exceed acceptable levels specified by evaluative standards. They further maintain that there are four types of carrying capacity - ecological, physical, facility and social. Pigram (1983) agrees, but instead of facility capacity, describes what he calls economic carrying capacity.

3.2.3.   Tourism Carrying Capacity

Hovinen (1981) defines tourist carrying capacity as the maximum number of visitors that can be accommodated without causing excessive environmental deterioration and without leading to a decline in visitor satisfaction. O'Reilly (1986), on the other hand, describes two schools of thought concerning tourist carrying capacity. In one, carrying capacity is considered to be the capacity of the destination to absorb tourism before negative impacts are felt by the host population. Capacity is dictated by how many tourists are wanted rather than by how many can be attracted. The second school of thought contends that tourism carrying capacity is the level beyond which tourist flows will decline because certain capacities, as perceived by the tourists themselves, have been exceeded and therefore the destination area ceases to satisfy and attract them. Mathieson and Wall (1982) state carrying capacity is the maximum number of people who can use a site without an unacceptable alteration in the physical environment and without an unacceptable decline in the quality of experience gained by visitors. Martin and Uysal (1990) borrow from all of these definitions and describe tourist carrying capacity as the number of visitors that an area can accommodate before negative impacts occur, either to the physical environment, the psychological attitude of the tourists, or the social acceptance level of the hosts.

Physical carrying capacity involves two areas. These are the actual physical limitations of the area, the point at which not one more person can be accommodated, and any physical deterioration of the environment that is caused by tourism. Psychological carrying capacity has been exceeded when tourists are no longer comfortable in the destination area, for reasons that can include perceived negative attitudes of the locals, crowding of the area, or deterioration in the physical environment. Social carrying capacity is reached when the local residents of an area no longer want tourists because they are destroying the environment, damaging the local culture, or crowding them out of local activities.

Interest in capacity to absorb tourism has grown along with two major research trends (Getz, 1983). The first of these has been a growing evaluation of the negative effects of tourism (Cohen, 1978; Edwards, 1987) leading some to conclude that emphasis should be placed on determining how many visitors are wanted and can be accommodated, rather than how many can be attracted. The second research trend generating interest in capacity is associated with a realization that destination areas and resorts display cycles of popularity and decline (Christaller, 1963; Long, 1984, Plog, 1974). It is believed that the number of visitors to a destination will decline as certain capacities are exceeded or as over-commercialization occurs.

3.2.4.   Need for Carrying Capacity Policy

It is useful to consider what purposes underline the efforts to estimate the carrying capacity of resources. As indicated, numerous definitions of carrying capacity are in the literature. However, most of them have the following features in common: a) capacity is seen as a function of both environmental and social effects; b) a notion of sustained output (effects over time) is reflected; c) recognition that carrying capacity levels will vary according to the type of activities under consideration; and d) that the formulation of a carrying capacity is dependent upon the establishment of clear management objectives for the area. These features are reflected in this research study and were used to develop the sustainability model as part of this dissertation.

From the above general themes of commonality, it can be concluded that a basic objective of carrying capacity is to identify a desired relationship between the use of a resource system for determined purposes, the impacts on that system, and the experiences derived from participating in that system. In this sense, carrying capacity describes the resources and conditions of use consistent with the management objectives prescribed for an area, and helps to identify what actions might be needed to achieve, restore or protect these desired conditions.

It is essential for those interested in achieving sustainable development to establish tourism development policy for a destination that reflects the relationship between the tourism lifecycle concept and tourism carrying capacity. From this point of view, the different lifecycle stages of a tourism destination can be controlled by the determination and utilization of the optimal carrying capacity.

Commonly, the need for a policy is not recognized until the area has reached a decline stage. If a policy is established in the early stages of tourism lifecycle, it is possible that the area might never reach a decline situation. An essential role of tourism policy makers is to determine the lifecycle stage of their destination, the optimum carrying capacity limits for their destination at this stage, and the specific implementation steps to be considered to sustain or obtain a desired lifecycle stage (Martin & Uysal, 1990).

Understanding the concept of carrying capacity is also essential for practical physical planning, management, and decision-making in tourism. The gap between theoretical models and the real world has to be closed by managers. Managers make value judgments to shape the environment according to their strategies and subjective goals. Planners and managers impose arbitrary maximal limits to recreational impacts, and develop minimal thresholds for investments to be profitable. Decision-makers can cope with the problems of tourism's growth by proper controlled development, rather than restrictive measures and remedial reactions. Most environments are sufficiently able to withstand a limited number of visitors. By anticipating growth and development, managers may participate in the environmentally-sustainable development of tourism.

Problems of adverse impacts may be controlled by a strict management policy from the beginning with limited visitor numbers, high costs and restricted destinations. There is a critical threshold between reciprocal interest and mutual exploitation. There is a critical threshold between visitors being treated as guests and being regarded only as sources of money or major irritations. High quality tourism could be self-sustaining with minimal environmental and cultural damage if a sensible management plan is implemented. Sensibly managed tourism could provide sustained economic benefits that result in less aid dependence. A primary requirement in any tourism management strategy is to preserve the uniqueness in such a way that the people and government may together derive economic benefit from tourism without any of the associated social-cultural and environmental problems. Price levels and visitor numbers could be balanced to ensure adequate return on investment and guaranteed income for local people (Shackley, 1993).

In using the term carrying capacity, it is important to distinguish between two interpretations. In one sense, carrying capacity refers to the optimum density of tourists for the benefit of their enjoyment. On the other hand, in terms of environmental impacts, carrying capacity refers to a certain threshold level of tourist activity beyond which a) physical deterioration of the resource will occur, b) damage to natural ecosystem will become irreversible, and c) difficult social irritation will occur due to competition for scarce resources and services. The two interpretations and uses may not be mutually exclusive but their different functions must not be confused.

3.2.5. Carrying Capacity: The Determining Factors

Concepts of capacity to absorb tourism address the notion of limits or thresholds beyond which development, use, growth, or change cannot occur, or should not be permitted. But what are the criteria by which such limits can be established? Six basic interpretations of determining capacity to absorb tourism can be identified.

3.2.5.1. Excessive rate of growth or change

The rate of growth or change is a factor that can influence all other variables, but is treated as a separate approach to capacity because rapid change itself can have detrimental impacts (Gunn, 1988). Problems might be caused by an inadequate system to make policy and management changes or by the absence of appropriate policies altogether. Any assertion that a slow rate of change will result in fewer or lesser negative impacts rests on the assumption that rapid or massive development cannot be planned or managed adequately.

3.2.5.2. Tangible resource limits

A common planning procedure is to conduct inventories of existing resources and to identify obstacles to development. Potential resources can be assessed, through capability studies, providing an additional measure of possible limits on use or development (Getz 1983).

3.2.5.3. Tolerance by the host population

The preferences of a host population could be allowed to dictate the types and amounts of growth and change based on the premise that those most directly affected by tourism should be given the greatest voice in deciding how to control it.

3.2.5.4. Satisfaction of visitors

The attitudes and experiences of visitors, if negative, can act to restrict the growth of tourism or to cause a decline in popularity in a destination area. However, this is a complex process since satisfaction is dynamic and constantly changing.

3.2.5.5. Capacity based on the evaluation of costs and benefits

There is a clear need to consider capacity in the context of an evaluation of costs and benefits of established goals and objectives. Capacity thresholds must be interpreted as part of a dynamic process aimed at overcoming barriers where possible. The carrying capacity, as defined in the above sense, is not a mechanistic or deterministic procedural matter, but a judgmental process involving decisions as to what objectives are deemed appropriate for an area and what social and environmental effects are consistent with those objectives.

3.2.5.6. Capacity based on services and activities management

Capacity is measured by the ability of those involved in operating to serve and accommodate tourism functions. The idea of carrying capacity provides a frame of reference for organizing tourist development. It is widely used to underline the importance of maintaining a level and mix of development that is environmentally and culturally sustainable.

3.2.6. Carrying Capacity: Application Tool in Developing Countries

Disadvantaged areas have been shown to become dependent on the benefits of tourism and thus more vulnerable to adverse impacts, especially if these occur without a proper infrastructure. The fragility of the economy gives cause for concern that tourism may simply create a dependency (Shackley, 1993).

Tourism in developing countries has grown to significant levels in a relatively short time, resulting in a heavy strain being placed on local infrastructures and human resources. In many cases, the infrastructure is not adequate to absorb the increase in numbers of tourists. The ability of developing countries to compete globally in the tourism market and their ability to meet the expectations and standards of tourists, depends largely on the four following conditions outlined by Mathieson and Wall (1982):

- The variety, quality and cost of the facilities and services being offered;
- The existence of skilled and experienced personnel and agencies;
- The geographical location of the destination; and
- The nature and origin of financial investment.

Many factors contribute to the problems associated with the tourism industry's growth in developing countries. The most obvious difficulties facing developing countries entering the tourism market are: a) low levels of income; b) uneven distribution of income and wealth; c) high levels of unemployment and underemployment; d) low levels of industrial development; e) heavy dependence on agricultural export earnings; f) high levels of foreign ownership of manufacturing and service industries; g) high inflation; h) high import requirements; i) increased costs of development; j) poor transportation and communication facilities; k) low levels of organization; l) high levels of investment; m) high proportion of profits returned to other investing countries; and n) shortages of foreign exchange.

3.3. APPROACHES TO SUSTAINABLE TOURISM DEVELOPMENT

This section explains three approaches to sustainable tourism development, and then describes their linkages to the concept of carrying capacity. It is important for the reader to understand these approaches because they are incorporated into the study's conceptual model.

A sustainable tourism effort consists of a long-term, integrated systems approach to developing and achieving a healthy community by jointly addressing environmental, economic, and social issues. For environmentalists, the meaning attached to sustainability is ecological: the need to preserve and protect the natural environment that emphasizes ecotourism as an

alternative to the mass tourism. To economists, by contrast, sustainability represents the opportunity to reduce costs and increase profit margins to maintain tourism business through its life course. To sociologists, sustainability means preservation of the local cultural resources, people's traditions, and community identity with better host/guest relationships. In design and planning for coastal zones, it is essential to understand how these concepts and approaches are identified and related to each other. For example, sustainability is a goal, ecotourism is an activity (a form of adjustment tourism focused on sustainability that turns mass recreational coastal tourism that is based on nature to an ecotourism option), and carrying capacity is the measuring tool. They are all related in complementary ways, establishing the tool for adjusting the activity to achieve the goal. Figure (3-3) illustrates the interaction between the economic efficiency, social equity, and environmental conservation contexts of development, in which, sustainable approaches (as opposed to a traditional model) are the central themes of tourism development. The sustainable concept of carrying capacity is being applied to control development size and quality toward a sustainable development model.
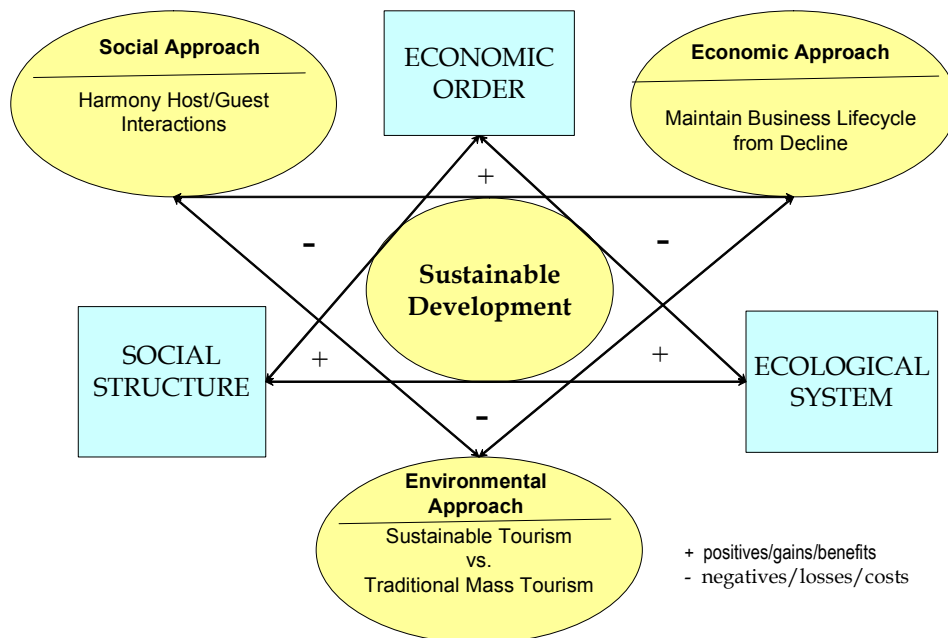

Figure (3- 3): Economic, Social, and Environmental Approaches to Sustainability

Tourism development involves many economic, social, and environmental changes over its lifetime. Therefore, it is important to establish environmentally sound development patterns early on so as to protect rather than damage the uniqueness of the coastal environment.

3.3.1. The Environmental Approach to Sustainability

The growing concern for conservation and the well-being of the environment over the last two decades has brought about a closer relationship between the environment and tourism communities. This view suggests that environmental conflicts caused by natural area tourism developments may be reduced and that environmentally compatible tourism developments may be achieved through sustainable development. The future of sustainable tourism planning is found in the recognition of the link between environmental conservation and tourism development. Dowling (1997) suggested that the key to achieving compatibility is to start with clearly defined environmental, tourism, and sustainable environmental-tourism goals. The goals can be summarized as:

- Preserving and maintaining virgin attractions for tourists;
- Establishing protected areas to guard against overexploiting their natural resources;
- Providing people with alternatives to save precious environments;
- Promising employment and income to local communities, continuing the existence of a natural resource base and needed foreign exchange to national governments;
- Giving local communities a sense of pride in their natural resources;
- Educating travelers about the importance of the ecosystems and being actively involved in conservation efforts; and
- Maximizing economic benefits and minimizing environmental costs.

Tourism and conservation may enjoy a mutually supportive relationship when they are organized in such a way that each benefits from the other. The sustainability of tourism is directly linked to the existence and health of natural resources, so sustainable tourism supporters and promoters must share a conservation ethic. Sustainable tourism aims to maximize economic benefits for local communities by increasing public awareness of environmental issues, fostering cultural sensitivity, and determining what activities tourists can do and what other activities are prohibited in order to for minimize the negative impacts of tourist visits.

The starting point to supporting the environmental protection of sensitive coastal zones is the incorporation of sustainable development concepts into the initial planning stages. This will encourage a responsible attitude towards the environment, and should address the question of sustainability and benefits to local people (see ETC, 2001).

3.3.1.1. The Ecotourism Option

Ecotourism Historical Background

Ecotourism dates back at least to 1965 when Hetzer called for the rethinking of culture, education, and tourism, and promoted 'an ecological tourism' ("ecotourism"). As the term has come to be used, it overlaps a number of related tourism forms. Valentine (1990) notes that eco-tourism appears in the literature as adventure tourism, nature-oriented tourism, alternative tourism, appropriate tourism, soft tourism, responsible tourism, ethical tourism, environment friendly travel, green tourism, sustainable tourism, and nature tourism. One could extend this list to include special cases - quality tourism, ethnic tourism, cultural tourism, socioecological tourism, photo safari tourism, dive tourism, and surfing tourism come to mind (Grenier, Kaae, Miller, & Mobley, 1993). According to Boo (1991), the concept of ecotourism emerged from two trends: the integration of conservation with economic development, and the tourist demand for active travel to new destinations.

Ecotourism is defined as "that segment of tourism that involves traveling to relatively undisturbed and uncontaminated natural areas with the specific object of admiring, studying, and enjoying the scenery and its wild plants and animals, as well as any existing recreational and cultural features" (Kusler, 1991, p. xii). Low-impact ecotourism is based on minimal infrastructure and relies mainly on local resources. The Ecotourism Society, a Non-Governmental Organization (NGO), also, defines ecotourism as "responsible travel that conserves the environment and sustains the well-being of local people." Responsible 'ecotourism' is measured against four standards: (1) minimum environmental impact, (2) minimum impact on - and maximum respect for - host cultures, (3) maximum economic benefits to a host country's 'grassroots', and (4) maximum 'recreational' satisfaction to participating tourists.

Steele (1993) described ecotourism as an economic process where nature and beautiful ecosystems are marketed to attract tourists. A wider interpretation of ecotourism embodies environmentally sound practices in tourism (Cater & Lowman, 1994). These definitions imply the incorporation of sustainability principles that urgently support the use of ecotourism as part of tourism in sensitive coastal zones.

Ecotourism Strengths and Challenges

Eco-tourism is viewed as a promise to improve people's knowledge and awareness of natural resources through "an enlightening, nature-oriented travel experience that contributes to conservation of the ecosystem while respecting the integrity of host communities" (Poimiroo, 1997, p. 1). Eco-tourism usually has high levels of local control of resources, uses simpler facilities, is less expensive, and has a minimally intrusive infrastructure (Valentine, 1990). In fact, many researchers have indicated that ecotourism can directly finance conservation efforts and provide local support for continued conservation (Ashton, 1990; Boo, 1991; Goldfarb, 1988). In general, many believe eco-tourism maximizes the positive socio-economic impact of tourism and promotes sustainable development through "responsible tourism."

Coastal tourism relies on the natural features of the surrounding environment, and is considered a form of ecotourism. Arguments in support of ecotourism, as opposed to traditional mass tourism, can be applied to coastal zones in general. They are as follows (Gartner, 1996):

- Higher daily expenditures and a longer average length of stay than mass tourism
- Fewer capital requirements since ecotourists demand simpler services supplied by local societies
- Fewer economic leakages as more local spending is generated
- Increases in employment as local resources (e.g. capital and labor) are more heavily utilized
- Education for both locals and guests is supported
- Less harmful environmental impacts as resources are protected for long-term tourism development
- Fewer social impacts as hosts and guests are more interactive

Ecotourism can enhance local communities' lifestyles, knowledge, and awareness, and supplement income gained from traditional tourism. It can also assist in the conservation of surrounding cultural and natural resources, and help to improve services for local communities.

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Whelan (1991) found that ecotourism plays an important role in the conservation of the unique and beautiful natural resources in tourism development by providing an incentive for travelers to preserve rather than destroy nature's gifts through educating them about the importance of ecosystems and actively involving them in conservation efforts.

One criticism of ecotourism and its potential is that there is no guarantee that the standards of environmental ethics will be followed. Eventually, sustainability may refer to maintaining the business and not the environment (Wheeler, 1992). The negative impacts of ecotourism may exhibit themselves in two ways: 1) the quantitative aspect of overcrowding, and 2) the qualitative aspect of ecological degradation. Some ecotourists do abuse the environment. In addition, ecotourism is sometimes associated with quickly growing costs to taxpayers (such as cost of enforcing regulations, search and rescue efforts).

3.3.1.2. *Eco-Tourism as an Option for Developing Countries*

Ecotourism is usually associated with increased benefits to the local community, which is especially important especially in less developed countries. The revenues to local economies can be substantial. For most less developed countries, ecotourism means injection of hard currency, economic diversification, and jobs in the poorest regions of the country where protected areas are located (Mieczkowski, 1995).

There is a strong desire by many developing countries to reap the economic benefits of ecotourism, and this has led to a growing realization by governments, the tourism industry, and environmental and conservation agencies of the opportunities which exist for the mutual achievement of conservation and economic goals (Thomas, 1990). The significance of ecotourism in terms of tourism revenue and environmental protection to certain developing destinations is obvious when their problems and their potential are examined. The development of ecotourism provides an opportunity to capitalize on plentiful natural and unspoiled attractions.

Ecotourism development may well prove a viable alternative in destinations where funds for large-scale tourism development are not available (Sherman & Dixon, 1991). The emphasis on ecotourism development for developing countries is practical for three important economic reasons. First, the facilities infrastructure is simpler and less expensive than those demanded by

conventional mass tourism, and therefore places less strain on the limited finances available. Second, locally owned and operated businesses are not required to conform to the westernization of tourism and, therefore, can provide a much higher input of local products, materials, and labor. This not only has greater economic effects throughout the local economy, but it also reduces import leakage and outside labor costs which result from larger foreign-owned operations (Boo, 1991; Valentine, 1990). Third, the profits made generally remain in the locality instead of flowing back to the parent country. This is a particularly attractive prospect for developing countries with scarce capital.

To ensure sustainable ecotourism development the governments of developing countries need to: (a) intervene in the market; (b) oversee integration in planning and implementation; and (c) encourage local involvement. Developing countries must be careful to avoid exploiting their own environmental carrying capacity. In some cases, ecotourism development may actively disadvantage the local population, denying them any direct benefits and excluding them from the very resources on which they depend for their basic needs.

3.3.1.3. *Linking Ecotourism to Carrying Capacity*

The economic benefits and costs of tourism, and the degree of tourism activities determined by the number of tourists and the amount of land used or exposed to tourism activity, can have a bearing on the social and psychological environment of the resident population, and the ecological capacity of a destination. There is a need to establish and explore a framework to examine the overall tourism capacity of destinations in developed and developing countries.

To emphasize the role ecotourism can play in the development and maintenance of "sustainable tourism" a Kenyan example is provided. The Kenyan government and local communities recognized that ecotourism was critical to the well-being and sustainability of their nation. After spending years establishing a plan to popularize Kenya as an attractive tourist destination, environmental degradation was evident due to bush clearing, tilling the land, poaching, and big game hunting expeditions by Europeans and Americans. By the 1970s, the Kenyan government was forced to declare a complete ban on hunting and commercial trade in wildlife products, despite its continued demand and economic benefits. The changed attitudes, increased funds and support for the protection of the parks, and complete ban on the ivory trade

opened a window of hope for continued protection for the nature and the wildlife of Kenya. However, many Kenyans found themselves without jobs. In response, the Kenyan government launched programs to manage and own ecotourism companies that promoted the natural beauty of their country, its biodiversity, their unique wildlife resources, and an extensive system of national parks. Within five years of the hunting ban, ecotourism became a booming business. The number of ecotourists grew from thousands to hundreds of thousands, and earnings increased from $7 million in the 1970s to $350 million in the 1980s (Olindo, 1991).

While these changes appeared promising, this financial success of ecotourism in Kenya hid a number of social and environmental problems including: low levels of local community support for the parks and conservation efforts, mismanagement of protected areas, inadequate government funding for parks maintenance and enhancement, and illegal hunting and poaching for ivory. While the Kenyans developed a strategy for ecotourism, they stretched the carrying capacity of fragile ecosystems beyond their thresholds. In response, the Kenyan government developed a number of policies aimed at increasing local participation, fiscal incentives, and other economic benefits to encourage the locals to protect their neighboring tourism sites. Local participation and involvement had become the keystone of the Kenya's plan for economic improvement and natural resource conservation (Whelan, 1991).

3.3.2. The Economic Approach to Sustainable Tourism Development

In order to achieve sustainable development in the tourism industry, we must expand our consideration beyond just design. Sustainability is often expressed in the tourism field by the lifecycle concept adopted by Butler (1980), Richardson (1986), Witt (1989) and others. Richardson (1986) introduced the development life cycle as a guide for strategic decision-making and forecasting. Witt (1989) suggested that tourism businesses and destinations should adopt long-term planning in order to utilize the product life cycle (PLC) concept as an organizing framework for tourism projects planning and developing decisions. Butler's (1980) hypothetical evolutionary pattern for tourist destination outlines the interrelationship between the different development stages and possible environmental impacts associated with such development. It argues that environments pass through identifiable life cycle stages that can be represented by a curvilinear function plotting total outcome or quality over time.

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The trend towards eco-tourism vacations, presented as sustainable, nature-based and environmentally friendly, is now subject to considerable controversy. There are well-founded concerns that it lacks adequate scientific foundations, threatens natural resource bases, and is not viable as a solution to the world's social and environmental problems. Many ecotourism claims concerning its benefits are exaggerated, and owe more to labeling and marketing than genuine sustainability. Critics regard eco-tourism as a tactic concealing the mainstream tourism industry's consumptive and exploitative practices by 'greening' it (Pleumarom, 1995). While eco-tourism may sound benign, one of its most serious impacts is the expropriation of 'virgin territories.' For example, in coastal areas, many mega-resorts have built projects of completely artificial landscapes, tending to wipe out plant and wildlife species, even entire eco-systems.

Tourism and conservation can be in conflict, particularly when tourism induces detrimental effects to the environment (Budowski, 1976; Mathieson & Wall, 1982; Whelan, 1991). Sherman and Dixon (1991) report that eco-tourism supports both conservation and economic development objectives; however, it is not the solution to all conservation or economic problems.

Tourism is seen as a viable economic alternative, especially for developing countries. Most of the developing countries rely on the export of one or two products within its few resources for foreign exchange earnings. These countries have little to sell except their natural features of sun, sea, and sand. In many instances, governments in these countries jump into tourism development for potential economic returns without researching the potential impacts on their economies, environments, and people (Crandall, 1994). Tourism is recognized as a major factor to local economies with little realization that it might lead to social problems. These changes could happen gradually or rapidly (Crandall, 1994).

There is a strong desire by many developing countries to reap the economic benefits of ecotourism, and this has led to a growing realization by governments, the tourism industry, and environmental and conservation agencies of the opportunities which exist for the mutual achievement of conservation and economic goals (Thomas, 1990). The significance of ecotourism in terms of tourism revenue and environmental protection to certain developing destinations is obvious when their problems and their potential are examined. The development

of ecotourism provides an opportunity to capitalize on plentiful natural and unspoiled attractions. Ecotourism became a strong option particularly to the developing world, where the revenues to local economies could be substantial. This question of choice has a vital bearing on the whole of sustainability for the poorest whose very poverty forces them into unsustainable behavior (Cater & Lowman, 1994). Redclift (1992) stated that poor people often have no choice of idealism or altruism to protect the environment, when individuals are forced to behave selfishly in their struggle to survive to choose immediate economic benefits at the expense of long-term sustainability. Clark (1990) suggested that there is a level of poverty below which sustainability becomes a non-affordable luxury. Contrary to economic claims, local people do not always benefit from eco-tourism. Locals are usually left with low paying service jobs such as tour guides, porters, and food and souvenir vendors. Many are laid off during the off-season. Most money is made by foreign airlines, tourism operators and developers who send their profits to their more advanced countries.

The negative impacts of ecotourism may exhibit themselves in two ways: (1) the quantitative aspect of overcrowding, and (2) the qualitative aspect of ecological degradation. There is also the fear that ecotourism could change into conventional mass tourism if demand remains high. In spite of this criticize eco-tourism, typically has important conservation and protection benefits compared with more intrusive types of tourism and it helps to improve services for local communities.

Ecotourism also has a cost, although at this point, that cost is often unknown. For example, what level of economic leakage is acceptable within the ecotourism definition? How people decide to interpret ecotourism and its core values will determine if it is considered a valuable and viable tourism option, or seen as another way to fragment the tourism industry. Another concern is at what point does ecotourism cross the line from sustainable development to mass tourism. In other words, what is the carrying capacity threshold for acceptable ecotourism? How is it sensitive to the environment?

The following section describes the product lifecycle concept, applies this concept to tourism development and evolutionary patterns, and then links the product lifecycle to the

carrying capacity concept. This applies directly to the research since coastal resorts develop through a series of stages, and can in themselves be considered "products."

3.3.2.1. *Product Lifecycle Concept (PLC)*

According to the product lifecycle concept[11] every type of development passes through a series of stages in the course of its life, with the total of the stages constituting the product's life cycle. Therefore, at any given time, every product is located within one of four life-cycle stages; introduction, growth, maturity, or decline. When the product first enters the market, (the introduction stage), it is characterized by slowly developing sales. As the product remains in the market and as consumer recognition increases, a gradual upward trend in sales can be expected. If sales begin to increase at a rapid, even exponential rate, the product enters the growth stage. In this stage, consumer acceptance becomes intensified, causing increase in market demand for the product. Eventually, sales will slow as the market approaches its saturation point. At the market saturation level, the product enters the maturity stage. Sales levels will decrease and result in lower profit margins. Consumer acceptance is no longer important to product success; instead, consumer loyalty becomes the key aspect. As consumers begin to substitute new products for the current products, sales begin a continued downward trend signifying the decline stage where the profitability and cost effectiveness of the product decreases.

It is essential to recognize the importance of incorporating sustainability principles, planning, and policy determination at the early stages of tourism development, starting from the initiation of the idea, establishing the concept, developing the product (the resort), and testing the marketing in such a way that tourism product (the resort) entering the introduction stage passing the growth stage to the maturity level without reaching the decline stage.

In general, the initial stages of the product development process are the idea stage, the development stage, the concept stage, and the test marketing stage. Figure (3-4) below illustrates

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[11] The success of applying the product life cycle concept in the field of marketing has encouraged other researchers to apply the same concept in parks and recreation services (Crompton & Van Doven, 1976; Davidson, 1976; Doven, 1976; Ford, 1981). [See footnote #3 for definition of PLC].

the product development process and product life cycle combined. The PLC concept is widely approved and the important aspects which should be emphasized are: 1) products experience certain development stages; 2) there are certain factors which can affect the development pattern, these factors can be related to decisions which are made during the early stages of the development process, even before it enters the market; and 3) the positioning of the product cycle stage can be identified throughout the relationship between, two main variables, time and the number of sales unit (number of accommodation units and associated development).
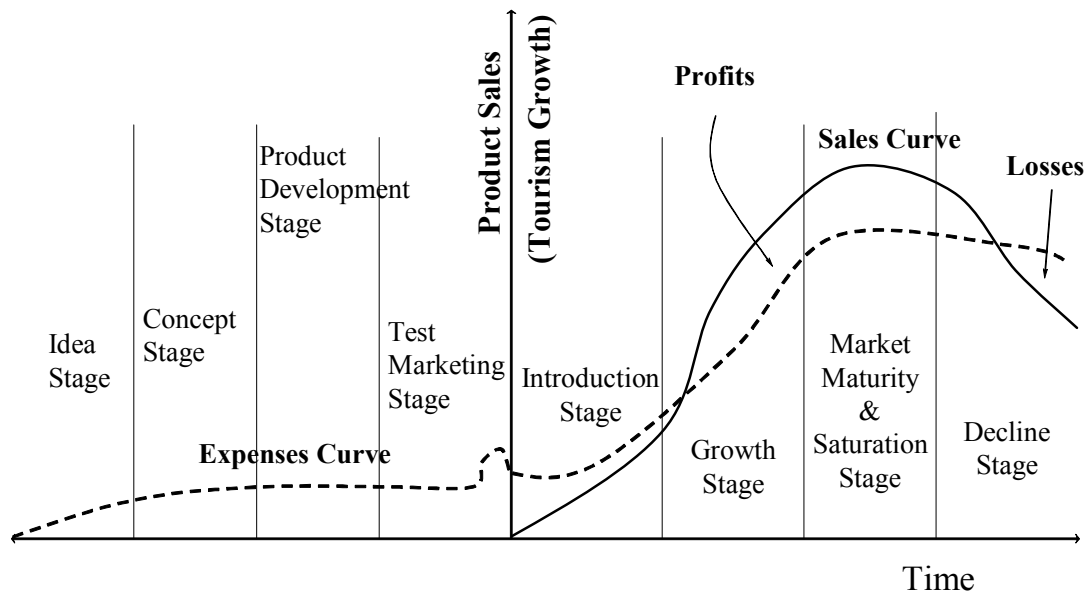
[source: After El-Halafawy, 1991]

Figure (3- 4): Product Planning and the Development Process

The development stages of a coastal resort can also be visualized in this manner. The point where a carrying capacity threshold has been met and overcome will be indicated by the stages of saturation and a decline in destination sustainability.

3.3.2.2. *The Applicability of the PLC in Tourism Development*

The life-cycle development approach to tourism areas has become widely acceptable (Arendt, 1985; Butler, 1980; El-Halafaway, 1991; Martin & Uysal, 1990). The economic aspect of sustainability is applicable in a profound manner to the lifecycle of tourism development. The tourism life cycle was developed to describe the evolution of a destination area. Simply, the numbers of tourists replace the volume of product sales. Several field studies were followed to examine the validity of this concept in many tourist destinations (see El-Halafway, 1991).

Evolutionary Patterns

Butler (1980) suggests an approach that includes the concept of carrying capacity as a part of an evolutionary model in which tourist areas pass through six main stages [see Figure 3-5].
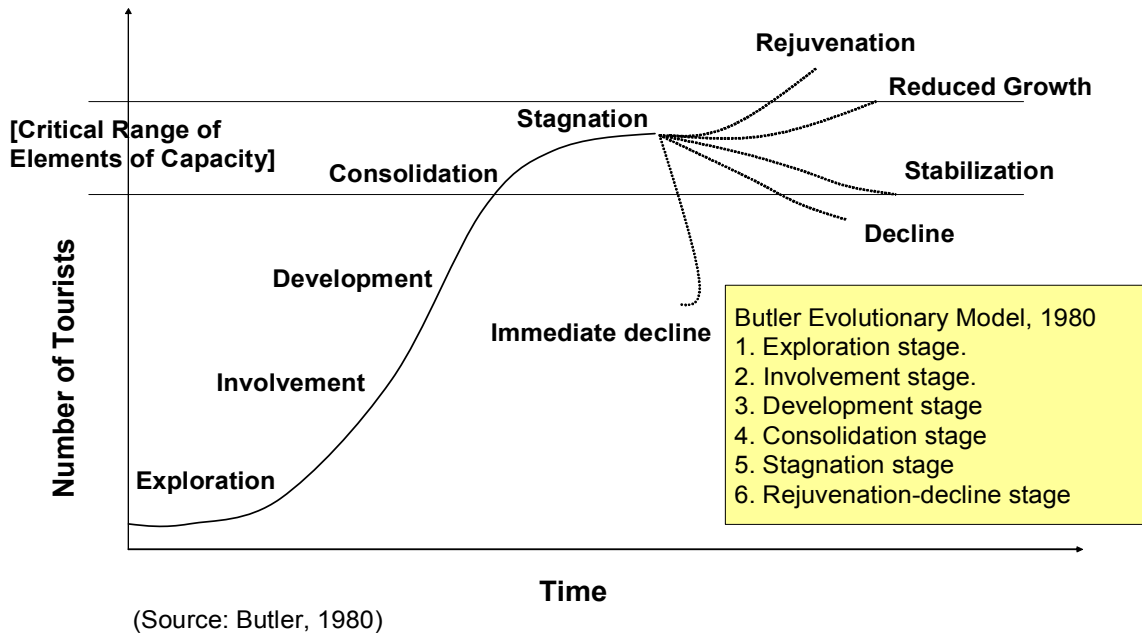

(Source: Butler, 1980)

Figure (3- 5): The Evolutionary Pattern for Tourist Destination

As facilities are provided and awareness grows, visitor numbers will increase. With marketing information, and further facility provisions, the area's popularity will grow rapidly. Eventually, however, the rate of increase in visitor numbers will decline as levels of carrying capacity are reached or there is a shortcoming in the development process. Characteristics of these different stages are summarized as follows: 1) Exploration Stage: It is characterized by small number of tourists making individual travel arrangements and following irregular visitation patterns. 2) Involvement Stage: As the number of visitors increases and assume some regularity, some local residents will begin to provide facilities primarily or even exclusively for visitors. 3) Development Stage: This stage reflects a well-defined tourist market area, shaped in part by heavy advertising in tourist-generating areas. As this stage progresses, local involvement and control of development will decline rapidly. Some locally provided facilities will disappear, being replaced by larger, more elaborate, and more up-to-date facilities provided by external organizations. 4) Consolidation Stage: As this stage is entered the rate of increase in numbers of visitors will decline, although total numbers will still increase, and total visitor numbers exceed the number of permanent residents. A major part of the economy of the area will be tied to tourism. 5) Stagnation Stage: As the area enters the stagnation stage the peak number of visitors will have been reached. Capacity levels for many variables will have been reached or exceeded, with attendant environmental, social, and economic problems. The area will have a well-established image but it will no longer be as popular. Natural and cultural attractions will probably have been replaced by imported artificial facilities. The destination image becomes separated from its geographic environment. The type of visitor can also be expected to change towards the organized mass tourist identified by Cohen (1972) and the psychocentric described by Plog (1974). 6) Rejuvenation-Decline Stage: the direction of the curve after the period of stabilization has several possible interpretations. Redevelopment could result in renewed growth and expansion as shown by (Curve A). The rejuvenation stage will never be reached without a complete change in the attractions on which tourism is based. There are two ways of accomplishing this goal can be seen at present, one is the addition of man-made attractions and another is to take advantage of previously untapped natural resources. Minor modification and adjustment to capacity level, and continued protection of resources, could allow continued growth at a slower rate (Curve B). A readjustment to meet all capacity levels would enable a more stable level of visitation to be maintained after an initial readjustment downwards (Curve

C). Continued overuse of resources, non-replacement of resources, and decreasing of competition with other areas would result in the market decline (Curve D).

These studies of evolutionary patterns indicate that the decline in resort destination quality and viability may be predetermined and avoided by first measuring its carrying capacity thresholds and then modifying development practices to stabilize the effects of particular impacts.

3.3.2.3. *Linking PLC Concept to Carrying Capacity Implication*

The concept of an evolutionary pattern of tourist areas is a theoretical one that has potential for application. Many researchers have examined the validity of this concept by analyzing the applicability of these evolutionary patterns to resort destinations (see El-Halafaway, 1991). Three examples of such studies are discussed below:

The Grand Isle, Louisiana Resort Cycle

In a study on the Grand Isle, Louisiana, Arendt (1985) suggested that the evolution of a coastal resort can be described by the tourist area cycle model proposed by Butler (1980). Each stage of the cycle is characterized by distinctive patterns that reflect changing environmental perceptions and/or conditions. Environmental attitudes, constantly changing over time, may help explain growth patterns and the environmental component plays a significant role in the revolution of recreation areas, particularly coastal resorts, and warrants further investigation in studies of resort development.

The Atlantic Resort Area Cycle

The Atlantic City resort was losing its appeal for attracting tourists. It had become an unpopular resort partly due to changes in transport technology and recreation geography. Stansfield (1978) outlined that the legalization of casino gambling in Atlantic City was politically feasible following widespread voter recognition of the old resort's economic and social condition. There is an apparent cycle in the development, expansion, and shift in the socio-

economic base of patronage. Atlantic City's past century represents a case of tourist area cycle that has experienced all the evolutionary stages proposed in Butler's model.

Resort Evolution and the Tourist Area Cycle

Sauble (Ontario, Canada), a resort community with a large summer tourist influx and a growing resident population, was studied. Quantitative evidence emphasized the importance of the length of stay as another measurable component of the resort cycle beyond the absolute number of tourists.

The life cycle concept as a framework for decision-making may serve as a tool for controlling the process. This lifecycle process can be useful in providing the information for developing new or similar projects or improving and controlling the existing ones. It can be used as a framework for decision-making processes through the different development phases and as a tool to balance the developments' long- and short-term objectives, as it aims to maximize the benefits for the developer and the existing community. These decisions will have vital input into the final project, which will then affect its life pattern and stages. There should be a balance between short-term objectives (developer profitability) and long-term objectives (quality of natural resources and living conditions for the host communities).

One of the early attempts to integrate the concept of carrying capacity with the design and planning process was the research on establishing an evolutionary pattern for the coastal resorts by El Halafawy (1991). This effort identified the role of designers, planners, and other involved groups in the determining beach resort capacities through different development stages in order to maintain and improve the project image and prevent the tourism destination from reaching the decline stage [see Figure 3-6]. Each of the stages in El Halafawy's evolutionary pattern is discussed in more detailed below.
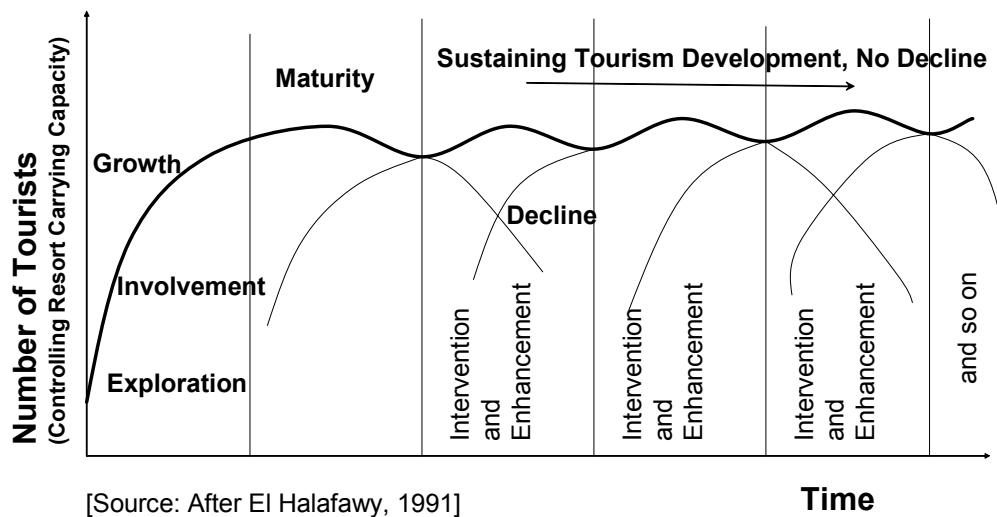
Number of Tourists
(Controlling Resort Carrying Capacity)

Maturity

Sustaining Tourism Development, No Decline

Growth

Decline

Involvement

Exploration

Intervention and Enhancement

Intervention and Enhancement

Intervention and Enhancement

and so on

[Source: After El Halafawy, 1991]

Time

Figure (3- 6): Proposed Evolution Model for Tourist Beach Resorts

(1) Exploration

Visitors are initially attracted to an area by its unique or considerably different natural and cultural features. At this time there would be no specific facilities provided for the visitors. The use of local facilities and contact with local residents are high, which may be a significant attraction to some visitors. The physical and social identities of the area would be unchanged by tourism, and the arrival and departure of tourists would be of relatively little significance to the economic and social life of the permanent residents (El-Halafawy, 1991). Gunn (1988) and Martin and Uysal (1990) emphasized that many problems could be prevented if policy makers realized the need for establishing a policy when tourism is just entering the exploration stage. This planning phase would determine the type of tourism and the scale of development that is amenable to the available resources of the area and local community (Cooke, 1982; Heenan, 1978; Murphy, 1988). A primary step in the planning process, the survey of the local population, resources, and opportunities provides decision-makers with a guidelines in the process of formulating development planning laws and regulations such as zoning laws, construction

regulations, and environmental protection laws (Martin & Uysal, 1990). This step should include an in-depth market analysis (Hawakins, 1987), and an environmental impact assessment to predict impacts that might be associated with development (Holder, 1988).

(2) Involvement

As tourism development progresses, some advertising specifically to attract tourists can be anticipated and a basic initial market area for visitors can be defined. A tourist season can be expected to emerge and changes will occur in the social patterns of local residents involved in tourism. Some level of organization in tourist travel arrangements can be expected along with pressures on governments and public agencies to provide or improve transportation and other faculties for visitors.

(3) Growth

Natural and cultural attractions will be developed and marketed specifically, supplemented by man-made imported facilities. Changes in the physical appearance of the area will be noticeable. Regional and national involvement in the planning and provision of facilities will almost certainly be necessary. The number of tourists at peak periods will probably equal or exceed the permanent local population. Employment training programs are incorporated into the development program, as well as increasing the use of local employment. There is recognition that tourism development will cause changes and there will be a need to regulate these changes. The existence of zoning laws and construction regulations is essential to avoid greater impact or deterioration. Accessibility to the financial support from local banks to local investors is necessary to maximize the economic benefits for local communities, and to prevent leakages from the area. The destination's image is improved of the project is well designed, and provides the needed services and facilities. The tourist's needs and expectations are met by the project concepts, services and activities. This stage reflects a well-established resort shaped partly by good design, marketing, and by management policies. In the peak periods the resorts will probably reach its maximum capacity.

(4) Maturity

Marketing and advertising will be widespread and efforts made to extend the visitors season and market area. Major franchises and chains in the tourist industry will be represented. The large numbers of visitors and facilities provided for them can be expected to arouse some opposition and discontent among permanent residents, since it may result in some restrictions on their activities. In this stage, formulation of a policy is critical and should incorporate practical measures to sustain the status of the tourism development. Tourism development is no longer growing and policy formulation should be focused on preventing decline to the destination. Policy should be structured so that laws and regulation could be able to overcome new problems.

The maturity stage is the ideal stage in the development lifecycle and a comprehensive tourism policy should be able to prolong it (Martin & Uysal, 1990). At this stage there might be slight opposition from local residents to tourism. This requires the local government to provide residents with the awareness of tourism benefits through newspapers or newsletters. It is important to address the environmental deterioration problems immediately such as beach erosion, or inadequate parking places. In this stage, the rate of increase in number of tourists will decline, although the total number may reach its maximum point. There will be a heavy reliance on repeat visitations and more effort is needed to maintain the level of visitation.

(5) Intervention and Enhancement

In this stage the area will not be able to compete with newer attractions and will face a declining market. It will no longer appeal to vacationers but will be used increasingly for weekend or day trips. Property turnover will be high and tourist facilities are replaced by non-tourist related structures, as the value of tourism becomes more questionable. At this stage, policy formation decides whether or not it is desirable to rejuvenate the destination area to restore its attractiveness to tourism. The local government may decide another desirable activity or industry can replace tourism. If the restoration decision has been made, then policy must be designed to support this direction such as tax incentives for historical sites. This policy should fully form the new desired image so that marketing agencies have a well-defined tourism product for promotion.

Although a consistent evolution of tourist areas can be conceptualized, it must be emphasized that not all areas experience the stages of cycle as clearly as others. The shape of the curve will vary for different areas, reflecting variations in such factors as rate of development, number of visitors, accessibility, government policies, and number of similar competing areas. At this point, the direction of the curve is open to several interpretations. The architect, manager, and developer should work together to improve the resort image in order to regain its position in the market. This could be done by adding more services and attractions in the project program, improving the environmental quality by making adjustments in capacity levels, executing plans for protecting the resort resources, or/and enhancing the resort image and character.

It should be noted that, the development pattern is a re-cycling curve. The proposed pattern is open to several interventions and enhancement stages during its lifetime. On the other hand, continued overuse of resources without improving procedures or controlling plans will result in the resorts' decline. The key to orderly development for coastal resorts seems to lie in good planning that takes into consideration short- and long-term development objectives.

It is obvious that for each lifecycle stage there will be a need to determine specific acceptable limits of the tourism destination capacity. The following examples explain that linkage. In the exploration stage, carrying capacity for the social aspect might be nearly infinite, but its physical aspect could be limited to a few numbers of tourists to be accommodated due to the lack of services and facilities. In this case, the physical parameters will be the dominating factor for the acceptable level of tourism capacities. On the other hand, in the stagnation stage, the development of services and tourism facilities may have reached its peak in accommodating large number of tourists. In addition, local communities might show antagonism toward the tourists, while at the initial stages of tourism cycle local people met tourists with great enthusiasm because of the potential economic benefits. As undesirable changes happened to the physical environment and in the type of tourists being attracted, the attitudes of locals become more and more negative (Martin & Uysal, 1990).

Similarly, Duffield and Walker (1984) point out those dimensional changes occur as tourism develops in an area, and that tourism is a dynamic agent of change. At least some aspects of composite carrying capacity cannot, therefore, be regarded as absolute, fixed limits.

Doxey (1975) modeled the attitude change of the local communities toward tourists by an index of irritation that shows a range of feelings from euphoria to a complete rejection of tourism. There is always at least one parameter dominating the limits of the acceptable carrying capacity for a tourist destination. For example, developing facilities so as to accommodate a big number of tourists, might raise environmental, social, or economic impacts such as the negative feelings that could come from a shortage in the tourism facilities and infrastructure.

Wall (1983) emphasized the importance of applying the concept of carrying capacity as a useful tool in the field of tourism planning and management, focusing more on the environmental issues and the qualities of the experience to both host communities and tourists within specific goals and objectives. Haywood (1986) supported the same idea about the usefulness of applying the concept of lifecycle in the planning and management of tourism development. He also warns of a misleading aspect of the lifecycle concept in which planners and marketers are not able to decide prematurely that they are in the decline stage, and that changes made at this time could cause severe economic and social problems.

In summary, while there are some difficulties in quantifying the tourism capacity thresholds, it is impossible to ignore its applicability in tourism development and its impact on the patterns of these developments. The tourism lifecycle and tourism carrying capacity have a synergistic relationship that builds a valuable tool for tourism planning and management (Martin & Uysal, 1990).

3.3.3.   The Social Approach to Sustainability

Martin and Uysal (1990) state that whenever the social parameters become the dominating factor for tourism development, the necessity of having a harmonic relationship between host communities and tourists exists. Crandall (1994) summarized the most important potential social impacts of tourism into two basic components; the socioeconomic and socio-cultural aspects, as displayed in Table 3-2 below.

Table (3- 2): Positive and Negative Social Impacts of Tourism

IMPACT	POSITIVE ASPECT	NEGATIVE ASPECT
I. Socioeconomic		
1- Individual economic independence	1- Wages; upward mobility	1- Conflict in traditional societies
2- Labor force displacement	2- Migration to tourism region for employment	2- Forced migration of residents from region
3- Changes in employment	3- Employment in tourism sector; acquisition of new skills	3- Seasonal unemployment; abandonment of traditional forms of employment
4- Changes in land value	4- Increased value of land	4- Higher land prices; conflict over land use; competition for natural resources
5- Improved living standards	5- Improved services, facilities, and infrastructure	5- Inflation generated by tourism
6- Changes in political-economic system	6- Growth of new elite; growth of depressed regions	6- Splits in national unity
II. Socio-cultural		
1- Growth in undesirable activities	1-none	1-Growth in crime, drugs, gambling, and prostitution
2- Social dualism	2-Cross-cultural exchange; widened dimensions	2-Conflicts in values and life-styles
3- Demonstration effect	3-Stimulation to improve living standards	3-Frustration; increased spending; growth in import bill
4- Culture as a commercial commodity	4-Preservation of cultural heritage; revival of traditional art forms; growth of pride	4-Culture loses meaning as it is commercialized for tourists; stereotypes and artificial products develop
5- Growth of resentment and hostility	5-none	5-Growth of servile attitude, violence, and conflict

[Source: Crandall, 1994, p.415]

3.3.3.1.   Tourists and Host Community Interaction

Tourism has been a major source of intercultural contact. The socio-cultural structures of destinations have changed considerably under the influence of tourism. The social aspect of sustainability suggests the choice of strategies to cope with changes of the social structure that depend on the socio-cultural characteristics of the host community, the number and the type of tourists, and the level of change affected by tourism.

The following is a discussion of the different strategies (models, approaches) of local adjustment to tourism. First, the socio-cultural consequences that result from the international

tourism will be reviewed. Second, the models for adjustment and their associated factors of local residents' responses to tourism will be discussed, followed by recommendations for tourism policies. Efforts need to be made to advance our understanding of how communities develop their knowledge of, and attitudes towards, tourism (Pearce, Moscardo, & Ross, 1996). Most studies on the impact of tourism in the socio-cultural aspect investigate international tourism, especially those in which tourists flow from the industrial nations to the developing countries, a major source of intercultural contact.

3.3.3.2.   *Local Population Heterogeneity*

Dogan's model examines the strategies of adjustment within a community that is culturally uniform and the differences in interests are individual priorities. Conversely, Rambaud (1967) emphasizes that population of a tourism destination as not culturally or socially homogeneous. The level of heterogeneity of the local people and the power structure within it may determine the differences of responses and lessen certain forms of reactions. Researchers examined the heterogeneity of people in tourism destinations and reported:

- Different sections of locals can have the same benefits from tourism development, yet some sections have more benefits because they view tourism more favorably (Cater, 1987).

- Cultural differences among the local population lead to differences in their responses, people with lifestyles close to those of tourists see tourism as favorable (Nettekoven, 1979).

- Age differences among local population is highly correlated to the differences toward tourists, young people may adopt values about sex, dress, and morality quite different (Nettekoven, 1979).

- The uneven distribution of the costs and benefits of tourism among locals might lead to internal conflict, and as the rich become richer and the poor become poorer (de Kadt, 1979) or might lead to racial tensions (Britton, 1986).

- Local populations might have various political groups whose interests are contradictory. The position of these groups within the power structure determines the dominant reaction to tourism (Lundberg, 1976).

3.3.3.3.   *Host-Tourist Relationships*

It is important for members of stakeholder groups to fully understand the contribution tourism and tourists can make to their communities. An active awareness of the positive effects of tourism helps residents to adjust to changes. An understanding of the social aspect of tourism helps planners to consider local needs, and guides them in the size and the degree of tourism

development desired. Reisenger (1994) emphasized some factors that create favorable conditions for the development of social contact. These factors are:

- Provide effective educational programs for tourism personnel to enhance understanding of foreign cultures, languages, international relations, and international tourism.
- Analyze culturally contrasting behaviors in tourist-host contacts to identify the cultural differences that lead to negative perceptions.
- Attend to the skills and attributes of service providers in the host countries (e.g. tolerance, generosity, interpersonal skills, financial management skills, language skills, etc.).
- Establish licensing or certification requirements to train service providers working with international tourists (e.g. interpreters).
- Direct attention to informing tourists about host countries through media and travel intermediaries.
- Raise standards of general education for local residents in tourist destinations (i.e. international politics, foreign languages, etc.).
- Provide free access to local museums, national exhibitions, and festivals to local residents and tourists.
- Develop links with international universities supporting cross-cultural research and offering international student exchange programs.
- Monitor the ratio of tourists to hosts at the destination of tourism development.
- Survey international tourists and local residents about the types of cross-cultural interactions that would enhance the travel experience for tourists and hosts.

3.3.3.4. *Social Impact of Tourism on Host Communities*

The tourism industry can be a major factor for change in the social, political, and cultural systems as well as the economy and environment. Today, there is much concern about the socio-cultural impacts associated with tourism development on host communities. Tourism activities create direct contact between local community and visitors. This contact among people with different attitudes, beliefs, and cultural values generates change. Visitors to a destination create social relationships. Such relationships can be simple or complex, short-term or enduring, but in general, they affect people's habits, daily routines, social lives, beliefs, and values (Wood, 1994).

Negative and Positive Effects on Host Communities

Dogan (1989) believed that tourism produces both negative and positive results depending on the level of tourism development and the socio-cultural structure of the host community. When local residents perceive tourism negatively, their reaction takes the form of

resistance, on the other hand, when they perceive tourism in a positive way; they wholly or even partly incorporate tourism into their culture. Thus, policy makers have to develop adjustment strategies to control these states of tension and change (Wood, 1994).

Sources of the negative effects of tourism on host destinations that lead to negative attitudes toward tourists, and may decrease the attractiveness of these destinations have been widely documented (Diamond, 1977; Dogan, 1989; Reisenger, 1994). Some of the negative effects include:

1) decline in traditions such as food, folklore, ceremonies, entertainment that leads to the loss of their (Goksan, 1978);

2) commercialization and materialism of tourism activities leads to the transfer of human relations into a source of economic gain where money values replace the moral ones (deKadt, 1979; Forster, 1964);

3) increase in crime rates, especially theft, larceny, and robbery (Hawaii and Florida examples) as a result of the big gap in lifestyle and wealth between hosts and guests. (Cater, 1987; de Kadt, 1979; Pearce, 1982);

4) high levels of noise and overcrowding resulting from the concentration of tourists that can destroy the peace and tranquility of the destination (Wahab, 1978);

5) tourism pollution might lead to mental and physical diseases (Lundburg, 1976):

6) increased dependency of developing countries on industrial nations in the form of controlling airlines, travel agencies, hotel chains, management, imported goods, foreign employment which mostly absorbs tourism profits and causes a leakage of revenue from locals to foreigners (Cater, 1987; Graburn, 1980; Linton, 1987);

7) increases in the number of tourism facilities owned and managed by foreigners causes increased envy and resentfulness among local people (Wall & Mathieson, 1982);

8) isolation, segregation, and separation of tourism and excluding local people from tourism facilities (Goksan, 1978); and

9) social and economic dislocation that creates a disproportionate number of workers in low-paid, menial jobs with an increase in the cost of living.

It is important to emphasize that the economic contributions of tourism can also help to moderate such social difficulties. Tourism has socio-cultural benefits to host destinations that are widely documented (deKadt, 1979; Metelka, 1978; Reisenger, 1994; Wood, 1994). They include:

- Developing positive attitudes among locals and visitors towards each other
- Learning about each other's culture and customs
- Strong interpersonal relationships
- Psychological satisfaction with interaction
- Reducing negative perceptions and stereotypes of tourists and people in tourism destinations
- Developing pride, appreciation, understanding, respect and tolerance for each other's culture
- Increase in services provided by the government to local residents (Wood, 1994)
- Growth of international peace and understanding (Burkart & Medlik, 1974; Haulot, 1974; Olali, 1978)
- Increasing modernization and integration with urban civilizations (Metelka, 1978; Rambaud, 1967)
- More democratic and tolerant political climate (Boyer, 1972; Del Campo, 1970)

D'Amore (1983) defined two paradigms of tourism development. Paradigm one describes conditions that determine "successful" tourism development from a local point of view, while paradigm two describes conditions associated with "unsuccessful" development (threatens to exceed social carrying capacity).

Paradigm One: "Successful"

1) There are opportunities for extensive local involvement in the tourism industry. Interactions with visitors are personalized rather than commercialized.

2) Tourism is an economic mainstay or is viewed as a desirable alternative to resource deleting industries. The tourism industry is perceived to create significant economic and employment benefits.

3) Residents manage tourism-related facilities and infrastructure. Ownership and capital are, at least in part, locally based. It is important to have a sense of local control over tourism.

4) Themes or events that reflect local heritage/lifestyle are developed and supported by the community. Local attractions promote an understanding of resident life.

5) Certain tourism-related problems have been solved or lessened by local groups or agencies.

Paradigm Two: "Unsuccessful"

1) There are perceived conflicts over local fish and game resources. Residents feel that visitors are over-harvesting wildlife. Questions of ethics and sportsmanship are raised.

2) Residents feel they are being forced from their traditional weekend/vacation recreation sites by visitors.

3) Tourists do not respect or understand local or ethnic traditions and values, and infringe on the resident's privacy.

4) Overall growth and development in the community is proceeding faster than residents prefer.

5) There is uncertainty about the future of tourism development and proposed plans. Residents are not informed or are apathetic about the proposals.

6) Residents believe that tourists' needs are addressed before local needs (i.e. facilities).

7) Communities that are en route to tourism destinations benefit minimally from tourism. Little effort is made to encourage visitors to spend time in these communities.

The nature and intensity of exchange (interaction, transaction) among people takes place as a function of the perceived benefits and costs of that exchange. In the context of tourism, for

example, the residents' evaluation of the exchange of benefits and costs affects their perceptions of the impact of tourism, which in turn affects their support for tourism. In providing a measurement tool for stakeholders, this study seeks to develop a model that will help to minimize or eliminate negative interactions between developers and host communities.

3.3.3.5. *Adjustment Models to Tourism and Tourists*

In order to decrease the tension and stress caused by the introduction of tourism into a destination's culture, local people must develop strategies for coping or adjusting to the changes tourism brings (Wood, 1994). Three adjustment models are described below: 1) the Irridex Model by Doxey (1975); 2) the Attitudinal Model by Butler (1980); and 3) the Adjustment Model by Dogan (1989).

a. Index of Tourist Irritation Model (Doxey, 1975)

Doxey (1975) constructed the '**Index of Tourist Irritation'** [see Figure 3-7] to parallel the progressive change in perception, attitude, and response by tourism destinations. This model measures locals responses within a timeframe beginning with the exploration of tourism to its decline stage. Doxey's model theorized that local communities at a tourism destination regressed in their reaction to tourism development differently over time, passing from a) euphoria, through b) apathy, and c) annoyance, to d) antagonism as the adverse impact of tourism increases (Brown & Giles, 1994). Cater (1994) added a final level.
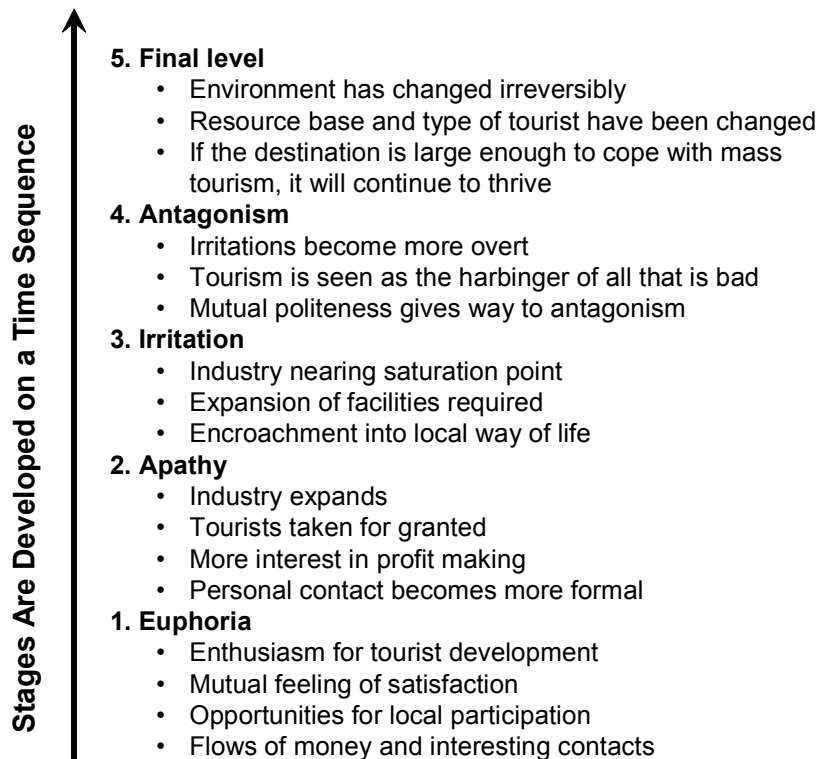
Stages Are Developed on a Time Sequence

5. Final level
- Environment has changed irreversibly
- Resource base and type of tourist have been changed
- If the destination is large enough to cope with mass tourism, it will continue to thrive

4. Antagonism
- Irritations become more overt
- Tourism is seen as the harbinger of all that is bad
- Mutual politeness gives way to antagonism

3. Irritation
- Industry nearing saturation point
- Expansion of facilities required
- Encroachment into local way of life

2. Apathy
- Industry expands
- Tourists taken for granted
- More interest in profit making
- Personal contact becomes more formal

1. Euphoria
- Enthusiasm for tourist development
- Mutual feeling of satisfaction
- Opportunities for local participation
- Flows of money and interesting contacts

Figure (3- 7): Doxey's Index of Tourist Irritation

[Source: after Cater, 1994, p. 30]

The Irridex Model below [see Figure 3-8] is a unidirectional representation of an aggregate approach that focuses mainly on attitudes at the community level. The stages of irritation are described below.
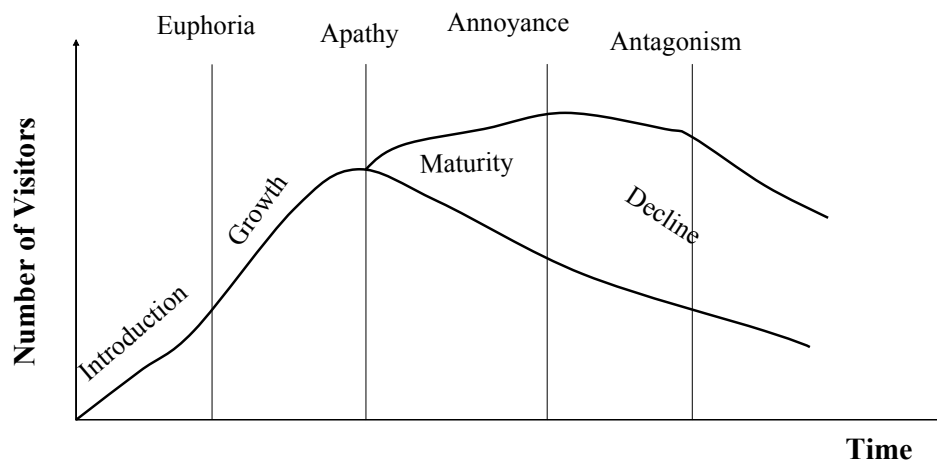
Figure (3- 8): Irridex Model [Doxy, 1975]

Euphoria is the first stage of tourism development and of host/guest contact. Local residents are excited about the influx of the visitors, pleased to see them, and glad that they are spending money. This stage is characterized in a way that visitors just show up and are served by a local community as it exists. In this stage a little planning is implemented.

In the *Apathy* stage, tourists are seen as common and ordinary; the enthusiasm and the interest of the euphoria stage is long gone, and the host/guest relationship is commercialized and formality has become part of the process of dealing with the large numbers of visitors.

In the *Annoyance* stage, residents become concerned and irritated by tourists and the community has become saturated by tourists and residents are becoming frustrated. In this stage, tourism services may begin to be developed by the local community and expand amenities to accommodate more tourists; sometimes the community may even isolate tourists in tourism sections or corridors.

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In the *Antagonism* stage, a strong feeling of dislike is expressed toward tourists and residents feel quite different toward tourists that they previously welcomed. In this stage, a negative stereotype about tourism and tourists from local residents has begun to generate. While feelings are changing among residents, the types of tourists arriving are probably changing as well.

Fridgen (1991) simplified the main characteristics of Doxey's model [see Figure (3-9) which illustrates the relation among these states and the development stage of the tourism lifecycle.
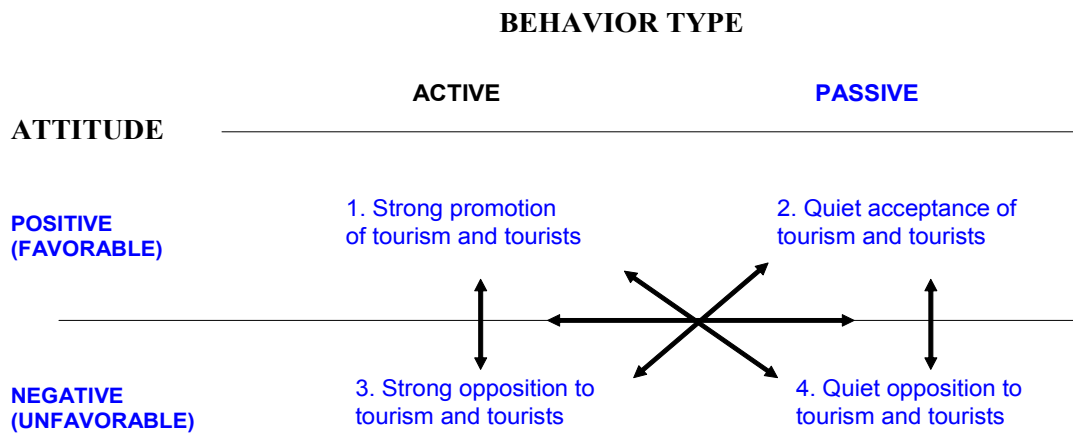
BEHAVIOR TYPE

	ACTIVE	PASSIVE
ATTITUDE		
POSITIVE (FAVORABLE)	1. Strong promotion of tourism and tourists	2. Quiet acceptance of tourism and tourists
NEGATIVE (UNFAVORABLE)	3. Strong opposition to tourism and tourists	4. Quiet opposition to tourism and tourists

Figure (3- 9): Attitudes and Behavioral Responses to Tourists

[Source: Fridgen, 1991, p. 95]

b. The Attitudinal Model (Butler, 1980)

The Attitudinal Model was first established by Butler in 1980 and simplified by Fridgen in 1991. The Attitudinal Model suggests that community members have a positive or negative

attitude toward tourists that is expressed in an active or passive manner. In this model, people's reactions can be measured at any time during the lifetime of tourism development. This model recognizes that a range of attitudes toward tourism impacts and a corresponding range of strategies for coping with these impacts can coexist in a given destination. Most residents have divided feelings about the role of tourism within a community, and therefore exhibit different attitudes ranging from angry to friendly. Attitudes, too, can change over time. People may change their attitudes from positive to negative and may express these attitudes in different ways.

Butler developed a framework to cover the whole range of attitudes and resulting behavior (strategies) likely to happen in an area. This four-cell framework is summarized in Figure (3-9) above. The arrows in the above figure represent the suggested changes in attitudes and modes of expression. In this framework, as more tourists flow to a tourism destination, it is assumed that attitudes and behavior may change in a variety of directions-from active to passive or from passive to active, from positive to negative or from negative to positive.

c. The Adjustment Model (Dogan, 1989)

The Adjustment Model is more complex than the previous two models. Local perceptions of the socio-cultural changes leads some residents to adjust themselves to the new situations and conditions, accept these changes, and perceive the tourism impacts positively, while others exhibit rejection and perceive tourism negatively. This model is not tied to a timeframe or sequence of tourism development in a specific destination, rather it is a description of the state of the existing conditions in a tourism destination. Dogan recognized that combinations of strategies might exist simultaneously in local community reaction. Dogan's model suggests that residents display several types of responses or adjustments, and assumes that tourism development transforms a relatively homogeneous community to a relatively heterogeneous one. This model can be summarized in five response stages ranging from total resistance to total acceptance. These stages are 1) resistance, 2) retreatism, 3) boundary maintenance, 4) revitalization, and 5) adoption. Some of these responses are expressed actively, others passively. These stages are described below.

1. *Resistance* refers to residents taking active, aggressive actions against tourism and sometimes tourists. For example, staff at tourism facilities and services might refuse to help visitors or to speak a guest's language even when known.

2. *Retreatism* often occurs when a community is experiencing tourism-development (the community becomes tourism-dependent), but does not yet accept the industry. Changes in the structure of the local society that result from tourism are not recognized by a substantial portion of the local population.

3. *Boundary Maintenance* is a common passive response in which the community may appreciate the tourism industry and even the tourists but community members keep a distance (a boundary) between themselves and the tourists through social activities, religious beliefs, and norms. In this case, economic benefits from tourism equalized effectively the negative effects; consequently, local people accept tourism without any resistance or negative attitudes.

4. *Revitalization* is also a passive response to tourism in which tourism is seen as a preservation factor rather than destruction of local traditions and culture due to the impact of industrialization and urbanization. Through tourism, local people can revitalize the economy, preserve traditional cultures and customs, and protect natural attractions, including the preservation of their original architecture and style. When traditions became tourism attractions, locals increasingly accept tourism that supports their traditions and increases their identity.

5. *Adoption* means a total acceptance of tourism. Community members, commonly the youthful and educated sector, welcome the lifestyle and orientation of the visitors with enthusiasm, and may make an effort to demolish traditional social structures and cultural symbols. Tourism impacts on values, attitudes, and behavior has been accepted with no resistance.

Within any one community, various combinations of responses can co-exist and cause conflict. Dogan (1989) found at a macro level across whole communities that there are several possible reactions from hosts to adjust themselves to the socio-cultural changes resulting from tourism. Dogan considered that revitalization may not be a distinct strategy, but may coexist with either boundary maintenance or adoption.

According to Butler (1980), within a community all four forms of locals attitudes (resistance, retreatism, boundary maintenance, and adoption) may coexist at a given time, but their distribution may change. Dogan also assumes that the first stage of tourism usually begins to develop in a rural homogeneous community (there will be a pure response) depending on the sociocultural characteristics of the community and the type of tourism. As tourism increases, the community transforms gradually into an urban and heterogeneous one of groups with different interests and different attitudes toward tourism. Thus, as a result of increasing heterogeneity compound responses may emerge within one community.

Acceptance of tourism without consideration for long-term impacts to the host community is unfortunate. The model developed in this research may assist local people in acting proactively to negative changes brought about by tourism development, and help developers minimize the degree of impact from the early stages of development.

d. Other Contributions in Modeling Reactions to Tourism

In addition to the models outlined above, Ap and Crompton (1993) developed a continuum of four broad response strategies based on empirical observations from local residents: a) *Embracement* – the enthusiastic and welcoming praise of tourism; b) *Tolerance* – the residents internalizing inconveniences or costs and being sufficiently aware of tourism's benefits to accept it without changing their outside manifest behavior to adjust to it; c) *Adjustment* - the rescheduling of activities to escape crowds or using local knowledge to avoid inconveniences caused by visitors; and d) *Withdrawal* - physical (moving out of the tourism destination) or psychological (keeping quiet and don't get involved with tourists) removal. This model differs from the previous three models in that it includes both attitudinal and behavioral elements focusing mainly on a macro level rather than with individual residents and their adaptations and adjustments (Brown & Giles, 1994).

Marsh & Henshall (1987) also identified four categories of tourist-host interaction: separatism, involuntary, voluntary, and integration. The separatism mode protects tourists from the influences of the host culture. Tourists have little contact with native hosts, usually being taken care of by tour operators. The involuntary mode provides tourists with more contact with foreign hosts. The voluntary mode involves independent service use by tourists who are actively

involved in the daily activities and culture of the host countries. In the integration mode of interaction, tourists experience a lifestyle similar to that of the hosts. They are under the influence of the host culture.

More recent research focuses on resident perceptions toward the impact of tourism and on developing a theoretical base for identifying explanatory variables (Ap, 1995; Nash, 1989; Pearce, 1989; Perdue, 1989; Preister, 1989). Ap (1995) studied the relationship between the level of contact between tourists and people from host communities and the degree of locals' perception of tourists and tourism development. He suggested an explanatory variable that illustrated the reasons why local people perceive tourism in a positive way or negative one. It is concluded that host people who have a high degree of direct contact with tourists are likely to perceive tourism positively. This study supported the concept that level of contact is an important aspect in identifying and explaining how local people might perceive tourism impacts.

3.3.3.6. *Linking Social Impacts to Carrying Capacity*

The discussion on the social impacts of tourism leads to questions about the social carrying capacity of a tourism destination, a recognized tool for managing the social consequences of tourism. Social CC is connected with two different human groups: a) participants (users), and b) the local population living permanently in a destination area. Two subgroups of this population are: people whose incomes are derived directly and indirectly from tourism, and residents not associated with tourism. Social CC changes constantly and its measurement is not valid in the long term. However, some generalizations can be made, social CC increases when (Mieczkowski, 1995):

1) The recreational activity takes place in a more developed and managed area
2) The participants are ethnically and demographically homogeneous
3) There is a single use
4) Participants are highly skilled in an activity
5) The facility development is high, including sanitary facilities
6) The recreation site is elongated rather than rectangular

Cater (1987) stated that there is a problem in determining the actual social impacts and their nature; direct or indirect, absolute or relative, quantitative or qualitative, and the way that

these impacts can be measured. Carrying capacity is one approach that can be used as a tool for the determination of acceptable impact levels.
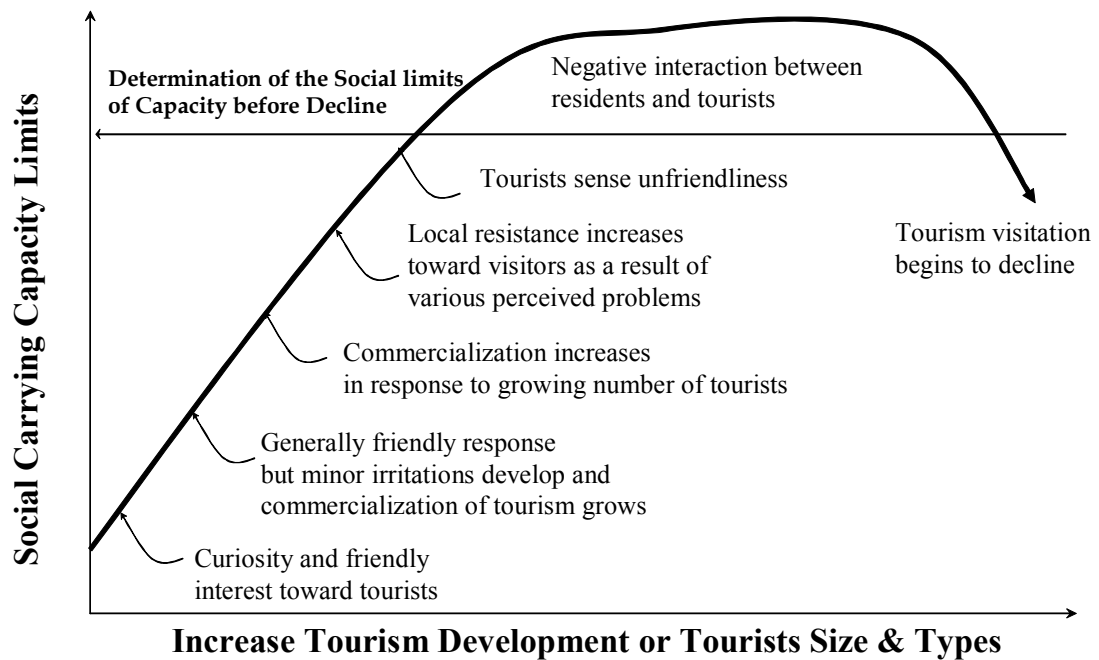
Social impacts monitoring must be associated with goals or standards in terms of limits of acceptable changes. Without such goals, monitoring does not inform decision-makers foresight for the desired future. Butler (1980) emphasized the importance of the social policy implications for each development stage, and a study of the attitudes, perceptions and evaluations of tourism by local residents. Tourism can be a major source of change in the social, cultural and economic systems of tourism areas. Resentment, hostility, and violence against tourists grow when the saturation point (or social carrying capacity) of a destination area has been reached. At the saturation point, socioeconomic costs outweigh the benefits (Getz, 1983; Mathieson & Wall, 1982). The saturation point is difficult to measure because of the many associated variables.

Butler (1975) identified the major variables that influence the tourism saturation point of a destination. These variables included both visitor characteristics and destination area characteristics. Visitor characteristics included a) volume of tourists, b) length of stay, c) differences in racial characteristics, d) differences in economic characteristics, and f) activities of tourists and the level of contact with locals. Destination area characteristics influencing the saturation point are a) level of economic development, b) spatial characteristics (size, density, capacity), c) degree of local involvement, d) strength of local culture, and e) other political and national attitudes.

D'Amore (1983) provided guidelines for planning tourism development in harmony with the host community. He established a theoretical model to explain the extent of the relationship between host people and tourists in a social capacity context. This social carrying capacity sets the limit of locals' tolerance to tourism. Exceeding this limit, the point beyond which human behavior is changed and the degree of satisfaction decreased, resulted in negative responses from hosts toward tourists and tourism. Early studies of the supply side of tourism focused only on the number of accommodation units or the length of the shoreline as the limiting factors in determining the carrying capacity of tourism destinations.

D'Amore (1983) emphasized another component of tourism supply that referred to the attitudes and the behavior of the local residents, since these qualities form a significant part of

the tourist experience. There is a tolerance limit that exists in the supply of positive and friendly interaction or good will toward tourism and tourists. The social carrying capacity concept provides the framework to assess the relative social impact of tourism on a given community, and what steps should be considered to control tourism impact extension. D'Amore (1983) stated that wherever tourism developed, local communities were expected to be sensitive to the scale of tourism activity growth. As tourism develops, resident-tourist conflicts may increase, triggering a decline in tourism, as tourists perceive a deterioration of the experience. Figure (3-10) illustrates the different host/guest relations that set the limits of the social carrying capacity for a tourism destination.

Determination of the Social limits of Capacity before Decline

Negative interaction between residents and tourists

Tourists sense unfriendliness

Local resistance increases toward visitors as a result of various perceived problems

Tourism visitation begins to decline

Commercialization increases in response to growing number of tourists

Generally friendly response but minor irritations develop and commercialization of tourism grows

Curiosity and friendly interest toward tourists

Social Carrying Capacity Limits

Increase Tourism Development or Tourists Size & Types

(Source: D'Amore, 1983, p.136)

Figure (3- 10): Tourist-Resident Relationships: Theoretical Modeling of Social Capacity

McCool & Moisey (1996) stated three main reasons for monitoring local resident attitude toward tourism: a) the rejection from residents as development increases; b) the effect of tourism on indicators such as, crime rates and property values, are not clear; and c) the dynamic feature

of tourism development which is described in the lifecycle and the carrying capacity concepts. The results show increasing negative attitudes from local residents toward overcrowding and impacts on the quality of their life. The results also emphasize the importance of seasonality effects. These negative consequences increase the focus on the attitudes and beliefs of host communities toward tourists (Ap, 1992; Clements, Schultz, & Lime, 1994; Liu & Var, 1986; Long, Perdue, & Allen, 1990). Literature strongly emphasized that the negative response toward tourism growth is associated with the high levels of tourism development.

Hoivik and Heiberg (1980) emphasized the important of the personal interaction and humanity in tourism. The absence of strong personal interactions among hosts and guests lead to a one-way effect from visitors that is mostly corresponded by a negative attitude from hosts. Negative attitudes and feelings are often accompanied by aggression and crimes against tourists and tourist facilities (Cater, 1987; deKadt, 1979). Some local people think that tourism has produced importance economic and cultural benefits and that environmental and cultural problems are not necessarily caused by tourism (Liu & Var, 1986). In some extreme cases, this response leads to abuse of tourists or cheating them in business dealings (Fridgen, 1991). Negative response against tourists and tourism facilities from local people, constitutes a total rejection of tourism and its development. Factors such as restricting local residents use of tourism facilities, differences of wealth and lifestyle between hosts and guests and weakening traditional institutions might create a negative feeling toward tourism and tourists (de Kadt, 1979). As important changes in local traditional culture are felt, a substantial portion of residents develop organizations to revive their traditions, making the impact less painful (Geiger, 1978). Social contact between tourists and hosts from different cultural groups can lead to better attitudes about each other and give them an opportunity to learn about each other's culture (Bochner, 1982).

3.4. CHAPTER SUMMARY

Social carrying capacity for tourism is the product of the interrelationship between numerous factors. For example, tourist numbers, scale of tourism development, and the pace of community growth. The interactions between tourist and community characteristics that influence capacity are complex and cannot be attributed to a one-to-one relationship. When a

destination's threshold level for tourism development is reached, negative feelings toward tourism and tourism become prevalent among residents (Dogan, 1989). This study develops a sustainability model that will allow developers and other decision-makers to act proactively in their interactions with the public. Development can be designed, operated, and used in a manner minimizes the impact on the local host communities.

Tourist destinations are not infinite and timeless and should be viewed and treated as finite and possibly non-renewable resources. An understanding of the concepts of tourism life cycle, destination carrying capacity, and their interrelationship to each other provides an important tool for sustainable tourism management. The main use of the tourist destination life cycle is as an aid to understand the evolution of tourist projects and destinations, and provide guidance for strategic decisions as well as for use as a forecasting tool. The concept of lifecycles provides the framework for balancing short- and long-term development objectives.

The value of lifecycle modeling in tourism is that it provides decision-makers with insights into probable forms of future changes. With the prediction of changes, plans and policies can be formulated to control and overcome new problems (Crompton, 1987). Managed change is an essential ingredient to successful tourism development. Plans can then be developed based on predicted or anticipated change. Using the lifecycle approach, decisions and policies can be made from a historical perspective used in the planning, development, and management of tourism.