

Technische Universität Dortmund  
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**Ecotourism as a Framework for Sustainable Touristic Development:  
Case Study of Protected Areas, Egypt**

A doctoral dissertation submitted to  
The School of Spatial Planning, Dortmund University of Technology  
(TU Dortmund)

By

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In accordance with the requirements for the degree of Doctor of Engineering  
(Dr.-Ing.)

Dortmund, Germany

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## **Declaration**

**I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declared that, as required by these rules and conduct, I have fully cited and referenced all materials and results that are not original to this work.**

**Rabab Morsy  
Dortmund,  
2015**

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*To my parents,  
my husband  
and my lovely twins*

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## **Acronyms**

(EEAA)	Egyptian Environmental Affairs Agency
(ETB)	English Tourist Board
(GDP)	Gross Domestic Product
(IDC)	Italian Development Cooperation
(IUCN)	International Union for Conservation of Nature and Natural Resources (now called the World Conservation Union).
(NGOs)	Non-Governmental Organizations
(NPAs)	Natural Protected Areas
(SET)	Sustainable Ecotourism
(TIES)	The International Ecotourism Society
(UNEP)	United Nations Environment Program
(USAID)	United States Agency International Development
(WCMC)	World Conservation Monitoring Centre
(WTO)	World Tourism Organization
(WWF)	World Wildlife Fund
(WRPA)	Wadi El-Rayan Protected Area
(MSEA)	Ministry of State For Environmental Affairs
(UNESCO)	United Nations Educational, Scientific and Cultural Organization

## **Abstract**

Tourism is one of the world's largest industries. If the term of sustainable ecotourism is applied in an ideal form, tourism will be one of the fastest growing sectors. This study focuses on sustainable ecotourism as a framework for sustainable touristic development.

Conceptually, this research aims to present an overview of the relationship between sustainable ecotourism, ecolodges and protected areas. Additionally, the current research investigates some ecotourism examples which are known as a part of successful countries in ecotourism all over the world. Reviewing the theoretical background leads to some indicators and factors that help in implementing ecotourism in special contexts.

Three Egyptian protectorates have been selected as case studies. This selection was based on their great attractions for tourists and being considered as world heritage sites. In addition, the present research aims to apply ecotourism to conserve the natural heritage and to suggest integrated tourism strategies to give sufficient consideration to the environment, local communities, and long term sustainability.

Two types of questionnaires were used in the selected case studies. Tourists' questionnaires were applied to realize the tourists' trends, their opinion about eco-tours, their perception about ecotourism and which activities that encourage them to visit these destinations. Managers and planners' questionnaires were applied to know the projects in the area which support the perception of the ecotourism, the best factors that support applying ecotourism and increase the flow of tourists to these destinations.

Findings of this study include a suggested framework for promoting sustainable ecotourism in Egyptian protected areas. Additionally, visions for the future development in Wadi El-Hitan protectorate were also presented. Likewise, the current research proposes a number of recommendations which could be applied for all protected areas that implicated the same conditions.

Moreover, the research recommendations could be classified into some categories. These are recommendations for planning, ecolodges architecture, structure, technology, and ecotourists.

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# **Chapter 1**

## **INTRODUCTION**

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## **CHAPTER ONE: INTRODUCTION**

Tourism is the world's largest industry. On the one hand, it accounts for more than 10% of total employment, 11% of global GDP (Gross Domestic Product), and total tourist trips are expected to increase to 1.6 billion by 2020 (Denman, 2001). On the other hand, it has a major and increasing impact on both people and nature (Denman, 2001). However, tourism impacts vary according to the number, nature of tourists, and the characteristics of the site (Ceballos-Lascuráin, 1996: 55). A description of all possible impacts derived from tourism will be very extensive as any other realm of development. Potential impacts of tourism in general can be varied as follows: impacts upon the soil, the water, the vegetation, and the wildlife (Garcia-Herrera, 2005: 24-25).

Yet, tourism impacts on protected areas can broadly be classified into two categories: direct and indirect impacts. On the one hand, direct impact is caused by the presence of tourists, and; on the other hand, indirect impact is caused by the infrastructure created in connection with tourism activities (Ceballos-Lascuráin, 1996: 56 and Garcia-Herrera, 2005: 24-25). Indirect impacts have been classified as follows:

- Impacts on geological exposures, minerals, and fossils;
- Impacts on soils;
- Impacts on water resources;
- Impacts on vegetation;
- Impacts on wildlife;
- Impacts on sanitation;
- Aesthetic impacts on the landscape;
- Impacts on the cultural environment.

Therefore, it was necessary to improve a new form of tourism that minimizes all these impacts and conserves the surrounding environment for both the present and the future. This is called sustainable ecotourism.

Promoting sustainable ecotourism can increase positive impacts and possibilities to the protection of natural resources.

Protected areas in Egypt are regarded as very attractive touristic places due to their rich nature. Thus, it is important to improve sustainable ecotourism in these destinations both to save local needs and to increase tourists' awareness.

This research aims to suggest a framework for promoting successful ecotourism in protected areas. Another central goal of the present research is to explore alternative visions for the future development.

**PART 1**

**THEORETICAL**

**BACKGROUND**



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## **Chapter 2**

# **ECOTOURISM**

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## **CHAPTER TWO:**

### **Ecotourism**

Ecotourism is considered an effective agent both to conserve fragile areas environmentally and to bring economic opportunities to local communities at the same time. In the past decades, empirical studies about ecotourism's conservation had an effect on wetland ecosystems, which attracted relatively less academic attention than rainforests and coral reefs (Li-Pin, 2012).

#### **2.1. Impacts of tourism**

Tourism in and around protected areas must be a tool of conservation: building support and raising awareness of many important values of protected areas, including ecological, cultural, sacred, spiritual, aesthetic, recreational and economic values (Bushell and McCool, 2007: 15). Tourism based on protected areas should generate much-needed income for conserving the work for the protection of biodiversity, ecosystem integrity, and cultural heritage. Tourism should also improve the quality of life in the local communities. In addition, it should provide incentives to support indigenous people's traditional customs and values and protect and respect sacred sites (Bushell and McCool, 2007: 15).

The harmful impacts resulted from tourism could be classified as follows (Garcia-Herrera, 2005: 24-25):

1. On the soil, sea and landscape: beach deterioration by ships; pollution; rubbish dump; erosion on hiking paths; erosion by 4x4 vehicles; excessive infrastructure development for the visit and lodging installations (roads, power lines, water pipes, buildings, gravel pits, etc.)
2. On the water: pollution, aquifer overexploitation, etc.
3. On the vegetation: firewood over exploitation; harm to vegetation

caused by trampling in the proximities of the paths; plant picking; vegetation damaged by camping activities, fires, etc.

4. On the wildlife: damage on coral reefs; fisheries overexploitation in estuaries and lakes; disturbances in areas of animal reproduction; nuisance to wild animals, introduction of alien species, etc. Another description for the negative impacts of tourism on environment was done by Neto (2003). He summarized these impacts in three groups as follows:

#### **2.1.1. Pressure on the natural resources**

The main natural resources are at risk as a result of tourism development, such as land, freshwater and marine resources. In addition, another result is the absence of a careful land use planning. For instance, the rapid tourism development can intensify the competition on land resources with other uses and might lead to rising land prices as well as increasing the pressure to build on agricultural land (Neto, 2003: 8-10). Moreover, intensive tourism development can threaten natural landscapes through deforestation, loss of wetlands and soil erosion. Tourism development in coastal areas, including hotel, airport and road construction, is often a matter of increasing concern worldwide and can also lead to sand mining, beach erosion and other forms of land degradation (Neto, 2003: 8-10).

#### **2.1.2. Damage of ecosystems**

Beside the consumption of large amounts of natural resources, the consumption of large amounts of liquids and solids in the tourism industry produces amounts of wastes. Therefore, there are many problems in many developing countries and regions that lack the capacity to treat these waste materials. In addition, relatively high levels of energy consumption in hotels, including energy for air-conditioning, heating and cooking - as well as fuel used by tourism-related transportation can also contribute significantly in local air pollution in many host countries and

regions. Local air and noise pollution, as well as urban congestion linked to intensive tourism development, can sometimes even discourage tourists from visiting some destinations. Uncontrolled tourism activities can also cause severe disruption of wildlife habitats.

### **2.1.3. Environmental threats to tourism**

The negative impact of intensive tourism activities on the environmental quality of beaches, mountains, rivers, forests and other ecosystems also compromise the viability of the tourism industry in these places (Neto, 2003: 10).

The process of tourism development itself can lead to more informed citizenry if participatory processes are used, which lead to deliberation, debate and monitoring. Conservation of protected areas provides opportunities to improve the economy of the region. Through this developmental process, more funding becomes available to support conservation of protected areas, interpretation, education and outreach for both tourists and local residents. The protection of these areas through these financial resources leads, in turn, to the provision of important ecosystem services, such as clean air and water (Bushell and McCool, 2007: 17).

## **2.2 Definitions of ecotourism**

There are various definitions of ecotourism. In 1987, Ceballos-Lascurain coined one of the earliest formal definitions of ecotourism. He stated that ecological tourism or ecotourism is the tourism that involves travelling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scenery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas (Ceballos-Lascurain, 1987:13), the same definition was argued by (Björk, 2007: 27). Also, The International Ecotourism Society (TIES) in 1990 produced one of the

earliest definitions: "Ecotourism is responsible travel to natural areas that conserves the environment and sustains the well-being of local people".

While the United Nations declared 2002 the 'International Year of Ecotourism' marking it as a time to take a collective stock of lessons learned. At that year's Ecotourism World Summit in Quebec, Canada, over a thousand delegates from 132 different countries, representing public, private, and non-governmental organizations, academic institutions, national and international development agencies, as well as local and indigenous communities, gathered to discuss the ecotourism for peoples and ecosystems around the world (Stronza, 2008: 6).

Muller (2000) defines ecotourism as the green tourism which focuses on nature-oriented and nature-based tourism activities encompassing all forms of tourism mostly referred to as alternative, green, low impact, low density, small scale, environmentally sound, sustainable, wilderness tourism, or alternative tourism (cultural, educational, scientific, adventure, agri-tourism) in a broader sense.

In other words, ecotourism means the minimal environmental impact, social and environmental benefits (Wearing and Neil, 2000). Ecotourists often visit environmentally sensitive areas during sensitive seasons (Page and Dowling, 2001). Ecotourism as a concept comprises a wide range of activities, from field research of flora and wildlife to weekend nature outings that combine leisure and education (Nikitinskiy, 2001).

Fennell defined Ecotourism as a sustainable form of natural resource-based tourism that focuses primarily on experiencing and learning about nature, and which is ethically managed to be low-impact, non-consumptive, and locally oriented (control, benefits, and scale). It typically occurs in natural areas, and should contribute to the conservation or preservation of such areas (Fennell, 1999: 43).

However, Stronza argued ecotourism definition as the type of tourism that attempts to minimize negative impacts, and make instead serious positive contributions to a number of today's environmental and social challenges (Stronza, 2008: 4).

Ecotourism, also known as ecological tourism, is a form of tourism that appeals to ecologically and socially conscious individuals. Generally speaking, ecotourism focuses on volunteering, personal growth, and learning new ways to live on the planet. It typically involves travel to destinations where there are flora, fauna, and cultural heritage. Ecotourism is a conceptual experience enriching those who delve into researching and understanding the environment around them. It gives us insight into our impacts as human beings in addition to a greater appreciation of our own natural habitats (Randall, 1987 and <http://en.wikipedia.org/wiki/Ecotourism>).

Additionally, ecotourism is qualitatively different. It focuses on what the traveler does, plus the impact of this travel on both the environment and the people in the host country. Ecotourism posits that this impact should be positive. Ecotourism is not, therefore, simply another niche market within the tourism industry. Rather, ecotourism is a philosophy, a set of practices and principles that, if properly understood and implemented, will transform the way we travel” (Honey, 2002).

However ecotourism in its ideal form must:

- Minimize the negative impacts of tourism;
- Contribute to conservation efforts;
- Employ locally and give money back to the community;
- Educate visitors about the local environment and culture;
- Cooperate with local people to manage natural areas;
- Provide a positive experience for both visitor and host.

(<http://www.i-to-i.com/eco-tourism/what-is-eco-tourism.html>, Chemonics International & PA Consulting Group, 2004).

### **2.3 The history of ecotourism**

The history of ecotourism started in the 1950s. Before that, the concept was not widely recognized or understood. In the history of ecotourism, ecotourism existed in a few different forms that primarily tried to achieve the same thing that the current ecotourism does. Ecotourism was first introduced in Africa in the 1950's with the legalization of hunting (Miller, 2007). This need for recreational hunting zones led to the creation of protected areas, national parks, and game reserves. In the 1980s, the concept of ecotourism became much more widely known and studied (<http://www.benefitsofecotourism.com>, 2008).

### **2.4 Principles of ecotourism**

There is a little consensus on a suitable definition for ecotourism, though basic principles underpinning most definitions (Jenkins and Wearing, 2003: 207).

Ecological sustainability, nature based ecotourism, and the environmental culture, are all essential to realize ecotourism. However, benefits of local and tourist satisfaction are considered attractive for all forms of tourism (Dowling, 1996). Thus, Page and Dowling (2001) identify five core substantial principles to ecotourism as (1) nature-based ecotourism, (2) ecologically sustainable, (3) environmentally and culturally educative, (4) locally beneficial, and (5) generates tourist satisfaction. These core principles are consistent with the five most common variables found in ecotourism definitions identified by Fennell with the addition to tourist satisfaction. In addition, Fennell (1999) identified 13 main principles for the definitions he analyzed. These variables are ranked by frequency of response as follows:

- Interest in nature
- Contributes to conservation
- Reliance on parks and protected areas
- Benefits local people/long-term benefits
- Education and study
- Low impact/non-consumptive
- Enjoyment and appreciation
- Ethics/responsibility
- Management
- Sustainable
- Culture
- Adventure
- Small scale

Principles of ecotourism also include increasing cultural awareness and sensitivity, and financially benefiting and empowering both local people and conservation (Dowling and Fennell, 2003: 1-20). Ecotourism is considered as uniting conservation, communities, and sustainable travel. The principles of sustained tourism, as outlined by ETB (1992), are as follows:

- The environment has an intrinsic value which increases its values as a tourism asset;

- Tourism should be recognized as a positive activity with the potential to benefit the community and the place as well as the visitor;

- The relationship between tourism and environment must be managed so that it is stable in the long-term. Tourism must not be allowed to damage the resource, prejudice its future enjoyment, or to bring unacceptable impacts;

- Tourism activities and developments should respect the scale, nature and character of the place in which they are sited;

- In any location, harmony must be sought between the needs of the visitor, the place, and the host community;

- Some changes are inevitable and change can often be beneficial. Adaptation to change, however, should not be at the expense of any of these principles;



- The tourism industry, local authorities, and environmental agencies have a duty to respect the above principles and to work together to achieve their practical realization.

Further general characteristics of ecotourism have been identified by UNEP, (2001) and WTO (2001) as follow:

- Involving appreciation, not only of nature, but also of indigenous cultures prevailing in natural areas, as part of the visitor experience;
- Containing education and interpretation as part of the tourist offer;
- Organized for small groups by small, specialized, and locally owned businesses;
- Minimizing negative impacts on the natural and socio-cultural environment;
- Supporting the protection of natural areas by generating economic benefits for the managers of natural areas;
- Providing alternative income and employment for local communities;
- Increasing local and visitor awareness of conservation.

## **2.5 Importance & benefits of ecotourism**

Studies conducted during the 1990s have shown that ecotourism could provide more goods and services through increased income and jobs to local residents than agriculture in developing countries, particularly in arid and semiarid lands (Honey, 2008). The International Year of Ecotourism offered an ideal opportunity not only to review ecotourism experiences around the world, but also to promote worldwide recognition of the important role of sustainable tourism in the broader international sustainable development agenda (Neto, 2003).

Whereas tourism offered means for earning foreign exchange in less developed countries with unspoiled national areas, funding institutions

viewed ecotourism as a means towards achieving economic development combined with poverty alleviation (Honey, 2008).

Thus Ecotourism generates income for conservation and economic benefits for communities living in rural and remote areas. The attributes of ecotourism make it a valuable tool for conservation. Its implementation could:

- Give economic value to ecosystem services provided by protected areas;
- Generate direct income for the conservation of protected areas;
- Generate direct and indirect income for local stakeholders, creating incentives for conservation in local communities;
- Build constituencies for conservation, locally, nationally and internationally protected areas;
- Promote sustainable use of natural resources;
- Reduce threats to biodiversity (Drumm, and Moore, 2005: 3).

Responsible ecotourism includes programs that minimize the negative aspects of conventional tourism on the environment and enhance the cultural integrity of local people. Therefore, in addition to evaluating environmental and cultural factors, an integral part of ecotourism is the promotion of recycling, energy efficiency, water conservation, and the creation of economic opportunities for the local communities (Randall, 1987).

True ecotourism minimizes the negative aspects of conventional tourism on the environment and enhances the cultural integrity of local people. This means that while you are on an ecological vacation, you want to promote the following: recycling, energy efficiency, water conservation, and creation of economic opportunities for the local communities (<http://www.benefitsofecotourism.com>, 2008).

Economically, this form of tourism can be a real treat to people in host destinations. In addition to raising foreign exchange and investment on a national level, ecotourism offers new jobs for local community and new markets for locally produced goods and services. The cash and employment benefits from ecotourism, however, may actually be modest compared with its non-economic benefits (Stronza, 2008: 4 - 6).

According to Brandon (1996), benefits from ecotourism could be clustered into five groups:

1. A source of financing for biodiversity conservation, especially in legally protected areas;
2. Economic justification for protected areas;
3. Economic alternatives for local people to reduce over-exploitation on protected areas, wild lands and wildlife resources;
4. Constituency-building, which promotes biodiversity conservation;
5. An impetus for private biodiversity conservation efforts (Brandon, 1996: 1).

Furthermore, ecotourism brings benefits to local communities and supports conservation and it also has the potential to raise public environmental awareness. Ecotours include different activities that help ecotourists learn about conservation and ecology as they are exploring new landscapes and communities (Orams, 1997; Kimmell, 1999; Thaites *et al.*, 2002).

## **2.6 Aspects of ecotourism**

Pearce and Reader (2008) suggested that ecotourism aspects consist of three equal divisions as follows:

- (i) Low environmental impacts paired with conservation benefits;
- (ii) Environmental education for guests;
- (iii) Sustainable links with the local economy.

Some ecotourism projects may be stronger in terms of promoting sustainable local benefits. Others may have more of an influence through environmental education. Thus, neither of these aspects is equally represented in all ecotourism projects, nor can they be developed at once. The important thing, as noted above, is to maintain a positive balance in each aspect. If certification focuses upon developing processes through which ecotourism ventures can be tailored to specific socio-economic and environmental settings without sacrificing its mission, then a whole spectrum of creative approaches will not only fit comfortably within its domain, but will also serve to inform, promote and inspire each other (Pearce and Reader, 2008: 123). In other words ecotourism features were presented as follows (Honey, 2008):

- (1) Involves travel to natural destinations;
- (2) Minimizes impact;
- (3) Builds environmental awareness;
- (4) Provides direct financial benefits for conservation;
- (5) Provides financial benefits and empowerment for local people;
- (6) Respects local culture;
- (7) Supports human rights and democratic movements.

Therefore, Wood (2002) argued that promoting ecotourism in special places should have some features, e.g. ecotourism requires the lowest possible consumption of non-renewable resources. It also contributes to conservation of biodiversity, includes an interpretation-learning experience, and sustains the well-being of local people (Wood, 2002: 10). Some further general characteristics of ecotourism have been identified by UNEP and the World Tourism Organization, (Denman, 2001: 2) as follows:

- Involving appreciation not only of nature, but also of indigenous cultures prevailing in natural areas, as a part of the visitor experience;

- Containing education and interpretation as a part of the tourist offer;
- Generally, but not exclusively, organized for small groups by small, specialized and locally owned businesses (while recognizing that foreign operators also market and operate ecotourism);
- Minimizing negative impacts on the natural and socio-cultural environment;
- Supporting the protection of natural areas by generating economic benefits for the managers of natural areas;
- Providing an alternative income in addition to employment for local communities;
- Increasing local and visitor awareness of conservation.

## **2.7. Sustainable development**

The United Nations World Commission on Environment and Development defined sustainable development (sustainability) as “meeting the needs of the present without compromising the ability of future generations to meet their own needs”, and it must not endanger the natural systems that support life on Earth: the atmosphere, the waters, the soils, and the living beings (UN world commission Environment and Development, 1987: 41-45). The means of sustainable development use ecotourism as a link between the protected area and the local communities (Berkes, 2004; UN world commission Environment and Development, 1987: 41-45).

## **2.8. Relevant forms of ecotourism:**

There are several words describing the similar idea "ecotourism", such as alternative tourism, sustainable tourism, nature tourism, or responsible tourism, all of which are often used interchangeably. The main ideas behind those terms are similar.

**Alternative tourism** is any type of travel that is not mass tourism (i.e. beach vacations or traditional sightseeing tours). This includes ecotourism, backpacking, volunteer tourism, adventure tourism, historical tourism, tornado chasing, couch surfing, or any other form of travel that is a typical (TIES, 1990).

**Sustainable tourism** is “tourism that meets the needs of present tourists and host regions while protecting and enhancing opportunities for the future”. It has the same idea as ecotourism but is not limited to natural areas.

**Nature tourism**, which is frequently and erroneously considered the same as ecotourism, is defined as travel to unspoiled places to experience and enjoy nature. Also, adventure tourism is described as nature tourism with kick nature tourism, with a degree of risk taking and physical endurance. Nature and adventure tourism focus on what the tourist is seeking (Honey, 2002).

In contrast, **responsible tourism** can help to generate awareness and support conservation for local culture, and it creates economic opportunities for countries and communities. The widely accepted definition for **responsible travel** is a practice used by travelers guiding how they act in a host country. It has roots in sustainable tourism but focuses on being respectful as a guest in a foreign country, such as asking permission to take photographs or enter a home, observing some of the customs, such as dress, or making an effort to learn the language (TIES 1990). Thus, Ecotourism promotes responsible travel to natural areas, environmental conservation and the well-being of local communities (Almeyda, *et al*, 2010: 803). Therefore, we can state that all terms, i.e. “sustainable tourism, responsible travel, alternative tourism” are similar and they are used alternately with ecotourism.

**Nature-based tourism** is defined as “primarily concerned with the direct enjoyment on some relatively undisturbed phenomenon of nature” (Weaver, 2001:7).

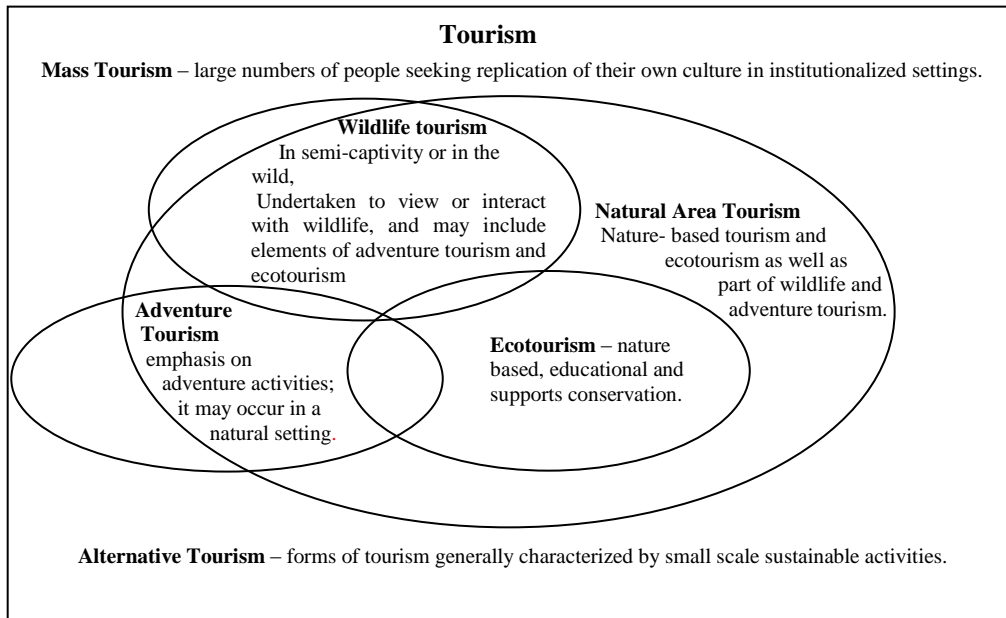


Figure (2.1): The Relationship between ecotourism and other forms of tourism.  
Source: Gale, T. and Hill, J. 2009: 5

The figure (2-1) explains the relationship between ecotourism and other forms of tourism. Ecotourism is completely seen as a subset of natural area tourism, incorporating elements of wildlife and adventure tourism as acknowledged by a number of researchers (for example Page and Dowling 2002, Fennell 2003) that ecotourism is separated from mass tourism and various other forms of alternative tourism (Gale, and Hill, 2009: 6).

## 2.9. Ecotourists

Actually, the ecotourism project is properly organized, and provides attractive facilities to be able to meet the tourist demand. Thus, tourists play a major part in ecotourism projects (Garcia-Herrera, 2005: 15). Eventually, it is necessary to highlight the ecotourism studies indicating the visitor's demands.

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## **Chapter 3**

# **ECOLOGES**

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## **CHAPTER THREE:**

### **Ecolodges**

#### **(Sustainable building)**

The physical reflection of ecotourism accommodation is the manifest in the form of “Ecolodge” (Mehta, 2005:7). Thus, it is necessary to present various definitions to ecolodges as follows:

#### **3.1 Definitions of Ecolodge:**

There are several definitions and concepts that explain the meaning of ecolodge and its relationship with the surrounding environment and its dependence upon the difference between it and the traditional accommodation projects (hotels and resorts). The most important definition is: "Ecolodge is the term used to define the quality of a tourist accommodation dependent on the environment and reflect the philosophy of ecotourism, and this kind of ecolodges offers tourism as an educational process and a partnership with the local community, in addition developed and managed in a way that protects the surrounding environmental eco-system" (Bottrill & Pearce, 1995: 45-54).

According to the Eco Travel Center, a service of the Conservation International Foundation, the term ecolodge can be defined as: "An industry label used to identify a nature dependent tourist lodge that meets the philosophy and principles of ecotourism" (Hawkins *et al.*, 1995, <http://adventure.howstuffworks.com/ecolodge.htm>), or it is a building including environmentally responsible principles of design, construction and operations (Pigram, 2003: 133).

In other words, eco-lodge is the one that makes efforts to conserve resources and limit waste (<http://www.i-to-i.com/eco-tourism/what-is-eco-tourism.html>). A survey of 26 ecolodges in 12 countries by Russell *et al.*, 1995) reported that ecolodges are a small-scale business located in

isolated natural settings, with facilities designed with a local or exotic quality.

Regarding the various aspects of ecolodges as mentioned in The International Ecolodge Guidelines book (Mehta *et al.*, 2002), the Ecolodge could be defined as “a 5-75 room low-impact nature based financially sustainable accommodation facility that helps protecting sensitive neighboring areas; involves and helps benefits of local communities; offers tourists an interpretative and interactive participatory experience; provides a spiritual communication with nature and culture and is planned, designed, constructed and operated in an environmentally and socially sensitive manner” (Mehta, 2005: 9).

Eco-lodges are different from tourist hotels in that they specifically strive to adhere to the principles of ecotourism (Hawkins *et al.*, 1995). There are Criteria for Meriting the Label ‘Ecolodge’ as mentioned by Mehta *et al.*, 2002, as follows:

- Helps in the conservation of surrounding flora and fauna;
- Seeks to work together with the local community;
- Offers explanatory programs to educate both its employees and tourists about the surrounding natural and cultural environments;
- Uses alternative, sustainable means of water acquisition, and reduces water consumption;
- Provides careful handling and disposal of solid waste and sewage;
- Meets its energy needs through passive design and renewable energy sources;
- Uses traditional building technology and materials wherever possible and combines these with their modern counterparts for greater sustainability;
- Has minimal impact on the natural surroundings during construction;

- Fits into its specific physical and cultural contexts through careful attention to form, landscaping and color, as well as the use of vernacular architecture;
- Contributes to sustainable local community development through education programs and research.

## **3.2. Types of Ecolodges**

There are many variant types of ecolodges in terms of their purpose, history, and expression of ecological values. This is a description of different types of ecolodges: (<http://www.worldwideecolodges.com>)

**3.2.1 Model Ecolodge:** This ecolodge has well-trained staff and professional guides dealing with guests from all backgrounds. This model ecolodge is located in pristine natural locations, often of significant ecological importance, and has strong programs of conservation. It has ethical employment practices and contributes to the local economy. It also uses best technologies to reduce energy and waste handling.

Model Ecolodges are also distinctive in these ways, as opposed to rural or community-based ecolodges which have a slightly different purpose.

**3.2.2 Ecoresorts:** These are often slightly different in their purposes and locations than model ecolodges. They are often based near the ocean and offer more recreational activities and personal services (natural health spas, yoga classes, etc.) as opposed to natural history based ecolodges.

**3.2.3 Nature lodges and camps:** They are small lodges or camps which are located in natural areas. They are often built in beautiful areas, but were designed for other purposes. Many have been adapted and are maintained for accommodation purposes. They are more or less unregulated or ungraded, but many do adhere to most ecotourism

principles. Services may be limited, e.g they may have no onsite guides, or they may be simple alpine huts or camp sites.

**3.2.4 Rural Ecolodges:** These are usually simple, privately owned accommodations located in rural areas or in small villages, which are near a nature reserve.

**3.2.5 Community Based Ecolodges:** Throughout the world there have been several experiments involving communities in tourism projects that have built lodging facilities, developed tours, and offered other hospitality services. Also, these projects serve to provide an income for small communities seeking a more sustainable means to living. These projects are identified as follows:

- Some have been funded by NGO's;
- Some by international development funds and other sources of non-conventional financing;
- Some are rural projects using farm stays;
- Some are using local homes;
- Some are adapted or purpose built structures.

### **3.3. Principles of Ecolodge**

There are some principles which should be applied in ecolodges. According to The International Ecotourism Society (TIES) 1990, a good ecolodge should:

- Provide comfortable rooms and common areas that reflect the designs and heritage of the local culture;
- Offer a natural setting that has carefully been preserved and contained local plant life;
- Use locally harvested and sustainable and/or recyclable building materials;
- Purchase food from local farmers;
- Use environmentally-friendly energy, water, and waste systems;

- Offer opportunities for interaction with local owners, managers, staff and guides.

### **3.4. Characteristics of Ecolodge**

According to the previous study about ecotourism, ecotourism should apply the principles to the fullest extent. Although there are no universally accepted guidelines for the design and operation of ecolodge facilities, most agree on a common set of characteristics that clearly differentiate ecolodges than conventional hotels. These characteristics as argued by Baldinger, 2006, include:

**3.4.1. Size:** Ecolodges are small and typically accommodate less than 30 guests.

**3.4.2. Facilities:** The facilities designed to be in harmony with the local natural and cultural environment. Emphasis should be placed on simplicity, minimal pollution, and disruption to the site, and the elimination of all unnecessary demands on natural resources.

**3.4.3. Guest type:** Ecolodges generally attract individuals who seek a rich experience based on a close interaction with the natural and cultural elements of the site. They expect operators to demonstrate sensitivity to environmental and cultural issues in their operations, activities, and in the design and management of their facilities.

**3.4.4. Services and level of comfort:** Although there are exceptions, ecolodges are not generally meant to provide typical accommodations of conventional hotels. Their facilities are usually more basic, though the level of customer service may be very high.

**3.4.5. Guest activities:** The activities offered in ecolodges are centered on the surrounding environment rather than on the facility itself (e.g., hiking, safari, bird watching and diving) (Baldinger, 2006: 3-4).

**3.4.6. Water heating:** Renewable energy water heating systems include solar thermal water heaters and biomass water heaters which are

used. In tropical climates, solar water heaters can generally meet from 80 to nearly 100% of domestic hot water requirements (USAID, 2010: 14).

Solar thermal water heaters, which are probably the most well-known and widespread of all renewable energy technologies, use the energy of the sun to directly heat water contained in a glass-covered collector. In most solar water heater configurations, the heated water flows by natural convection from the collector to an insulated tank, which is designed to store enough hot water to meet the end-use needs (USAID, 2010: 14).

**3.4.7. Lighting:** Renewable lighting options include high-efficiency electric lamps powered with the energy obtained from renewable electricity generation systems, oil lamps, and biogas lamps (USAID, 2010: 14).

### **3.5. Factors affecting energy consumption in Ecolodges:**

The principal factors that affect energy consumption in ecolodges are mentioned below (as presented and discussed by United States Agency International Development (USAID), 2010: 8-10):

- **Climate:** The average annual and monthly temperatures, as well as the differences between daytime and nighttime temperatures, have an important impact on the energy needs.

In hot climates (e.g., tropical regions, semi-arid and desert), the need for space cooling is an important concern as it can seriously affect guest comfort. Air conditioning is generally not an option as it is prohibitively expensive in remote off-grid locations and also contradicts basic principles of ecotourism, such as the efficient use of resources and living in harmony with the local environment. Instead, ecolodges must rely on building design features (e.g., heat reflecting surfaces, cross ventilation, shading and insulation). Less energy-intensive cooling systems (e.g., evaporative coolers in dry climates and fans) are used in order to maintain

their living spaces at a reasonable temperature or provide some respite from the heat.

In colder climates, space heating is a major energy use concern. Due to the surrounding area, the ecolodge's buildings should be properly designed and rely on passive solar features to minimize the capacity and fuel consumption of the supplemental space heating systems (USAID 2010: 9).

- **Capacity**: The capacity or maximum occupancy of the ecolodge has a direct impact on its total energy needs. Regardless of the type of facility, the capacity and energy consumption of the equipment, appliances and devices that are needed to support its operations increases as the number of guests increases (USAID 2010: 9).

- **Staff housing**: The number of employees housed at the ecolodge also has a direct impact on its energy needs. In ecolodges with basic services (e.g., electric lights, pressurized water supply, water heaters, meal service and refrigerated food storage), the electricity and thermal energy consumption of an employee is similar to that of a guest (USAID 2010: 9).

- **Selection of equipment and appliances**: Off-grid facilities should make every effort to use high-efficiency equipment and appliances for all applications that require electrical energy. Given the typically high cost of generating electricity in remote locations, every additional kilowatt-hour (kWh) used has a significant impact on the capital and/or operating cost of the energy supply system. For example, even though a 60-watt incandescent bulb produces the same amount of light as a 15-watt energy-efficient compact fluorescent lamp, a solar array would need to generate four times the energy to power the incandescent bulb (USAID, 2010: 10).

• **Energy efficiency**: Energy efficiency is a fundamental requirement of sustainable ecotourism as it allows tourism businesses to preserve natural resources and reduce the impact of their operations on the environment. However, in the particular case of remote off-grid facilities, energy efficiency is considered as a basic requirement for their economic survival. In addition, its facilities are able to provide:

- A greater level of comfort to the guests and staff;
- Lower reliance on non-renewable sources of energy;
- Lower complexity and cost of energy supply and backup systems;
- Lower maintenance requirements and operating costs.

Energy-efficient equipment and appliances are typically more expensive than standard-efficiency models. However, this higher cost is generally largely compensated by the reduced capital and operating costs of a smaller electricity generation system. (USAID, 2010: 10-11). Therefore, energy efficiency should be integrated into every aspect of the design and operation of ecolodges (USAID, 2010: 10).

• **Building design**: Well-designed buildings can maintain a comfortable indoor temperature with minimal supplemental heating and cooling in temperate climates, and operate without air conditioning in tropical climates. Building design should be properly sited, oriented and designed to minimize its heating and cooling requirements, and downsize the need for heating and cooling systems.

Passive cooling building features in hot climates include cross ventilation; use of high reflectance roofs and walls, which can reduce the heat load into a building up to by 40%; the proper insulation; shading of the roofs, and walls that are exposed to the sun.

As a general rule, buildings should also be designed to use sunlight rather than artificial light during daytime hours (USAID, 2010: 10-11).



### **3.6 Elements affecting the environmental impacts of Ecolodges**

There are additional elements to limit the ecolodges' environmental impacts, such as:

- Reducing temperatures for laundry water;
- Changing sheets and towels less frequently;
- Using solar power or alternate energy sources;
- Installing low flow showerheads and toilets;
- Buying recycled products and recycling waste;
- Building a compost heap or a waste treatment facility

(<http://www.i-to-i.com/eco-tourism/what-is-eco-tourism.html>).

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## **Chapter 4**

# **PROTECTED AREAS**

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## **CHAPTER FOUR:**

### **Protected Areas**

Most countries where there are protected areas inside have now forms of national or regional marketing strategies for attracting ecotourists. Tropical countries have particularly been encouraged to invest in ecotourism as a possible solution to raising much needed foreign exchange while also monitoring environmental degradation (Ceballos-Lascurain, 2008: 193).

However, European countries, such as the UK and Germany, the trend is toward small, specialized offers based on “green,” “nature,” and “sustainable tourism” concepts. The establishment of new national parks and protected areas in several eastern European and central Asian countries will no doubt increase ecotourism activities in these protected areas, probably attracting a large number of visitors all over the world (Nepal, 2002).

#### **4.1 Definition of protected areas**

Protected areas are considered valuable places established principally with the aim of preserving some important kinds of biodiversity represented by flora, fauna, landscape, as well as to preserve community’s local traditions. Interest is increasingly growing as they are attractive places for people interested in those experienced environments (Arenas, 2006). They are defined as any region of land and/ or sea that has legal measures limiting the use of the wildlife within that area (McNeely *et al.*, 1990 as cited in Newsome *et al.*, 2001: 5).

While The World Conservation Union (IUCN) established a global definition for protected areas as: “A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated

ecosystem services and cultural values” (IUCN, 2008: 8). Also, IUCN presented that all protected areas should aim to:

- Conserve the composition, structure, function, and evolutionary potential of biodiversity;
- Contribute to regional conservation strategies (as core reserves, buffer zones, corridors, steppingstones for migratory species, etc.);
- Maintain diversity of landscape or habitat and of associated species and ecosystems;
- Be of sufficient size to ensure the integrity and long term maintenance of the specified conservation targets or be capable being increased to achieve this end;
- Maintain the values for which it was assigned in perpetuity;
- Be operated under the guidance of a management plan, and a monitoring and evaluation program that supports adaptive management;
- Possess a clear and equitable governance system (IUCN, 2008: 12).

There are several smaller districts of natural areas surrounded by largely human altered environments. Such areas have generally been protected by humans in an array of protected landscape categories (McNeely *et al.*, 1990 as cited in Newsome *et al.*, 2001: 5).

## **4.2 Categories of natural protected area management:**

Most nations around the world use the categories established by the World Conservation Union (IUCN). The IUCN nominates six broad categories of protected areas based on primary management objective, table (4-1). These categories provide for a range of management from strict reserves or wilderness areas, recreation areas, habitat and species conservation areas to areas managed for sustainable use (Kelleher, 1999).

Table (4.1): Descriptions of IUCN protected area categories:

Category	Type	protected area managed mainly for	Definition
<b>Ia</b>	Strict Nature Reserve:	Science	Area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring.
<b>Ib</b>	Wilderness Area:	Wilderness protection	Large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.
<b>II</b>	National Park: protected area	Ecosystem protection and recreation	Natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.
<b>III</b>	Natural Monument :	Conservation of specific natural features	Area containing one or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance.
<b>IV</b>	Habitat/Species Management Area:	Conservation through management intervention	Area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.
<b>V</b>	Protected Landscape/ Seascape:	Landscape/ seascape conservation and recreation	Area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinct character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.
<b>VI</b>	Managed Resource Protected Area:	The sustainable use of natural ecosystems	Area containing predominantly unmodified natural systems, managed to ensure long term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs.

Source: IUCN 1994: 261, adapted by author.

### **4.3. Touristic benefits of protected areas**

Protected areas are becoming more interesting in the role of tourism in supporting conservation initiatives; thus tourism is an important and critical component to be considered in the establishment and management of protected areas (Foxlee, 2007: 44).

Therefore, tourism can make significant contributions to protected area systems of conservation (Brandon, 1996). Direct benefits from tourism to conservation can be clustered in five groups:

1. A source of financing for biodiversity conservation, especially in legally protected areas;
2. Economic justification for protected areas;
3. Economic alternatives for local people to reduce over exploitation of wildlife resources on protected areas;
4. Constituency-building, which promotes biodiversity conservation;
5. An impetus for private biodiversity conservation efforts (Christ *et al*, 2003).

### **4.4. Guidelines for tourism in protected areas:**

The growing demand for tourism in protected areas currently challenges the capacity of management to meet this demand without unacceptably affecting the values of protected areas. This deficiency in capacity must ultimately be addressed through increasing the skill level of managers and the private tourism sector. As a short-term strategy, guideline documents, such as minimum impact principles, codes of conduct for operators and visitors, and management principles could be effective in reducing the negative impacts in protected areas (Bushell and McCool, 2007: 17).

Sustainable tourism guidelines reflect the need to prevent further damage to the world's natural and cultural heritage sites and increase the

benefits that tourism could create for local communities, indigenous communities and conservation (Foxlee, 2007).

#### **4.5. The relationship between ecotourism and protected areas:**

Ecotourism has a great impact on the environment and protected areas, and in comparison to other types of tourism, it is small but has rapidly growing movement and it doesn't need comprehensive infrastructure (Nikitinskiy, 2001). Most typically, ecotourism involves visits to areas that are under some forms of environmental protection by governments, conservation or scientific organizations, or private owners or entrepreneurs (Honey, 2008: 13). Thus, the treatment of ecotourism in protected areas must be completely integrated in regional management, as much as wildlife management, threatened species' recovery and environmental education (Garcia-Herrera, 2005: 22).

Firstly, it is necessary to guarantee the conservation of resources because the relationship between ecotourism and protected areas is unavoidable.

Secondly, because it is very convenient, it can be used as mechanism to obtain income for the protected area and/or for the local communities. Both goals must be managed from the same administrative realm, and under the same perspective, so that tourism can become an instrument for conservation and support of the protected areas (Garcia-Herrera, 2005: 22).

On account, the negative impacts of tourism include damaging to plants, forest clearance, disturbing animal habitats, creating soil compaction, and marine resource destruction (coral damage and overfishing). Therefore, when ecotourism is ideally managed and rules are applied, we will obtain a perfect sustainable ecotourism.

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## **Chapter 5**

# **EXAMPLES of ECOTOURISM**

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## **CHAPTER FIVE:**

### **Examples of Ecotourism**

This chapter describes few examples of ecotourism projects. These examples are known as a part of successful countries in ecotourism all over the world. The specification of these examples leads to some elements (factors) which assist in implementing ecotourism in special contexts.

#### **5.1 Countries with success in ecotourism**

Countries that are generating success stories in the realm of ecotourism, such Kenya, Costa Rica, South Africa, Australia, New Zealand, Ecuador and Belize, are doing so in part because they are managing to attain a degree of more or less appropriate coordination among the different stakeholders involved: government, the tourism industry, NGOs, local communities and universities, among others (Ceballos-Lascurain 2008: 193). All of these countries have extraordinary natural assets (landscape, fauna and flora), in some cases complemented by a rich cultural heritage, effective protected area networks, and a vocal and pro-active ecotourism industry sector, interested in achieving conservation and sustainable development goals, as well as good business (Ceballos-Lascurain 2008: 194).

#### **5.2. Ecotourism in Costa Rica: "Selva Bananito Ecolodge in Costa Rica"**

##### **5.2.1. Reasons for choosing Selva Bananito Ecolodge in Costa Rica:**

- The Ecolodge Selva Bananito is now an extraordinary example for ecotourism: nature and adventure tourism services nestled in a pristine region of Costa Rica's Caribbean area, the Talamanca Mountains.
- Selva Bananito is an important buffer zone or transition area to the "International Park La Amistad". Selva Bananito Ecolodge has achieved

worldwide recognition as an example for Costa Rica ecotourism as one of the "Top Ten Ecolodges in the World" (<http://www.selvabananita.com/ecolodge-costa-rica.html>).

### 5.2.2. The Site:

Costa Rica Ecolodge is situated in a pristine and natural setting, also located at the foothill of the Cerro Mochila, the eastern outcropping of the Talamanca Mountain Range, in the province of Limon, Costa Rica (<http://www.selvabananita.com/Location.html>).

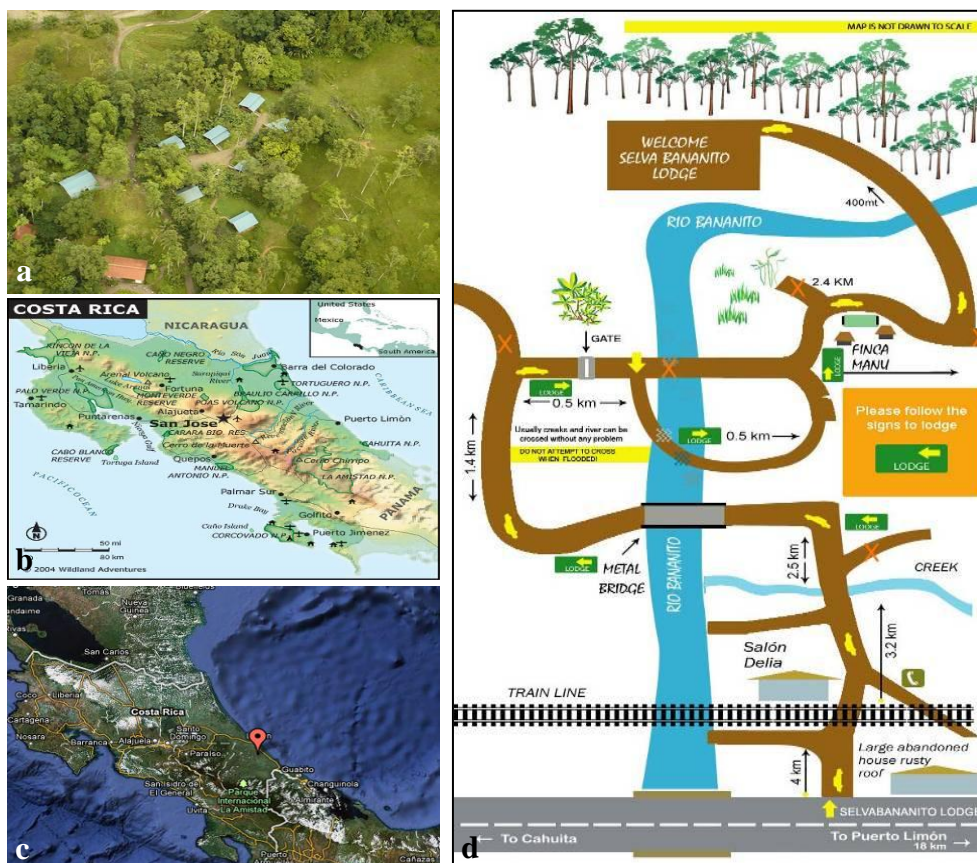


Figure (5.1): The site of Selva Bananito Ecolodge.

(a) Aerial picture of the ecolodge; (b) and (c) Google earth view; (d) the map shows how to reach the ecolodge.

Source: <http://www.selvabananita.com/Location.html>.

### **5.2.3. Ecotourism in Selva Bananito Ecolodge, Costa Rica:**

The ecolodge is allusive to the natural old growth forest and guarantee the water supply of the river. Costa Rica Ecolodge is highly distinguished for its conservation efforts, which means that it is oriented toward an environmentally friendly operation as a core value of its operation (<http://www.selvabananito.com/ecolodge-costa-rica.html>). It is operated in an environmentally friendly way. They heat their water with solar energy, use bio-degradable soaps, compost the bio-degradable waste, purify the waste water with bacteria, enzymes, and recycle plastic bottles, aluminum and glass.

**5.2.4. Recycling hardwood for the construction:** 80% of the hardwood used to build the cabins was obtained from “second hand” wood discarded by loggers from trees already cut for other purposes. As much as 20% of a tree is classified as “second hand” and is normally left to waste.

### **5.2.5. Activities**



Figure (5.2): The activities in the ecolodge.  
(a) Hiking Tour, (b) Tree Climbing Tour, and (c) Horseback Tour.  
Source: <http://www.selvabananito.com/activities>.

•**Birding:** Costa Rica has 850 species of resident and migratory birds that live in this country.

- **Hiking Tour:** Costa Rica hiking as exemplified by Selva Bananito, guided by experienced guides in small groups.
- **Tree Climbing Tour:** Climb up activity that allows the tourist to get a bird eye view of the Lodge and nearby pastures.
- **Horseback Tour:** Get ready for the most thrilling horseback ride into the primary rainforest (<http://www.adventure-life.com/lodging/selva-bananito-227>).

#### **5.2.6. The cabins:** (<http://www.selvabananito.com/Cabins.html>)



Figure (5.3): View of outside and inside the ecolodge cabins.  
Source: <http://www.selvabananito.com/Cabins.html>.

- Selva Bananito Ecolodge is the only hotel in Costa Rica that has been built with “recycled” waste wood from logging activity that took place several decades ago;
- Eleven individual cabins constructed of beautiful salvaged wood. They stand on stilts following Caribbean tradition;
- Each one of cabins has solar heated warm water, an appointed, tiled and rather ample restroom and shower area;
- A spacious main lodge to enjoy meals and socialize with others, candle-lit evenings to preserve more natural night-time ambience. They use no electricity. Reading lamps are provided in each cabin (<http://www.adventure-life.com/lodging/selva-bananito-227>).

## 5.3. Ecotourism in Australia: "Jemby-Rinjah Ecolodge"

### 5.3.1 Reasons for choosing Jemby-Rinjah Ecolodge:

Jemby-Rinjah Ecolodge holds Advanced Ecotourism Accreditation under the National Ecotourism Accreditation Program and is one of the first working examples of a large-scale sustainable tourism in Australia (<http://www.jembyrinjahlodge.com.au/JembyNews/tabid/79/Default.asp>).

The award winning Jemby-Rinjah Ecolodge is a unique Australian ecotourism escape in the heart of the Blue Mountains (<http://www.jembyrinjahlodge.com.au/JembyNews/tabid/79/Default.asp>).

### 5.3.2 The site:

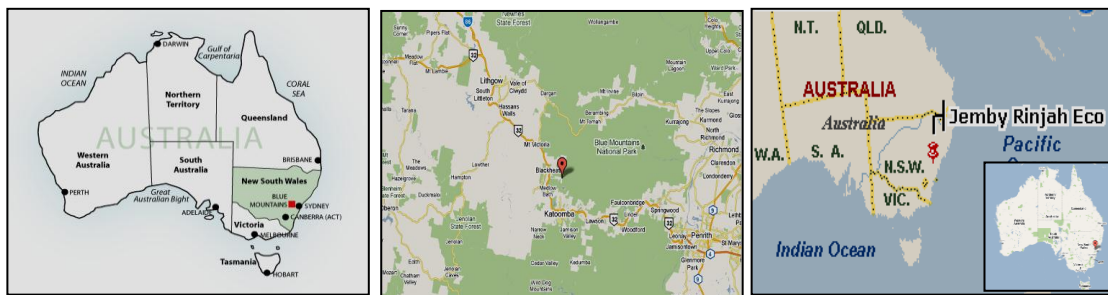


Figure (5.4): Site map of Jemby-Rinjah Ecolodge.  
Source: <http://www.jembyrinjahlodge.com.au>

Jemby-Rinjah Ecolodge is situated in Australia in Blackheath, just minutes from World Heritage Listed National Park and some of the most breathtaking walking tracks and lookouts in the Blue Mountains (<http://www.bluemts.com.au/maps>).

### 5.3.3 Ecotourism in Jemby-Rinjah Ecolodge:

Jemby-Rinjah Ecolodge was designed to coexist with, and take advantage of the natural environment, and has won several major awards both for the innovative design and for its successful operation as a tourism business.



Figure (5.5): Jemby-Rinjah ecolodge interior and exterior.  
 Source: <http://www.jembyrinjahlodge.com.au>

### **5.3.4 Recycling:**

Building design, skylights and energy-efficient combustion stoves are used to minimize energy consumption. All bathrooms use composting toilets, with the compost and kitchen waste used as garden fertilizer (Buckley 2003: 108). An enzyme-based cleaner is used for toilet cleaning. Only biodegradable detergents are used. Grey water is disposed of in settling tanks. The Lodge has won a number of environmental awards and has an occupancy rate of 90% for the bush cabins (Buckley 2003: 109).

### **5.3.5 Activities:**

- Horse riding in the Valley;
- Bird feeding;
- Abseiling, rock climbing and canyoning;
- 4WD tours with local guides (<http://www.jembyrinjahlodge.com.au/Whatweoffer/Activities/tabid/61/Default.aspx>).

### **5.3.6 The cabins:**

- The buildings and most connecting walkways are constructed on raised poles with pipes and cable suspended underneath, minimizing the lodge's footprint (Buckley 2003: 108). These walkways are used to ensure minimal impact on flora and fauna. In addition, they protect them for the future (shown in figure 5.6). All stages of the facility are connected by paths and ramps for wheelchair accessibility.



Figure (5.6): The wooden walkways placed above the ground.  
 Source: <http://www.jembyrinjahlodge.com.au>



Figure (5.7): Interior view of the Jemby-Rinjah ecolodge.  
 Source: <http://www.jembyrinjahlodge.com.au>

- The lodge consists of nine bush cabins, three ecolodges, a central lounge, dining area and conference center (Jemby-Rinjah Lodge, 2009 and Harris and Varga, 1995). The cabins are self-contained with full kitchen facilities, a lounge/dining area and one or two bedrooms. They can accommodate between two and six people (Jemby-Rinjah Lodge, 2009).
- Every cabin features a slow combustion wood heater in the lounge area.
- Each cabin is very private and surrounded by native bush land. Guests can choose either to cater for themselves or to join the restaurant for their meals.
- Each lodge has four bedrooms plus an upstairs loft. There are two bathrooms, a large lounge area, bar fridge, tea and coffee making facilities, central gas heating with individually warmed rooms and north facing deck area overlooking the natural Blue Mountains bush escape, alive with native birdlife.



Figure (5.8): Exterior views of the Jemby-Rinjah Ecolodge.  
Source: <http://www.jembyrinjahlodge.com.au>

- The buildings are oriented for solar benefits and are well-insulated using fiberglass and reflective foil to prevent condensation in the cold climate as well as the use of strawboard ceilings sheets which provide excellent thermal and acoustic insulation (<http://www.jembyrinjahlodge.com.au/AboutJemby/AbouttheLodge/tabid/68/Default.aspx>).
- The boardwalks house, all essential services beneath them to minimize soil disturbance and all original building materials were carried in using the boardwalks.
- Limited use is made of off-site energy sources, with the utilisation of energy saving lighting and heating. Water saving devices has been installed where possible. Waste management system includes grey water treatment, composting toilets, and the implementation of recycling policies and the practices used.



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## **Chapter 6**

# **SUSTAINABLE STUDYING ELEMENTS**

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## **CHAPTER SIX:**

### **Sustainable studying elements**

#### **6.1. Important elements for Sustainable buildings design:**

There are some elements offered to encourage the use of sustainable building practices in new construction and remodels or renovations (San Mateo County, 2004: 7-9), (Repiso, L., 2006: 291-292) & (Reynolds, J., *et al*, 1994: 44-76). These elements could be summarized as follows:

##### **6.1.1 Natural Characteristics**

The greatest challenge in achieving sustainable site design is to learn from nature. It is more comfortable when nature is incorporated into designs, spaces, interesting, and efficient. It is important to understand natural systems and the way they interrelate in order to work within these constraints with the least amount of environmental impact. Like nature, design should not be static but always evolving and adapting to interact more intimately with its surroundings. Natural characteristics include several elements, such as the following:

##### **\* Climate**

- Climate, weather, and natural resources considerations are significant criteria in choosing vacation destinations in general (Agnew and Viner, 1999; Hall and Higham, 2005; Bigano *et al.*, 2006; Goessling and Hall, 2006).
- Applying natural conditioning techniques to save appropriate comfort levels for human activities.
- Analyzing the climate: comfortable, too cool, or too hot for the expected activities and then which of the primary climatic

components of temperature, sun, wind, and moisture make the comfort level better or worse.

### **\* Topography**

- Consolidate functions or segment facilities to reduce footprint of individual structures to allow sensitive placement within Consider building/land interface to minimize disturbance to site character, skyline, vegetation, hydrology, and soils.
- Use landforms and the sensitive arrangement of buildings to:
  - Reduce the visual impact of facilities;
  - Enhance visual quality by creating a rhythm of open spaces and framed views;
  - Orient visitors to building entrances;
  - Accentuate key landmarks, vistas, and facilities.

### **\* Temperature**

- Temperature is a liability in climates where it is consistently too hot or too cold;
- Areas that are very dry or at high elevation typically have the asset of large temperature swings from daytime heating to night time cooling, which can be flattened through heavy/massive construction to yield relatively constant indoor temperatures;
- When climate is predominantly too hot for comfort:
  - minimize solid enclosure and thermal mass;
  - maximize roof ventilation;
  - use elongated or fractured floor plans to minimize internal heat gain and maximize exposure for ventilation;
  - separate rooms and functions with covered breezeways to maximize wall shading and induce ventilation;

- isolate heat-generating functions such as kitchens and laundries from living areas;
- provide shaded outdoor living areas such as porches and decks;
- capitalize on cool temperatures, breezes, or ground temperatures.
- When climate is predominantly too cool for comfort:
  - consolidate functions into most compact configuration;
  - insulate thoroughly to minimize heat loss;
  - minimize air infiltration with barrier sheeting, weather stripping, sealants, and airlock entries;
  - minimize openings not oriented toward sun exposure.

#### **\* The Sun**

- The sun can be a significant liability in hot climates, but is rarely a liability in cold climates;
- The sun can be an asset in cool and cold climates to provide passive heating;
- The design must reflect seasonal variations in solar intensity, incidence angle, cloud cover, and storm influences;
- When solar gain causes conditions too hot for comfort:
  - Use overhangs to shade walls and openings;
  - Use site features and vegetation to provide shading to walls with eastern and western exposure;
  - Use shading devices such as louvers, covered porches, and trellises with natural vines to block sun without blocking out breezes and natural light;

- Use lighter-colored wall and roofing material to reflect solar radiation (be sensitive to resulting glare and impact on natural/cultural setting);
- In tropical climates, use shutters and screens, avoiding glass and exposures to direct solar gain.
- When solar gain is used to offset conditions that are too cool for comfort:
  - Maximize building exposure and openings facing south (facing north in the southern hemisphere);
    - increase thermal mass and envelope insulation;
    - use darker colored building exteriors to absorb solar radiation and promote heat gain;

**\* Wind**

- Wind is a liability for cold climates because it strips heat away quicker than normal. Also, it can be a liability for comfort in hot dry climates when it causes the human body to dehydrate and then overheat;
- Wind can be an asset in hot, humid climates to provide natural ventilation;
- Use natural ventilation wherever feasible; limit air-conditioning to areas requiring special humidity or temperature control, such as artifact storage and computer rooms;
- Maximize/minimize exposure to wind through plan orientation and configuration, number and position of wall and roof openings, and relationship to grade and vegetation;
- Use wind scoops, thermal chimneys, or wind turbines to induce ventilation on sites with limited wind.

### **\* Moisture**

- Strategies to reduce the discomfort of high humidity include maximizing ventilation, inducing air flow around facilities, and venting or moving moisture-producing functions, such as kitchens and shower rooms to outside areas;
- Nature can be an asset by evaporating in hot, dry climates to cool and humidify the air (a natural air-conditioning) ;
- Techniques for evaporative cooling include placing facilities where breezes will pass over water features before reaching the facility, and providing fountains, pools, and plants.

### **\* Vegetation**

- Sensitive native plant species need to be identified and protected. Existing vegetation should be maintained to encourage biodiversity;
- Plants also contribute to the visual integrity or natural fit of a new development in a natural setting. In some cases, plants can provide opportunities for food production and other useful products on a sustainable basis;
- Locate and size facilities to avoid cutting mature vegetation and to minimize disruption to, or disassociation with, other natural features;
- Use natural vegetation and adjustments in building plan to diminish the visual impact of facilities and to minimize imposition on environmental context;
- In warmer climates, strengthen interplay of facilities with their site environment through minimizing solid walls, creating outdoor-activity spaces, etc.

### \* **Wildlife**

- Encouraging wildlife to remain close to human activities centers enhances the visitor experience. This can be achieved by maintaining as much original habitat as possible;
- Respect importance of biodiversity and the humble role of humans in design:
  - Avoid disruption of wildlife travel or nesting patterns by sensitive siting of development and by limits set on construction activity and facility operation;
  - Allow opportunities for users to be aware of indigenous wildlife (observe, but not disturb).

### **6.1.2. Landscaping and Site Design**

#### \* **Landscape design:**

The factors considered in landscape design as:

- It is necessary to develop a master plan and a site plan to establish a balanced relationship with the landscape, factoring in vegetation, topography, water drainage and cultural aspects;
- Landscape Design creates comfortable micro-climates and reduces heat island effects;
- Improve building orientation for heating, shading, day lighting, and natural ventilation;
- Reduce building footprint, smaller is better.

#### \* **Site selection**

While site selection should be based on some factors as following:

- **Capacity:** Every site has a carrying capacity for structures and human activity. The site analysis should determine this capacity based on the sensitivity of site resources and the ability of the land to regenerate.

- **Density:** Site selection of facilities should carefully weigh the relative merits of concentration versus dispersal. Natural landscape values may be easier to maintain if facilities are carefully divided. Conversely, concentration of structure leaves more quiet natural areas.
- **Slopes:** Appropriate site selection should generally locate more intensive development on gentle slopes, dispersed development on moderate slopes, and no development on steep slopes. In many parks, the environment has hard slopes and it requires special siting of structures and costly construction practices. Building on slopes considered too steep can lead to soil erosion, loss of hillside vegetation, and damage to fragile wetland and marine ecosystems.
- **Views:** Views are critical and reinforce a visitor experience. Site location should maximize views of natural features and minimize views of visitor and support facilities.
- **Natural and Cultural Features:** Good sitting practices can maximize pedestrian access to the wide variety of onsite and offsite resources and recreational activities. Low impact development is the key to protecting vital resource areas.
- **Traditional Activities:** Siting of activities should be compatible with traditional agricultural, fishing, and hunting activities. Some forms of recreational development that supplant traditional land uses may not be responsive to the local economy.
- **Energy and Utilities:** Conventional energy and utility systems are often minimal or nonexistent in potential ecotourism areas. Siting should consider possible connections to offsite utilities, or more likely, spatial needs for onsite utilities. The potential exists for alternative energy use in many places, particularly solar- and wind-



based energy systems. Good sustainable sitting considers these opportunities.

- **Separation of Support Facilities from Public Use Areas:** There are factors which should be considered when sitting of support services and facilities such as: Safety, visual quality, noise, and odor. These areas need to be separated from public use and circulation areas. In certain circumstances, utilities, energy systems, and waste recycling areas can be a positive part of the visitor experience.

### **6.1.3. Human Elements (Cultural Contexts)**

Sustainable principles seek a balance between existing cultural patterns with new development. Developing an understanding of local culture and seeking their input in the development processes can make the difference between acceptance and failure:

#### **\* Archeological resources**

A complete archeological survey prior to development is imperative to preserving resources. Use preservation and interpretation of archeological features to provide insight to previous cultural responses to the environment, their successes as well as failures.

#### **\* Vernacular architecture**

- Analyze local historic building styles, systems, and materials usually for time-tested approaches in harmony with natural systems;
- Use local building material, craftsmen, and techniques to the greatest extent practicable in the development of new facilities.

**\* Historic resources**

- Local design elements and architectural character should be analyzed and employed to establish an architectural theme for new development.

**\* Anthropology/ethnic background/religion/sociology**

- Understand the local culture and their needs to avoid introduction of socially unacceptable or morally offensive practices;
- Consult with local indigenous population for design input as well as to foster their sense of ownership and acceptance;
- Include local construction techniques, materials, and cultural considerations (that are environmentally sound) in the development of new facilities.

**\* Arts and crafts**

- Incorporate local expressions of art, handiwork, detailing, and, when appropriate, technology into new facility design and interior design;
- Provide opportunities and space for demonstration of local crafts and performing arts.

**6.1.4. Other Elements**

**\* Community planning:**

- Build mixed use developments and provide public amenities such as open space;
- Cluster development to minimize paving and utilities, and to preserve open space.

### **\* Windows and doors**

- Provide shading on east, west and south windows with overhangs, or deciduous trees;
- Plan windows, skylights, light shelves, and window treatment to provide daylight that improves indoor environments;
- Choose window sizes, frame materials and glass coatings to optimize energy performance.

### **\* Electrical**

- Design lighting levels for actual use.
- Use energy efficient lamps and lighting fixtures.

### **\* Heating and cooling**

- Use passive solar design, thermal mass and insulation to reduce space heating needs.
- Replace air conditioning with natural ventilation and passive cooling.
- Use high-efficiency equipment including boilers, fans, and pumps.

### **\* Preservation and Consumption of Resources (Renewable power & solar energy)**

- Any sustainable project should make a commitment to minimize the use and production of water, energy (encouraging the use of renewable sources of energy), waste, sewage and noise, among others;
- Use solar hot-water systems for space heating.

### \* **Technologies and Materials (Interior materials)**

- The project should make use of appropriate technologies: local resources, such as building materials, manpower, building traditions (with their meaning and economic value). This ensures an efficient use of every material while involving low maintenance costs. Besides, current technologies should be incorporated to optimize the use of traditional technologies adding comfort and environmental quality.
- Use sustainable materials for flooring, trim, and interior surfaces.
- Use natural material such as wool, and sisal for carpets and wall coverings.

### \* **Built facilities and linkage**

- Consideration should be given to the environmental conditions.
- Adjusting the scale and proportion of the human-made environment to the natural environment and to what has been previously built.

## **6.2 Key factors required for successful ecotourism (Denman, 2001)**

- Aim for strategic, holistic and detailed planning.
- Careful and integrated management.
- Establish a national Sustainable Ecotourism task force to achieve a national development or Nature Tourism Strategy.
- Create an environment conducive to the establishment of a private sector Ecotourism Association, independent Ecotourism Commission and Community Ecotourism Association.
- Intervene in the market (e.g.: fees to protected areas, limits on numbers, regulations and Codes of Conduct for the industry).

- Consider each natural area individually (environmental impacts of tourism, what the area has to offer, local community needs, interaction with the environment and local infrastructure).
- It is easier for ecotourism to be developed successfully at the local and regional levels.
- Apply that small is beautiful and quality is paramount.
- Invest in: awareness raising, education and training for tourists, tour operators, local guides, protected area managers, local communities and local authorities.
- Aim to maximize local benefits for conservation, economic development, local participation and involvement at all levels.
- Aim to maximize use of local products and materials.
- Aim to focus on recycling, waste management, alternative technologies and fuels.

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## **Chapter 7**

# **RESEARCH BASIS**

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## **CHAPTER SEVEN:**

### **Research Basis**

#### **7.1. Research Problem:**

Tourism, in its instant concept, has destructive environmental effects expressed as increased ratio of water resources pollution, air pollution and visual pollution. Therefore, it is necessary to apply the right manner of tourism which gives present and future needs without harmful effects on the surrounding environment. This manner is called **“Sustainable Ecotourism” SET.**

Nowadays, Egyptian protectorates have become very attractive touristic places due to their natural richness, special potential for outdoor activities and valuable assets. These protected areas contain many of the most important tourist attractions in the world. These attractions can either be one or more of rare, (endemic or gaudy flora, fauna species, abundant wildlife, high diversity, singular or spectacular geomorphologic formations, or historic or contemporary cultural expressions), and unique in a natural context. Therefore, the link between tourism and the (well) protected areas is unavoidable (Garcia-Herrera, 2005: 14). Therefore, the development of ecotourism in protected areas may be obliged to decrease the negative impacts that tourism has in the short, medium and long term. In other words, tourism can be an important driver for generating benefits in protected areas.

Furthermore, applying **SET** could increase the positive impacts and possibilities to the protection of the natural asset and the local communities around Egyptian protectorates.

## **7.2 Research Questions**

Depending on the research problem, the research attempts to answer the following questions:

- What are the challenges and opportunities facing the application of sustainable ecotourism in Egyptian protectorates?

- What is the optimum framework for achieving sustainable ecotourism?

## **7.3 Research Hypothesis**

The hypotheses for this research could be summarized as follows:

- Analyzing the characteristics of Egyptian protectorates will help in achieving ideal sustainable ecotourism.

- Applying optimized sustainable ecotourism in Egyptian protectorates will lead to sustainable touristic development, consequently country's strong economy.

## **7.4 Research Purposes and Operational Objectives:**

The purpose of this research is to present an overview of the relationship between sustainable ecotourism, ecolodges, and protected areas (as shown in the theoretical background). Another goal is to provide a new concept for applying sustainable ecotourism in Egyptian protectorates. In this context, the major objective of this research is as follows:

- Finding out a framework for promoting sustainable ecotourism in Egyptian protectorates.

The specific tools to achieve this objective include:

- Identifying the environmental problems resulting from tourism and their impacts on protected areas;



- Finding the relationship between the sustainable ecotourism, ecolodges, and protected areas;
- Studying applied examples of ecotourism in protected areas all over the world;
- Summarizing the best sustainable elements that help in designing sustainable buildings in new constructions, remodels and renovations.

## **7.5 Research Significance**

This research will provide protected areas (planners, managers, and tourists) with a framework for promoting sustainable ecotourism. This framework will participate in conserving the protected areas and the surrounding environment through:

- 1- Helping planners and managers in designing and planning new special places, such as protected areas;
- 2- Increasing tourists' awareness of protected areas;
- 3- Increasing projects success factors and decreasing failures in these destinations;
- 4- Strength of country's economy.

**PART 2**

**METHODOLOGY**

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## **Chapter 8**

### **METHODS**

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## **CHAPTER EIGHT:**

### **Methods**

This chapter identifies the methods used in the research. It is important to highlight the overview of the research, clarifying the methodological approach used in the research, such as data collection, indicators summarized from the theoretical background and the state of case studies.

#### **8.1 Overview of the research**

Protected areas contain many of the most important tourist attractions in the world. Therefore, it is important to encourage ecotourism in these areas without damaging the surrounding environment. Suggesting a framework for promoting sustainable ecotourism in the protected areas could increase the positive impacts on surrounding environment and the possibilities for the protection of the natural assets.

#### **8.2 Research Methodology:**

The methodology was done in two axes:

##### **The First axe: Theoretical study:**

- a) Studying the tourism negative impacts on environment and their reflections on the protected areas;
- b) Studying the relation between sustainable ecotourism, ecolodge and protected areas;
- c) Representing the importance of applying Sustainable Ecotourism in protected areas;
- d) Analyzing present examples of ecotourism all over the world and evaluating their elements, and their success and failure factors;

- e) Summarizing the important sustainable elements that help in designing sustainable buildings in new constructions, remodels, and renovations.

### **The second axe: Practical study:**

- a) Three cases of protected areas in Egypt were studied. The first one is called "Saint Katherine", which is a world heritage site located in south of Sinai. The second area, called "Siwa Oasis", is a protected area located in Matrouh Governorate, and the third called "Wadi El-Hitan" (Valley of the Whales) is a protected area located in Fayoum governorate.
- b) Two types of questionnaires were applied on tourists, planners and managers.
- c) Some factors were concluded for analyzing the case studies in Egypt.
- d) A criterion for applying ideal (SET) in Wadi El-Hitan was suggested.
- e) A framework and general rules were constructed for applying the sustainable ecotourism in Egyptian protectorates.

### **8.3 Data collection**

Different methods were used for gathering data as shown in this chapter for the empirical study as follows:

- Indicators collected from the theoretical background;
- Data gathered from protectorates' publications and bulletins;
- Questionnaires applied and data collected from the survey done in the summer of years 2009, 2010, and 2011 (for the protectorates managers, planners, and tourists).

### 8.3.1 Indicators collected from literature review:

According to the previous review of different ecotourism perceptions, sustainable building elements allow the collecting of design elements for sustainable ecotourism. These elements are formulated based on three categories as follows:

- Site planning elements (**protected areas**);
- Sustainable building design elements (**ecolodges**) ;
- Elements for users (**tourists**).

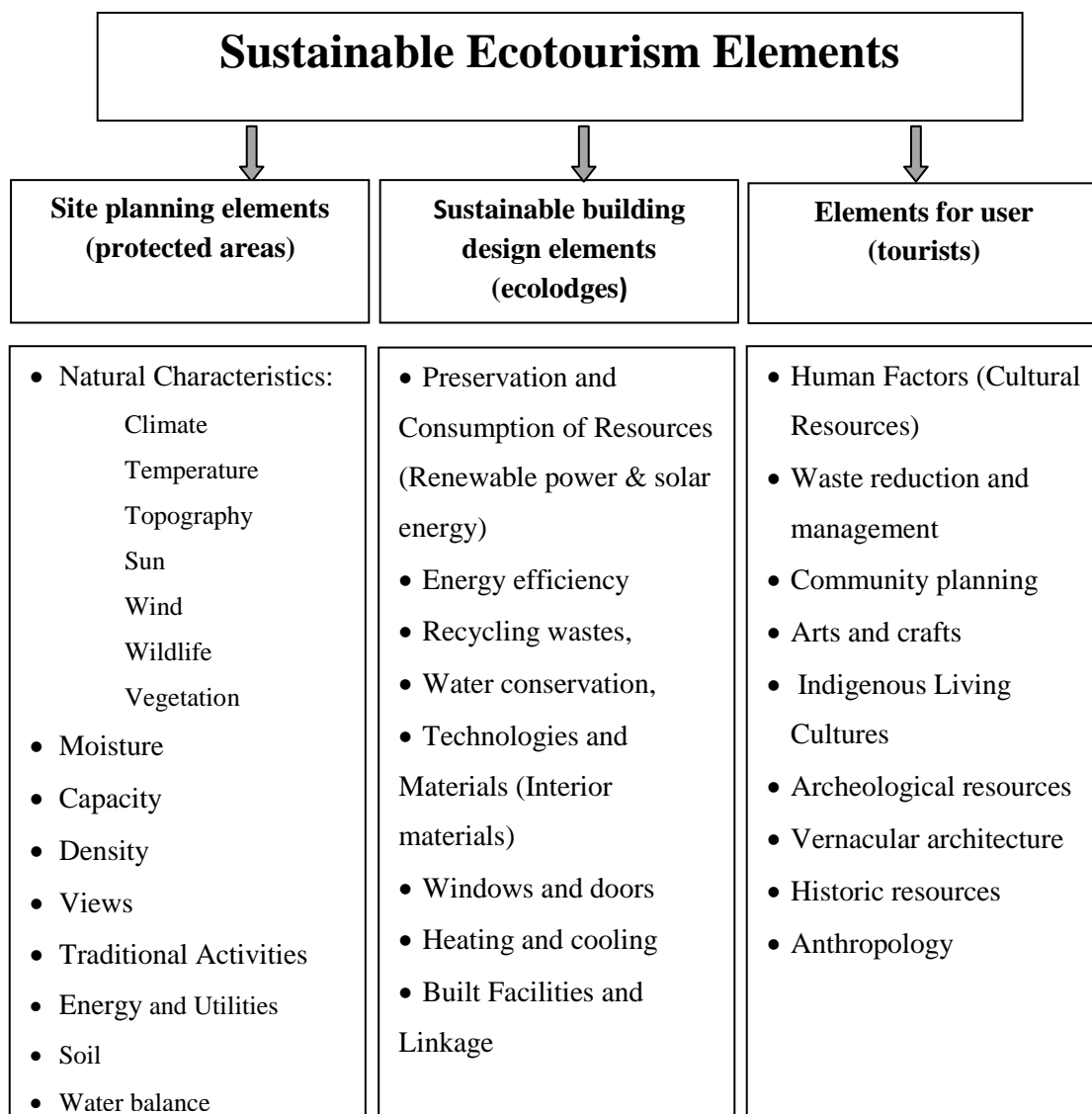


Figure (8.1): Sustainable Ecotourism Elements.

Source: adapted by the author.

### **8.3.2. Data gathered from protectorates' publications and bulletins:**

#### **A- The state of protected areas in Egypt:**

Protected areas are essential tools used all over the world for protecting natural resources and creating a buffer zone and a refuge against the human negative impacts (IDC, 2006: 2-3).

They contain many regions of the most important tourist attractions in the world. These attractions can be either one or more rare plants endemic, flashy, animal species, abundant wildlife, a high degree of diversity, views and cultural expressions of contemporary and unique in the natural context (Garcia-Herrera, 2005: 14). These make them good tourism receivers as long as these attractions can be offered. Therefore, the link between tourism and the (well) protected areas is unavoidable (Garcia-Herrera, 2005: 15).

#### **B- World heritage sites:**

Sites which are included on the World Heritage List must satisfy one or more of the selection criteria in the World Heritage Operational Guidelines and the main operational document (Chape, *et al*, 2003: 14). Thus, Natural World Heritage properties should:

1- Outstand examples representing major stages of the Earth's history, including the record of life, significant ongoing geological processes in the development of landforms, significant geomorphic physiographic features, or

2- Have significant ongoing ecological and biological processes in the evolution and development of terrestrial, fresh water, coastal and marine ecosystems and communities of plants and animals, or

3- Contain superlative natural phenomena, areas of exceptional natural beauty and aesthetic importance, or

4- Contain the most important and significant natural habitats for conservation of biological diversity, including those containing threatened species of outstanding universal value from the point of view of science or conservation.

### **C- Protected areas in Egypt**

Regarding Egypt State of the Environment Report, there are 27 Protected Areas, covering 15% of Egypt's area. Their employed staff reached about 650 employees compared to 4000 employees at the international level (MSEA-EEAA, 2009: 238).

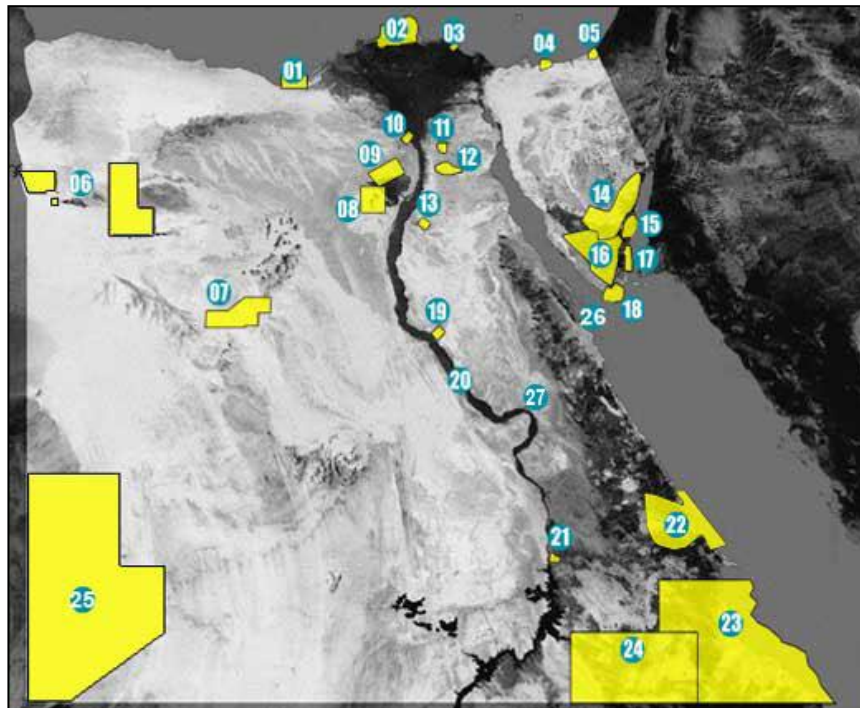


Figure (8.2): A map of protectorates in Egypt

Source: MSEA-EEAA, 2009.

These protected areas cover many different types of habitats including those in the desert, the Nile Valley, wetlands, the coast, and the sea. Each area is different. Some of them are protected for its animals and plants, others for their landscapes or unique geological features (EEAA, 2012), as shown in (figure 8.2).



According to Ministry of State for Environmental Affairs and Egyptian Environmental Affairs Agency (2012), the number of Egyptian protectorates increased to 30 protectorates after adding 3 places that are called: (El-Salum, El-Wahat El-Bahreya, Mount Kamel Meteor Protectorate), as shown in (fig. 8.3) and (table 8.1) below:

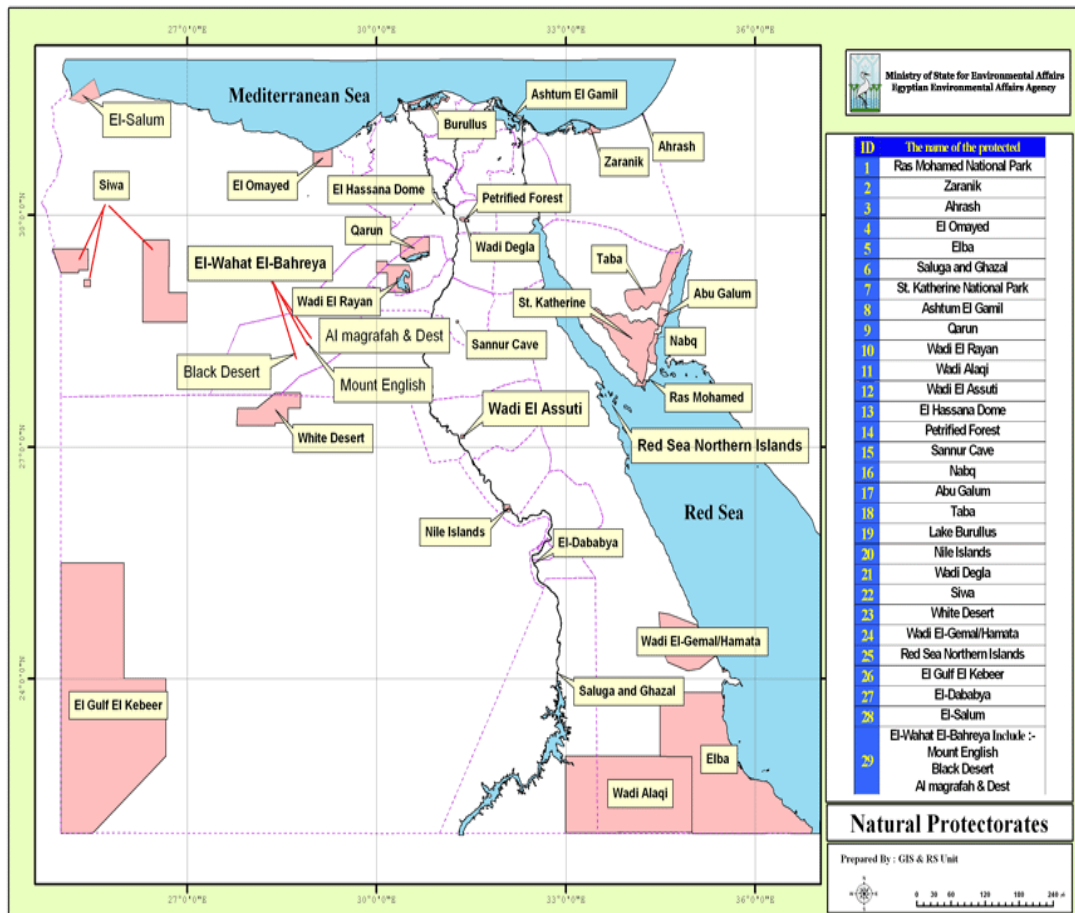


Figure (8.3): 30 protectorates in Egypt

Source: (MSEA-EEAA, 2012).

Table (8.1): The list of Egyptian protectorates:

<b>Protectorate</b>	<b>type</b>	<b>area</b>	<b>place</b>
<b>1-Elomayed</b>	Desert Area and vital peripheral	700 Km <sup>2</sup>	Matrouh
<b>2- El-Brolus lake</b>	wetlands protected area	460 km <sup>2</sup>	Kafr El-Sheikh
<b>3-Ashtum El-gamil and Tennis island</b>	Wetlands and Natural restricted Area for birds	180 km <sup>2</sup>	Port said
<b>4-Zaraniq</b>	Wetland protected area and a natural restricted area for birds	230 km <sup>2</sup>	the North Sinai
<b>5- Taba</b>	Desert and natural heritage protected area	3595 km <sup>2</sup>	South Sinai
<b>6- Natural Siwa</b>	Desert and cultural protected area	7800 km <sup>2</sup>	Matrouh
<b>7- Natural white Desert</b>	Desert and landscape protected area	3010 km <sup>2</sup>	El Wady EL Gedid
<b>8- Wadi El Rayan</b>	Developing management resources protected area and a natural national heritage	1759 km <sup>2</sup>	Fayoum
<b>9-Quaron Lake</b>	Wetlands	1385 km <sup>2</sup>	El-Fayoum
<b>10- Hassana Dome</b>	Geological protected area	1 km <sup>2</sup>	Giza
<b>11- The Petrified Forest Area</b>	Geological protected area and a national heritage	7 Km <sup>2</sup>	Maadi
<b>12- Wadi Degla</b>	Desert lands protected area	60 km <sup>2</sup>	Cairo
<b>13- Wadi Sanor</b>	Geological protected area and national heritage	12 km <sup>2</sup>	Beni Sueif
<b>14- Coast marshes Area in Rafah</b>	Developing resources protected area	8 km <sup>2</sup>	North Sinai
<b>15- Abu Gallum protected area</b>	landscape protected area	500 Km <sup>2</sup>	South Sinai
<b>16- Saint Katherine</b>	World cultural and Natural heritage protected area	5750 Km <sup>2</sup>	South Sinai
<b>17- Nabq</b>	Multipurpose protected area	600 km <sup>2</sup>	South Sinai
<b>18-Ras Mohamed</b>	World Heritage Protected Area	850 km <sup>2</sup>	South Sinai
<b>19- Wadi Al-Asioutty</b>	Captive and multipurpose protected area	35 km <sup>2</sup>	Asiout
<b>20- Nile river Islands</b>	Wet lands protected area	160 km <sup>2</sup>	(Different)
<b>21- Saloga, Ghazal and the small Islands</b>	Wetlands and landscape	0.5 km <sup>2</sup>	Aswan
<b>22- Wadi El Gemal - Hamata</b>	Desert protected area	7450 km <sup>2</sup>	
<b>23- Elba</b>	National Park Protected Area	35600 km <sup>2</sup>	Red Sea
<b>24- Wadi Al- Alaqi</b>	Desert Protected Area and Biosphere Reserve	30000 Km <sup>2</sup>	Aswan
<b>25- El Gulf El Kebeer</b>	Natural and Cultural National Park Protected Area	48523 km <sup>2</sup>	-
<b>26- Red Sea Northern Islands</b>	Developing resources protected area	1991 km <sup>2</sup>	-
<b>27- El-Dababya</b>	Geological protected area	1 km <sup>2</sup>	-
<b>28- El-Salum</b>	Marine protected area	383 km <sup>2</sup>	-
<b>29- El-Wahat El-Bahreya</b>	Natural Heritage protected area	109	-
<b>30- Mount Kamel Meteor Protectorate</b>	-	-	-

Source: (MSEA-EEAA, 2012)

## **D- Selection criteria of case studies**

Tourism is one of the largest industries. Heritage tourism is its most rapidly growing international sector. Millions of tourists visit 851 World Heritage sites each year, so tourism has become an important cross cutting issue and a management concern at most World Heritage sites. Three case studies were selected in Egypt, as shown in (Figure 8.4). They are protected areas in Egypt:

- Saint Katherine protectorate;
- Natural Siwa protectorate;
- Wadi El-Hitan protectorate (valley of the whales).

The selection was based on:

- Their great attraction for tourists;
- Having natural culture and world heritage site;
- Applying ecotourism to conserve the natural heritage or the need to integrated tourism strategies which give sufficient consideration to the environment, local communities benefits, and long-term sustainability.

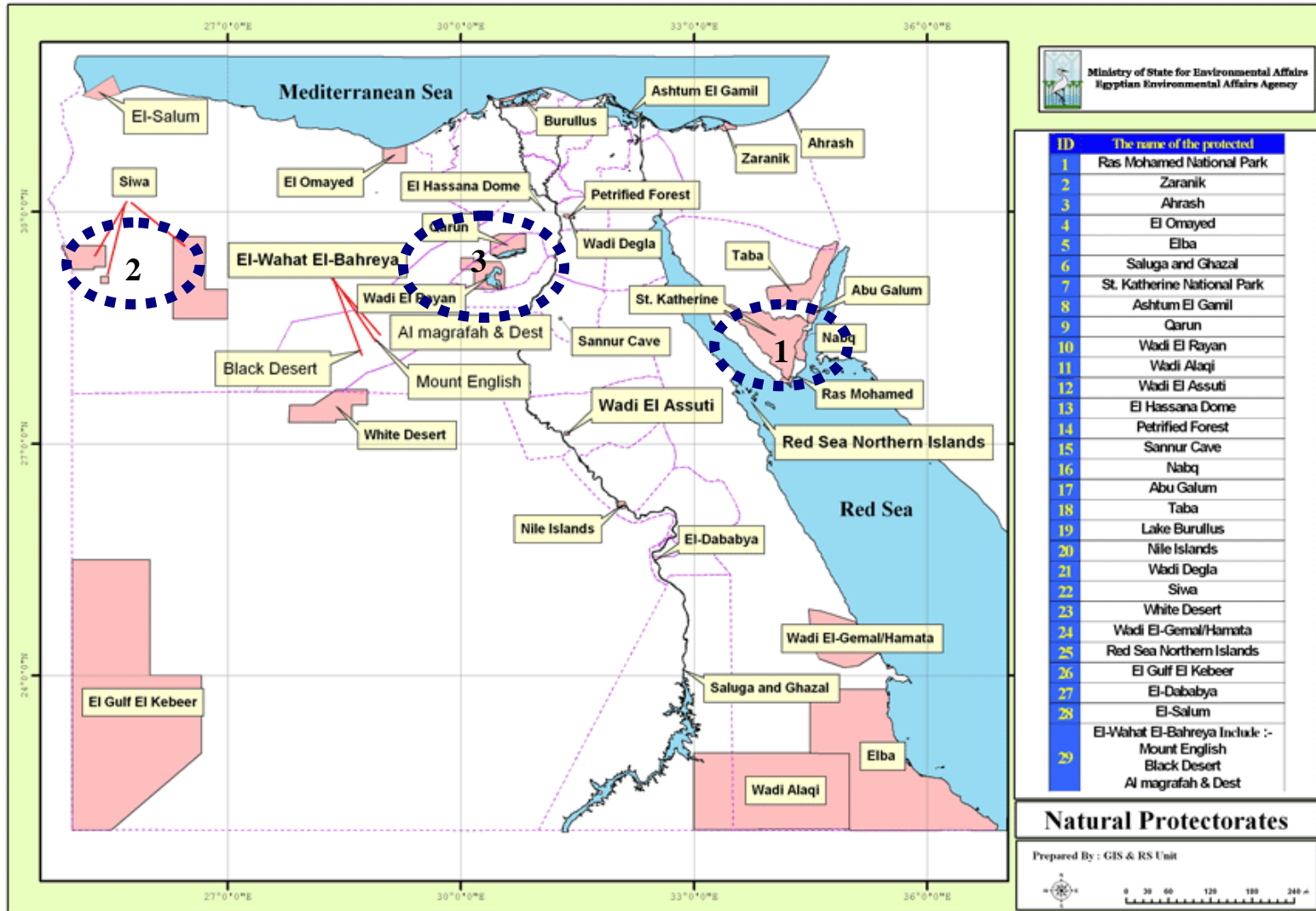


Figure (8.4): A map of the case studies protectorates in Egypt.

(1) Saint Katherine protectorate, (2) Natural Siwa protectorate, (3) Wadi El-Hitan protectorate (A part of Wadi El-Rayyan protectorate)

Source: MSEA-EEAA, 2012, adapted by the author.

The data used for analyzing the case studies were collected from government reports, such as:

- Survey procedure;
- Brochures belong to the three protected areas;
- Ministry of Environment and protected area management;
- Ministry of state for environmental affairs (Egyptian Environmental Affairs Agency).

On practicing the survey, I spent a lot of time in the three protected areas talking with tourists, protectorates managers, tours guides and locals. I visited Saint Catherine protectorates in the south of Sinai, Siwa oasis protectorate in Matrouh Governorate, and Valley of the Whales protectorate in Fayoum Governorate.

Upon meeting protectorates managers, planners, locals and tour guides, I was able to gain not only their views on the conservation, but also their help in realizing the opportunities and challenges for promoting ecotourism in Egyptian protectorates.

### **8.3.3 Questionnaires' types**

Two types of questionnaires in English language were prepared (as shown in appendices). Tourists' questionnaires were applied to understand their opinions about eco-tours and their perception of ecotourism. Moreover, it was important to know the vital factors and activities attracting them to visit and make eco-tours in special destinations, such as protected areas. In addition, Managers' questionnaires were applied to know which projects in the area support the perception of ecotourism and the best factors supporting applying ecotourism and increasing the flow of tourists to these destinations.

### **A. Tourists' questionnaires:**

On the one hand, practicing tourists' questionnaires would allow finding data resources about these protected areas regarding the concept of ecotourism. Likewise, tourists' questionnaires were developed to get a wider range of general responses. Also, it was important to define purposes and factors for tourists, who travel to a particular destination, such as protected areas. Their activities would support the concept of ecotourism, in addition to realizing tourist's awareness of sustainable and environmental conservation in protected areas.

This questionnaire implies a series of questions about the three case studies employed. These questionnaires were divided into two groups of questions:

1. The first group asks about the respondent's personal information, such as (Gender, age, home country, level of education, and how did the tourist know the tour).
2. The second group asks about ecotourism in the protectorate, such as:
  - The tourist's understanding of the concept of ecotourism;
  - The reasons for joining eco-tours;
  - The factors that attract tourists to protectorate;
  - The activities affecting the application of ecotourism in protected areas;
  - The benefits that tourists gain from their tours;
  - The tourist's opinion about the eco-tours and applying ecotourism in protected areas.

## **B. Managers and planners' questionnaires**

The second type was performed for managers to get more specific responses to attain a better understanding of ecotourism factors that encourage tourists' tours, and the important activities confirming the concept of ecotourism.

It was prepared for protectorate's tours guides, managers, and planners. It consists of two groups of questions:

1. The first group consists of a series of questions about personal information (Gender, age, home country and the participation in the area).
2. The second group asks about ecotourism in the protectorate, such as:
  - The manager's description of the ecotourism concept;
  - Factors that attract tourists to protectorate;
  - Activities that support ecotourism and those which will be offered in the protected area;
  - Benefits that tourists gain from traveling to the protected areas;
  - Factors supporting the site improvement of these destinations.

### **8.3.4. The selection of respondents**

Promoting sustainable ecotourism in protected areas has main stakeholders:

The tourists, planners, ecotours guides, and local community.

I considered planners, ecotours guides and local community as managers in the protected area. Aims of the study and means of completing the questionnaire should clearly be explained to participants.

Thus, two types of questionnaires were designed for two groups:

- Tourists: Those were the visitors I met in the destination (Saint Katherine protectorate, Siwa protectorate and Wadi El-Hitan protectorate). Meeting tourists would allow collecting data of these protected areas regarding ecotourism concept. Additionally, it was important to get a wide range of general responses about the protectorate. Moreover, it was necessary to evaluate tourists' awareness of sustainable and environmental conservation in the protected areas.
- Managers and planners: Those were ecotours guides or local community in the case study. In addition, planners and managers were working in protected areas' management, e.g. Ministry of Environment and protected area management and Ministry of state for environmental affairs (Egyptian Environmental Affairs Agency). Meeting protectorates managers would allow getting not only their views on the conservation but also their help in understanding the opportunities and challenges for promoting ecotourism in Egyptian protectorates.



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## **Chapter 9**

### **STUDY ANALYSIS**

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## CHAPTER NINE:

### Study Analysis

#### 9.1 Case studies' analysis:

##### 9.1.1 Saint Katherine protectorate:

St. Katherine protectorate	
Location	In south Sinai.
Type	World cultural and natural heritage protected area.
Date of Announcement	1988.
Distance from Cairo	550 Km.

Table (9.1): St. Katherine protectorate at a glance

Source: adapted by the author

**Area:** Saint Katherine Protectorate spans 5750 kilometers square, virtually the entire high mountain area of south Sinai (MSEA-EEAA, 2012).

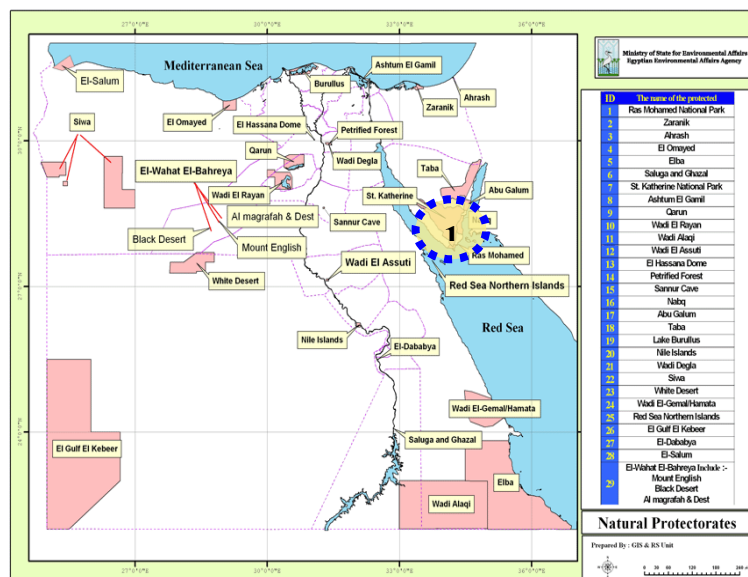


Figure (9.1): Location of the first case study, St. Katherine protectorate.

Source: (MSEA-EEAA, 2012).

**The site aspects:** The area is characterized by the highest mountain tops in Egypt. These tops were the result of the great tectonic movement, called the Great African Rift that occurred 24 Million years ago and led

to the creation of the Red Sea and the Aqaba Gulf, which became attraction for tourists from all over the world.

There are 7 protectorates in Sinai. Two of these are in the north and five in the south. Al Arish and Zaranik protectorates are the north protectorates, while the southern five are: Ras Mohammed protectorate, Abu Galum protectorate, Taba protectorate, Nabq protectorate and St. Katherine Protectorate (as shown in Figure 9.2).

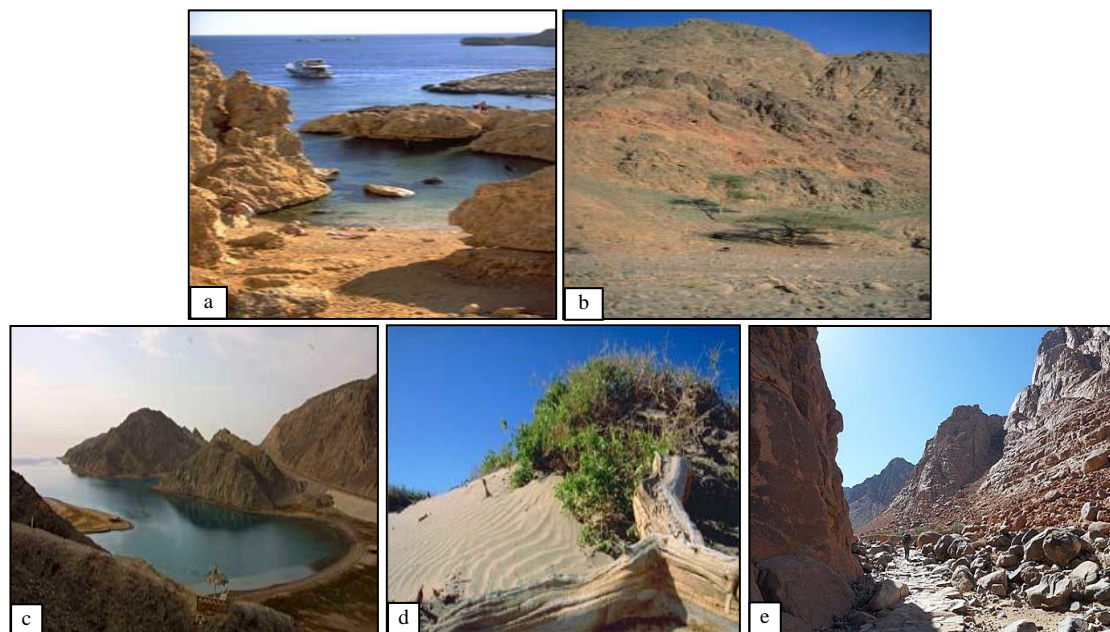


Figure (9.2): South Sinai protectorates;  
a) Ras Mohammed protectorate, b) Abu Galum protectorate, c) Taba protectorate,  
d) Nabq protectorate, e) St. Katherine Protectorate.  
Source: EEAA, 2012.

a) Ras Mohammed: the southern point of the Sinai with a unique marine life and stopover point for many migratory birds;

b) Abu Galum: a large coastal sand plain, north of Dahab, with the inland high mountains;

c) Taba: north of Nuweiba, an area holding a rich cultural heritage;

d) Nabq: It is located between Sharm el Sheikh and Dahab and is holding large mangrove forest at its most northern limit.

e) Saint Katherine: It has abundant natural riches and cultural heritage. The Protectorate aims to conserve the natural and cultural features of this special area. It has a natural habitat for several plants and animals, for example:

- **Wild Life**: There are 27 species of reptiles like serpents, vipro dab lizards, monitor lizards, snakes, etc. Mammals like the Nubian Ibex, Drocas - Gazalla Egyptian deer, hyrax, Sinai tiger, wolf, hyena, fox, etc.

- **Plant Life**: The area also has 22-28 plant species that exist only in Sinai like, samm, Habaq, sorrel wood, thyme, worm wood, buck thorn, tarfa, sakaraan, Ba'ataran and other medical and poisonous plants.

- **Ancient Heritage**: There are a lot of churches and monasteries like St. Katherine Monastery, and relics from the Byzantine, Pharaonic and later eras.

- **Scenery**: The area is very high and it has the highest mountains in Egypt like St.Katherine, Serbal, Um Shomer, Thabet, and mountainous scenery, oases around water springs and wells that are unique attractions worldwide.

- **The Climate**: is cooler than the rest of Egypt, giving unique flora and a wide variety of domesticated fruit species. The winter there might be snowy and the temperatures might drop far below zero at higher elevations, although the mid-day is usually pleasantly warm.

St. Katherine Protectorate aims to conserve the natural and cultural features by allowing the local Bedouin people to continue their lifestyle and visitors to experience some things that make the region unique. To achieve these aims, the protectorate manages three interrelated programs:

- (1) Bedouin support;
- (2) Conservation;
- (3) Public awareness.

The Protectorate contains numerous sites of archaeological, religious, and cultural interest (the monastery of St. Katherine and Mount Sinai) in addition to a unique high altitude ecosystem with a surprising diversity of plants and animals.

The Protectorate, (in partnership with local Bedouins), has built a Bedouin ecolodge (El-Karm Ecolodge) where visitors can experience the cultural and natural features that make the St. Katherine area unique.

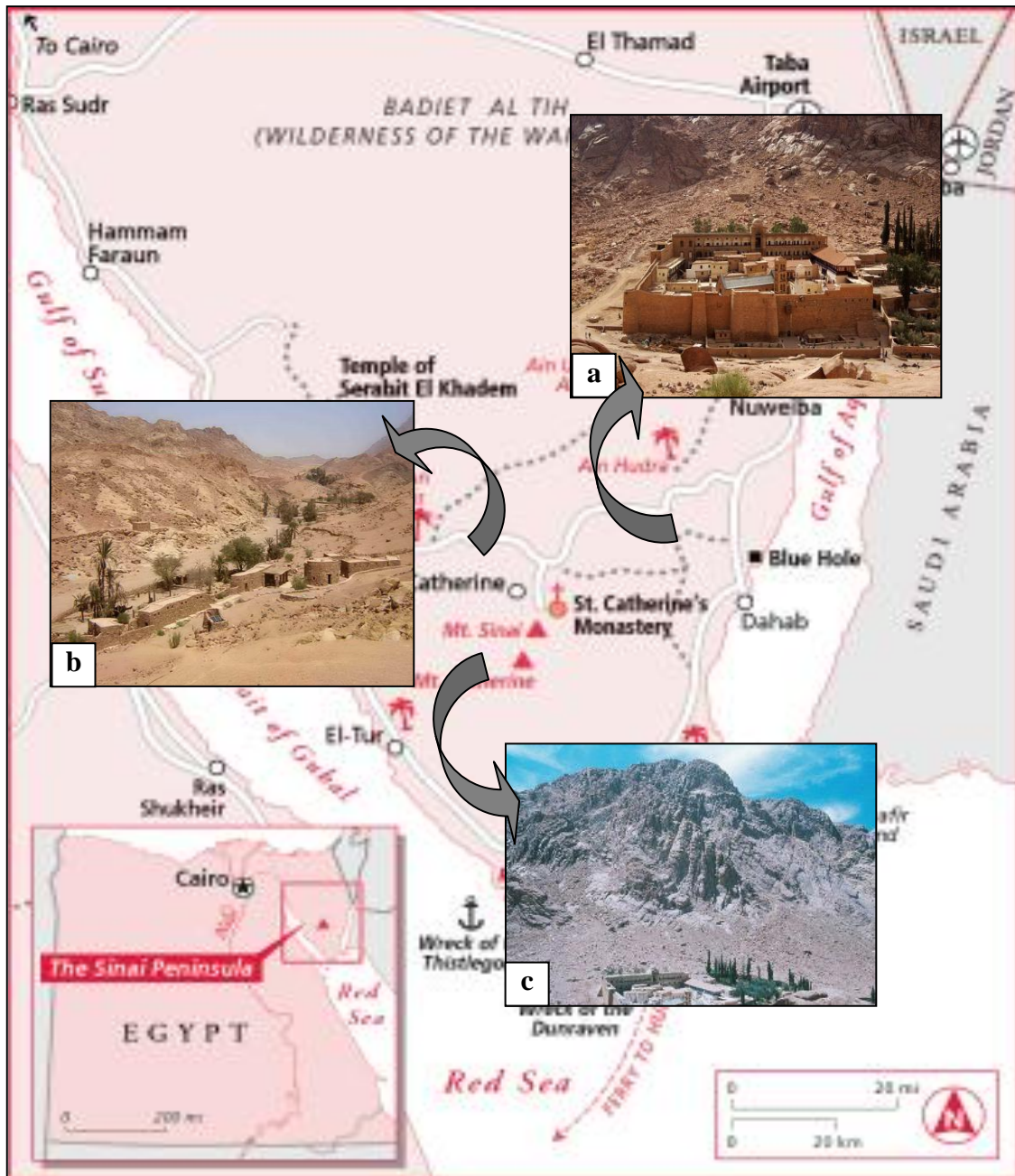


Figure (9.3): El-Karm Ecolodge.  
Source: Image taken by the author.

#### **- Saint Katherine protectorate components**

The protectorate consists of El-Karm Ecolodge, sheikh awaad ecolodge (was under construction since 2012), Saint Katherine monastery, Sinai Mountain and Katherine Mountain, (as shown in Figure 9.4) below:

Figure (9.4): The Sinai Peninsula, St. Katherine protectorate components.



a) St. Katherine monastery, b) El-Karm ecolodge, c) Sinai Mountain.  
Source: El Hebeishy, 2010: 187 and adapted by the author.

### **A- Saint Katherien's Monastery:**

St. Katherine is the highest inhabited place in the Sinai, located on a plateau rises 1,600 meters above sea level and surrounded by a mountain, which is the highest in the whole of Egypt. The monastery is located down Mount Sinai in the mountainous region, as shown in Figure (9.5).



Figure (9.5): St. Katherine's Monastery and Sinai Mountain.

Source: Google earth.

It has an area of 5130 square kilometers. The area was declared as a nature reserve. Historically, it is a region of great importance due to its nature for religious tourism, safari tourism, and mountaineering.

The monastery was built (now known as St. Katherine's Monastery) in the sixth century AD, and is still one of the greatest monuments of Christianity in Egypt and the world. St. Katherine's is located in the heart of South Sinai, 300 km from the Suez Canal.

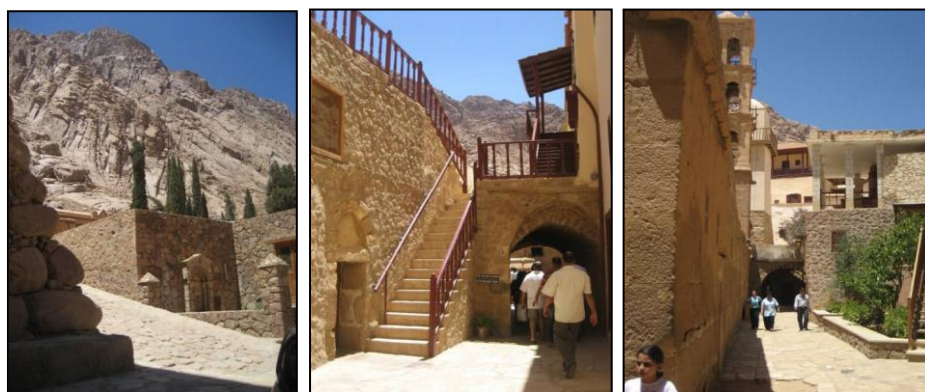


Figure (9.6): Paths and corridors between the Monastery buildings.

Source: Images taken by the author.

The Great Wall monastery is surrounded by several buildings, intersecting paths and corridors, and has high towers at the corners which are the most important features of the monastery.

The monastery building looks like medieval fortresses. It was built with granite stones and has towers at the corners and has high walls between 12 and 15 meters.

The most important monastery buildings are: the main church, the Church of the bush, the whole and the library, as shown in figure (9.7) below:

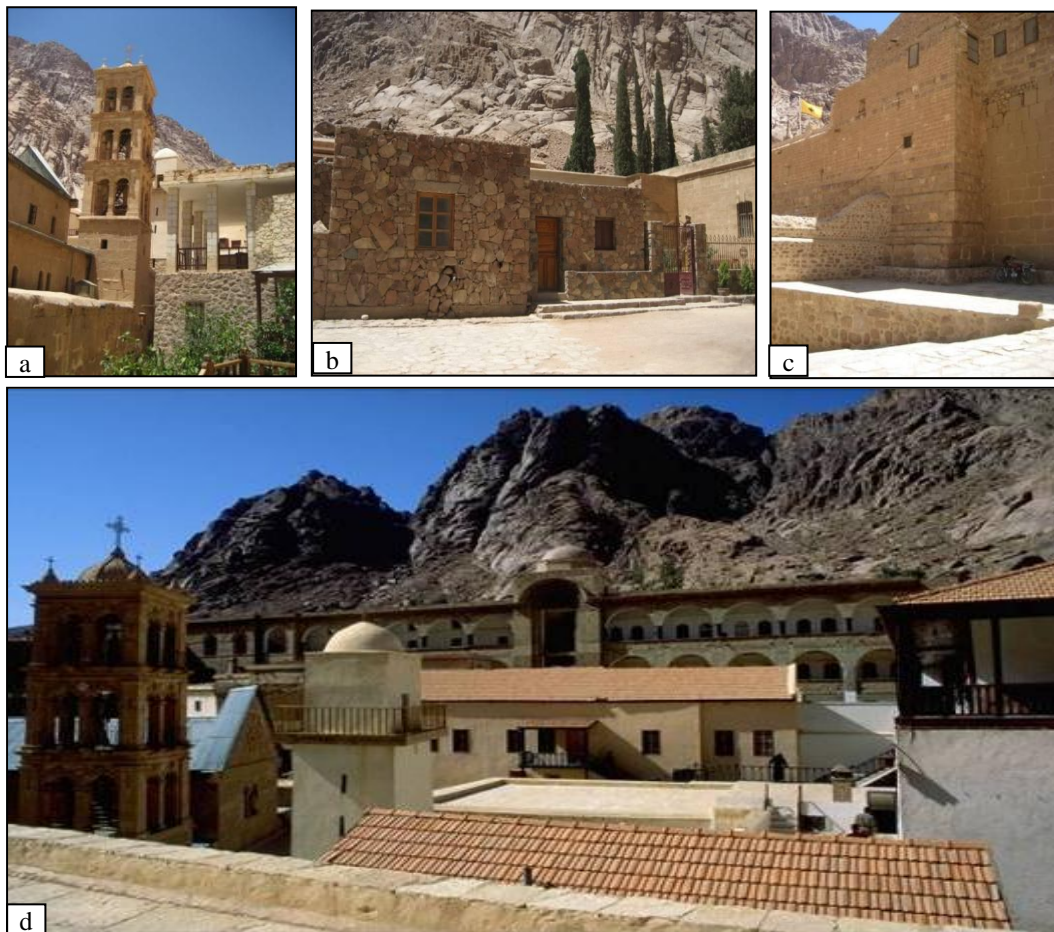


Figure (9.7): The monastery buildings; a) The Fatimid mosque, b) The library, c) The great wall, d) The main church.  
Source: Images taken by the author.



## B- El-Karm ecolodge:



Figure (9.8): El-Karm ecolodge  
Source: Images taken by the author.



### The Ecolodge description:

El-Karm Ecolodge is about 3 hours walk north of St. Katharine Monastery in Wadi Gharba, off the main road leading to St. Katherine (Sheikh Sina bedouin treks, 2007).



Figure (9.9): The way to El-Karm Ecolodge.  
Source: Image taken by the author.

The ecolodge is a small hotel installation based on the criteria of sustainable eco-tourism, caring for the natural environment and the well-being of their inhabitants. The Ecolodge was built with EU funding under the supervision of St. Katherine's Protectorate. The Bedouin owned



Figure (9.10): Shaded area outside El-Karm Ecolodge.  
Source: Image taken by the author.

the eco-lodge which has been constructed from traditional houses.

It has 6 independent rooms, each can accommodate up to 6 people, using Bedouin mats, and bedrolls.

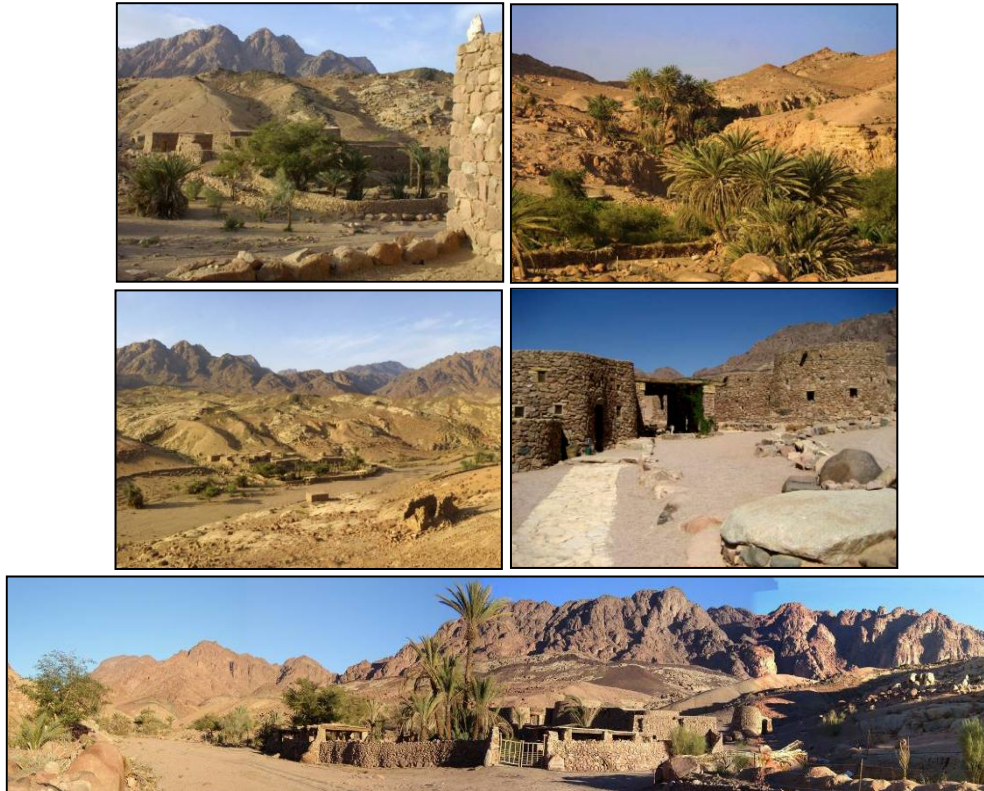


Figure (9.11): Exterior views of El-Karm ecolodge.  
Source: Images taken by the author.

The climate is warm enough for practising different activities. Guests should bring their own bedding and may sleep indoors or outdoors. The ecolodge is environmentally friendly. It has water efficiency with composting toilets and solar water heaters.

The Ecolodge was built in tradition style using rocks from the surrounding area, as in Figure (9.12) below. It has a view, both east and west along Wadi Gharba, and north to the mountains behind it.



Figure (9.12): El-Karm Ecolodge was built from rocks.  
Source: Images taken by the author.

### C. The visitor center

St. Katherine Visitors Centre gives a lot of information about the people, animals, and plants in the St. Katherine Protectorate. It presents the changes in the course of history, using computer animation, slide shows, and panels. Various conservation and management activities are also explained.

The six buildings (Figure 9.13 below), making up the visitor's center, serve as an interpretation center for St. Katherine Protectorate. It was built by local Bedouins using traditional building techniques and materials. This small cluster of buildings beautifully blends with the landscape. It was built on high up to avoid floods.

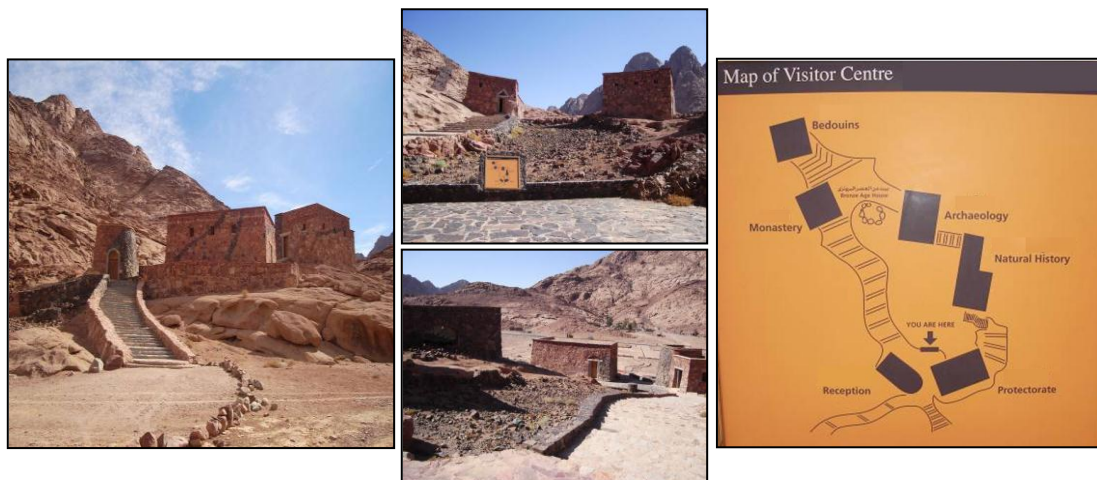


Figure (9.13): Layout of the visitor center in St. Katherine.  
Source: Images taken by the author.

### 9.1.2. Siwa Oasis protectorate:

Natural Siwa Protectorate is located in Matrouh Governorate. It is situated between the Libyan border and the Qattara Depression in northwest Egypt (Egypt Tourism, 2012), as shown in (Figure 9.14) below:

Siwa oasis protectorate	
<b>Location</b>	<b>In Matrouh Governorate.</b>
<b>Type</b>	<b>Desert and cultural protected area.</b>
<b>Date of Announcement</b>	<b>2002.</b>
<b>Distance from Cairo</b>	<b>800 km.</b>

Table (9.2): Siwa Oasis protectorate at a glance.

Source: Aapted by the author.

**Area:** 7800 km<sup>2</sup>  
(MSEA-EEAA, 2012).

**Description:** Siwa Oasis is one of the rich areas with distinguished tourist's attractions due to its distinctive monuments area, such as Amoun temple.

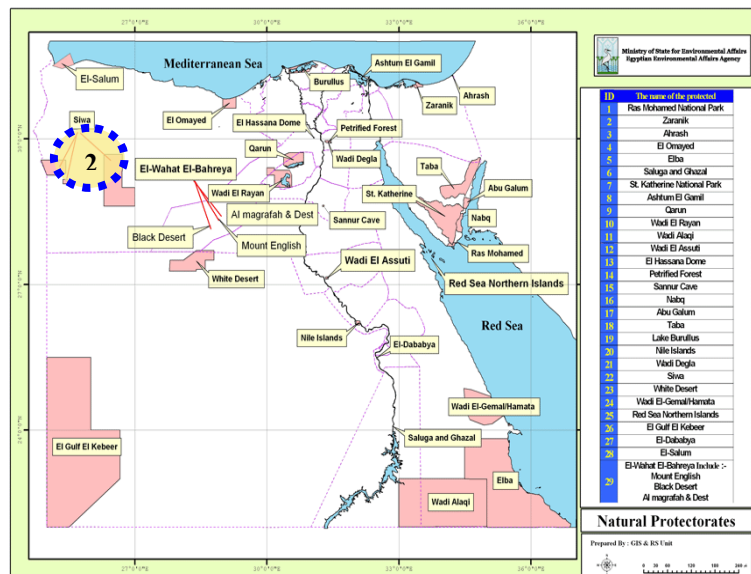
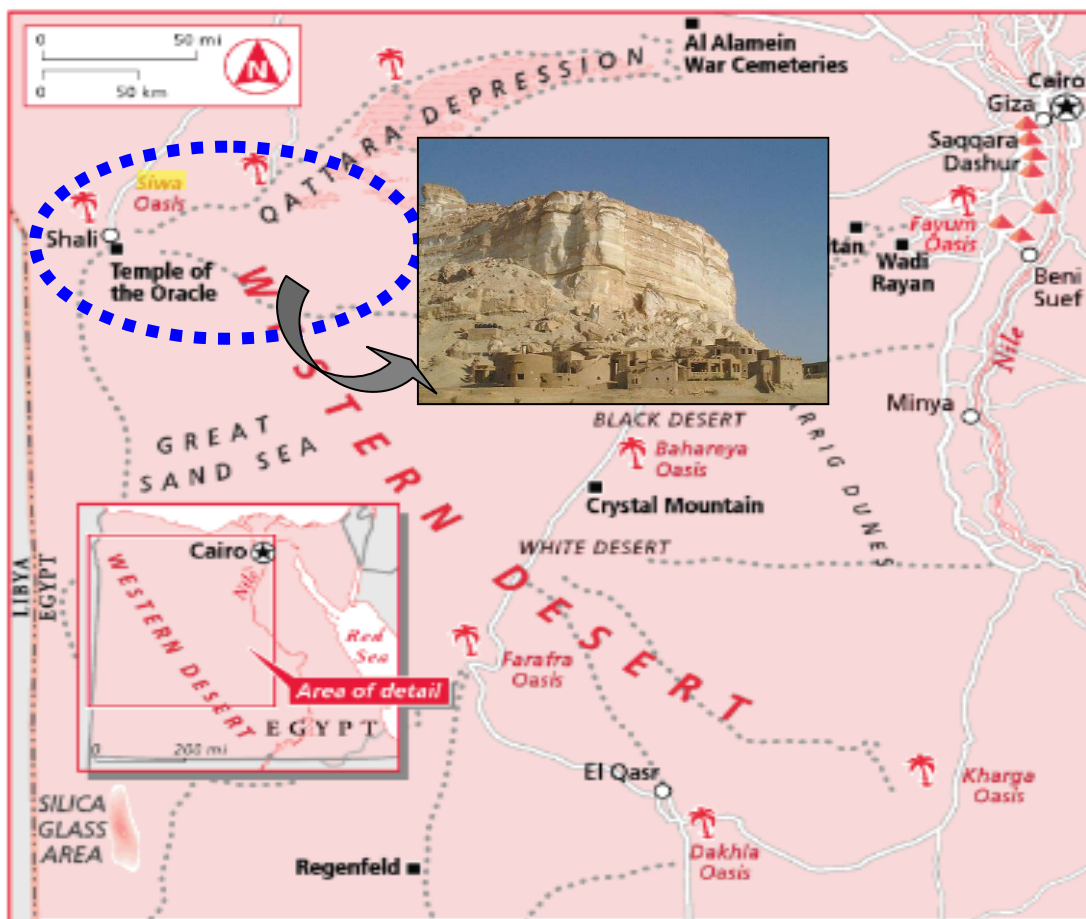


Figure (9.14): Location of the second case study, Siwa oasis protectorate.

Source: (MSEA-EEAA, 2012).

These attractions include monuments tourism, curative tourism, safari tourism and desert tourism (MSEA-EEAA, 2009). The biological variety of Siwa is characterized by the existence of more than 40 species of wild

plants, including medical, pastoral, besides mimosa, Athl trees, and other plants that help for sand stability. Some of them have significant genetic origins. Moreover, there are around 28 species of wild mammals. Some of these are threatened with extinction like hyena, Egyptian deer, white deer, red fox in addition to 32 reptiles and around 164 species of birds besides numerous invertebrates and insects (MSEA-EEAA, 2009). Siwa's Sustainable Development Initiative includes several projects: Adrere Amellal, Shali Lodge, Siwa Women's Artisanship Initiative, Sustainable Agriculture, Cattle Initiative, Renewable Energy, and other community development projects (Hatem, 2008).



■ ■ ■ ■ Siwa protectorate (the second case study)

Figure (9.15): The western desert and Adrere Amellal Siwa Ecologde.  
Source: El Hebeishy, 2010: 305 and Hatem, 2008 adapted by the author.

Siwa Oasis has been designated as a protectorate for its faunal and cultural diversity. Siwa has many lakes and over a thousand springs but the water is very saline and supports little agriculture except dates, olives and few vegetables (Egypt Tourism, 2012).

### **Activities in the protectorate**

It is necessary for tourists to spend their free time in the protectorate observing the surrounding nature. In addition, they keep contact with a Bedouin guide and the locals (the people who know most about their oasis) (Egypt Tourism, 2012).

### **Siwa Ecolodge**

Adrere Amellal Ecolodge was built by 100 percent Siwan labor so that it would fit the architectural styles of the oasis. It was built out of natural material using traditional Siwan building techniques and styles to have a minimal impact on the land (Miss Information, 2006).



Figure (9.16): Adrere Amellal Ecolodge location site in Siwa protectorate.  
Source: Hatem, 2008.

### **Ecolodge description**

Adrere Amellal sets an example for ecolodge development, situated at the base of a majestic white mountain and overlooking olive and palm groves as well as the Siwa Lake. (Miss Information, 2006: 5).



Figure (9.17): Adrere Amellal Ecolodge Layout  
 Source: Adrere Amellal Ecolodge at the official website: <http://adrereamellal.net>.

### Ec lodge cabins

The ecolodge has been built with great socio-cultural and environmental sensitivity (Kebiri, 2008). It consists of series of traditional Siwan Kershef houses<sup>1</sup> that have been restored and reconfigured into ten suites and 17 rooms (Miss Information, 2006: 5).

It also uses furniture and equipments which are made of palm trunks and fronds, while carpentry and accessories display a variety of the region's indigenous handicraft and employ for the

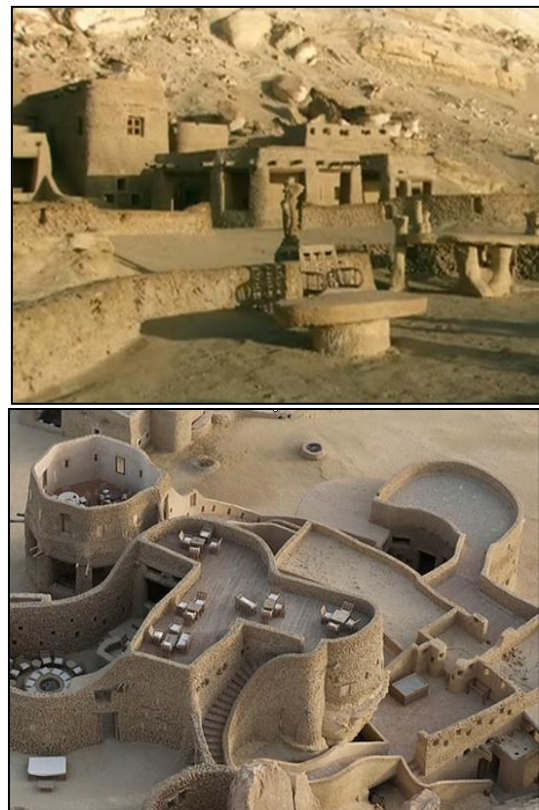


Figure (9.18): The ecolodge cabins.  
 Source: Images taken by the author.

ecolodge 100 percent Siwan laborers who understand the traditional building techniques (Chemonics International, 2008: 104).

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<sup>1</sup> Kershef houses: a mixture of sun dried salt rock mixed with mud and sand, used for wall building (Siwa official website: <http://www.siwa.com>).



Figure (9.19): Kershef houses.  
Source: Images taken by the author.



Figure (9.20): The ecolodge furniture.  
Source: Images taken by the author.

The cabins of the ecolodge contain natural ventilation, which takes advantage of the dry desert climate of the area. These have been adopted, thereby ruling out the need for expensive energy and maintenance intensive air conditioning (Chemonics International, 2008: 104).

On cold winter nights, coal-filled braziers are used for heating (Miss Information, 2006: 5, Siwa official website). In addition, it relies on solar and alternative energies. Food prepared at the ecolodge is organically and predominantly locally grown (Chemonics International, 2008: 105).





Figure (9.21): Restaurant hall in the ecolodge.  
Source: <http://www.kiwicollection.com/hotel-detail/adrere-amellal-desert-lodge>.

## **Activities**

Tourists go in Jeeps out into the desert to explore the hot springs and watch the sunset. They even have a full functioning stable with horses that they can ride all around the oasis, or if they want to relax, they can spend some time on a stone lawn-chair beside the pool (Miss Information, 2006: 5).

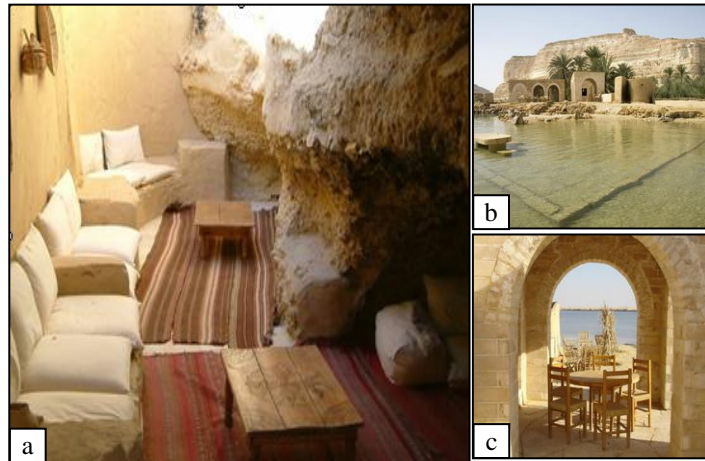
## **Ecotourism aspects in the ecolodge**

- Furnishing is simple, but in highest quality, drawing exclusively on local material and design to reflect Siwa's rugged spirit.
- A natural insulator, kershef keeps rooms cool in the hot summer sun, and mild in the crisp desert night (Siwa website: <http://www.siwa.com>).

Figure (9.22): Outside and inside furniture of Adrere Amellal Ecolodge; a) inside view of the ecolodge, b) outside view, c) outside shaded area.

Source: images taken by the author and the ecolodge official website:

<http://adrereamellal.net>.



- A stone-built swimming pool is fed by a natural spring.
- Solid wastes are recycled: food waste is composted on site, and local residents pick up recyclables.
- Oil lamps and candles are used for lighting and coal filled braziers are used for heating.



Figure (9.23): Oil lamps and candles used outside and inside the Ecolodge. Source: Images taken by the author and Siwa official website: <http://www.siwa.com>.

- Wastewater is first settled in self-contained sedimentation tanks, allowing the liquid to flow through perforated pipes into a wetland. These wetlands are completely sealed from the surrounding environment to avoid any possibility of surface and ground water resources contamination.



Figure (9.24): The ecolodge surrounded by the garden and the lake.  
Source: Siwa official website: <http://www.siwa.com>.

- Indigenous papyrus plants are grown to complete the biodegradation and waste reduction process (Chemonics International, 2008: 104-105).



Figure (9.25): Exterior views of Adrere Amellal Ecolodge.  
Source: <http://www.kiwicollection.com/hotel-detail/adrere-amellal-desert-lodge> and image taken by the author.

### 9.1.3. Wadi El-Hitan protectorate (valley of the whales):

Wadi El-Hitan protectorate is considered a part of Wadi El-Rayan protectorate.

#### -Wadi El-Rayan protectorate

Wadi El-Rayan protectorate	
<b>Location</b>	West of Fayoum province
<b>Type</b>	Developing management resources of protected area and a natural heritage
<b>Date of Announcement</b>	1989
<b>Distance from Cairo</b>	150 km

Table (9.3): Wadi El-Rayan protectorate at a glance.

Source: adapted by the author.

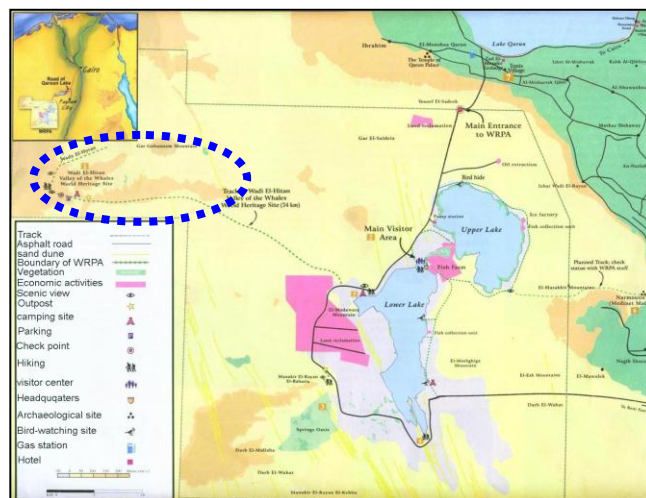
**Area:** 1759 km<sup>2</sup> (MSEA-EEAA, 2012).

#### Aspects:

Wadi El -Rayan area is characterized by its integrated desert environment, consisting of sand dunes, natural springs, large water bodies and a different botanical life, different wild animals, important and various sea fossils. It is approximately 35 kilometers west of the entrance to the park.

Figure (9.26): Map of Wadi El-Rayan protected area and the valley of the whales is shown.

Source: Egyptian-Italian Environmental Program: support to Wadi El-Rayan Natural Protectorate, 1999 at <http://www.fayoum.gov.eg/Tou/Protect/default.aspx>



..... : The valley of the whales.

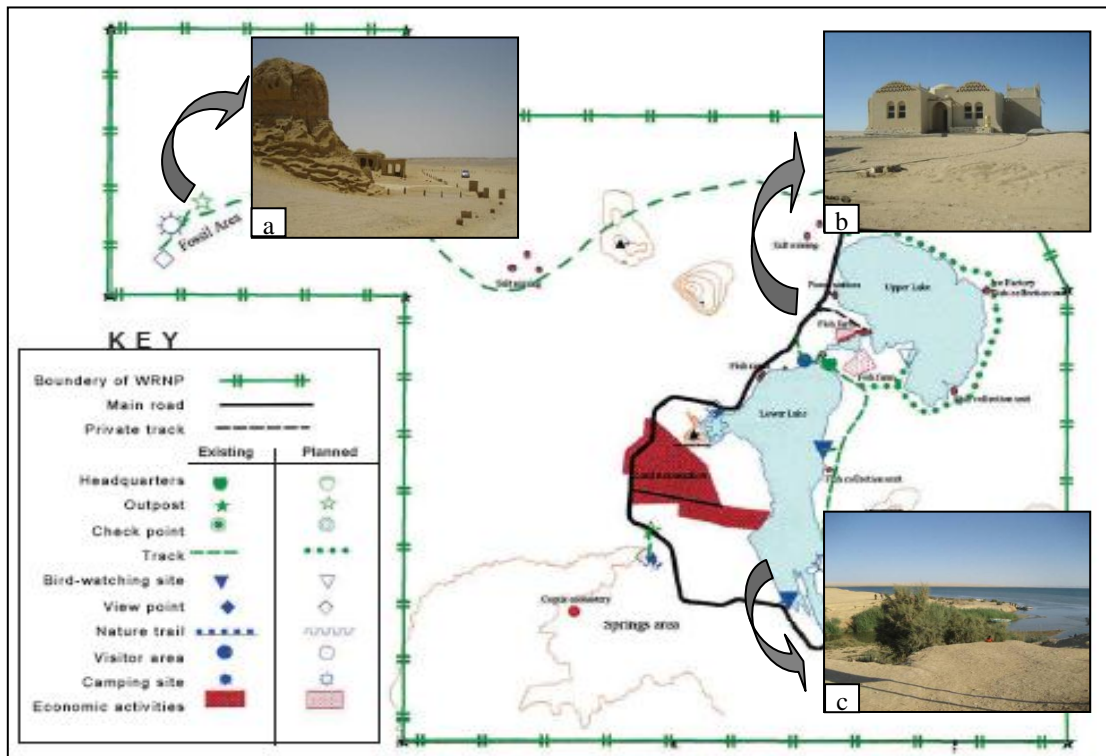


Figure (9.27): Detailed map for Wadi El-Rayan protectorate; a) Fossil area, b) Visitor area, c) view point.  
 Source: EIECP Support Programme to the National Environmental and images taken by the author.

The area of El-Rayan Lake is a calm natural environment and it is free of pollution. Wadi El- Rayan consists of the following important areas:

**Waterfall Area:** this area was formed due to the gathering of farming drainage waterfalls. It is a place for various sea sports

**-The area of Oyoun El-Rayan:** It consists of long dense movable sand dunes. It has four natural sulfuric springs. It is characterized by the existence of plant groups that



Figure (9.28): The area of Oyoun El-Rayan.  
 Source: Image taken by the author.

contain 15 species of desert plants and about 15 types of wild mammals

like the white deer, the Egyptian deer, sand fox, red fox and others, 16 species of reptiles, and over 100 species of resident and migrating birds.

- **The Area of El-Rayan Mountain** (El -Mashgaeega Mountain): It includes deep canyons known as split rock. It is one of the favorite places to see a panorama of Wadi El Rayan and picnics.



Figure (9.29): The area of Oyoun El-Rayan and El-Rayan Mountain.  
Source: Images taken by the author.

- **Wadi El-Hitan (valley of the whales):** It is an area of fossils in the western north of Wadi El- Rayan Protected Area. It dates back to 40 million years. These fossils of petrified primitive whales' skeletons, shark teeth, shells, and other sea animals are considered as an open museum. The roots of Mangroves are preserved in soft rocks.



Figure (9.30): Wadi El-Hitan.  
Source: Images taken by the author.

- The importance of Wadi El- Rayan is attributed to the fact that it is a natural environment for animals threatened with extinction and rare migrating birds and others Wild plants. The project in Wadi El-Rayan has substantially achieved its objectives, and has been successful in firmly establishing a well-managed protected area. However, to ensure further sustainability to the results achieved, and to address new emerging

priorities, it is a second phase starting June 2004, and is currently under implementation.

The project is pursuing the general aim of “enhancing EEAA capabilities to plan and implement nature conservation on a sustainable basis, thus contributing to the preservation and protection of the biotic communities of plants and animals, as well as of the other natural features, of a portion of the Egyptian Western Desert” ([http://www.eiecop.org/ambiente2/projects\\_2/wadielrayan\\_2.htm](http://www.eiecop.org/ambiente2/projects_2/wadielrayan_2.htm)).

### **-Wadi El-Hitan (Valley of the Whales)**

<b>Wadi El-Hitan protectorate</b>	
<b>Location</b>	<b>West of Fayoum province</b>
<b>Type</b>	<b>World Heritage Protected Area</b>
<b>Date of Announcement</b>	<b>2005 as a World heritage Site</b>
<b>Distance from Cairo</b>	<b>170 km southwest of Cairo and 80 km west of Fayoum province</b>

Table (9.4): Wadi El-Hitan protectorate at a glance.  
Source: adapted by the author.

**Description:** It forms part of Wadi El-Rayan Protected Area (WRPA).

#### **Dates and history of protectorate establishment:**

**1905:** Fossil whales were first discovered on the site, named *Basilosaurus*;

**1970s:** Wadi El-Rayan lakes and wetland were created by agricultural drainage from Fayoum;

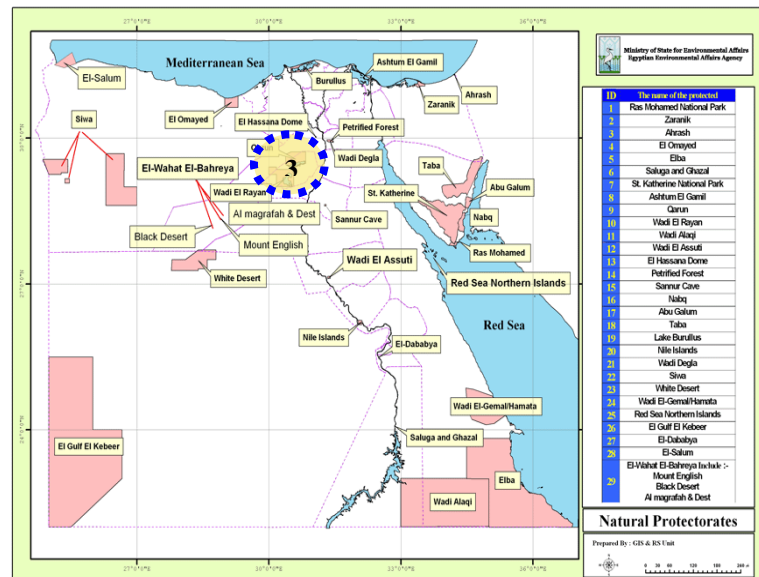
**1980s:** Geologists began to study the whale fossils, named the area Whales Valley (Wadi El-Hitan);

**1989:** Wadi El-Rayan Protected Area (WRPA) (175,900 ha), which was declared by Prime-ministerial Decree 943 under Law 102 of 1983 on Natural Protectorates;

**1997:** Wadi El-Hitan included as a Special Protected Area within the Wadi el-Rayan Protected Area by Prime-ministerial Decree 2954 (UNEP-WCMC, 2007).

Figure (9.31): Location of the third case study, Wadi El-Hitan protectorate.

Source: (MSEA-EEAA, 2012).



### Aspects:

It is an Area of fossils in the western north of Wadi El Rayan protected Area. It dates back to 40 million years. These fossils are whales' skeletons, shark teeth, shells and other sea animals. These are considered as an open museum. The roots of Mangroves are preserved in soft rocks.

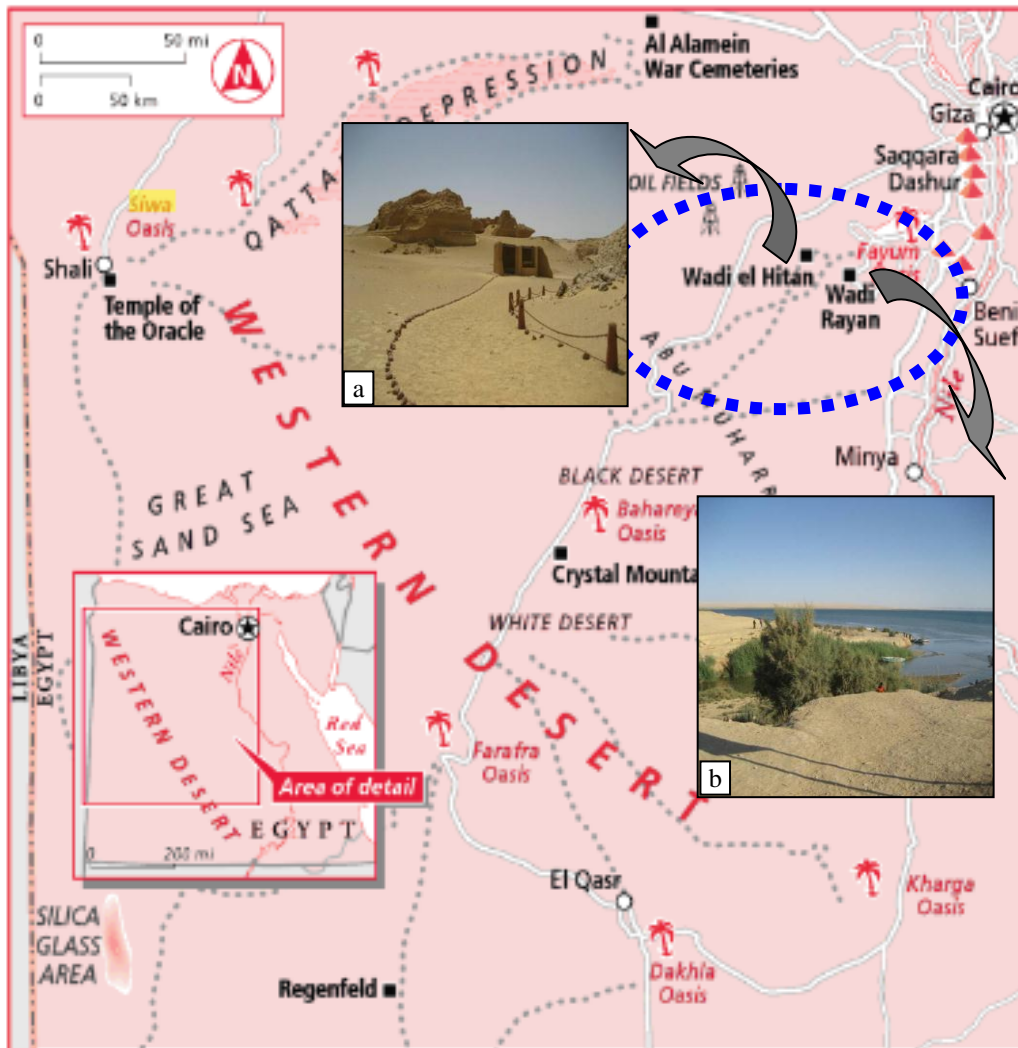
The landscape in Wadi El-Hitan is unique; huge boulders of varying sizes, shapes and textures dominate the landscape and provide a striking background for the fossils. Designing facilities for this sensitive site of global importance presented several challenges.



Figure (9.32): Huge boulders in the protectorate.

Source: image taken by the author.





■ ■ ■ ■ Wadi El-Hitan protectorate.

Figure (9.33): The western desert; a) Wadi El-Hitan protectorate, b) Wadi El-Rayyan protectorate.

Source: El Hebeishy, 2010; P.305 and adapted by the author.

Wadi El-Hitan is the most important site in the world demonstrating the evolution of the whales from land animals to a marine existence.

According to the IUCN, "It exceeds the values of other comparable sites in terms of the number, concentration and quality of its fossils, and their accessibility and setting in an attractive and protected landscape".

([http://www.ecaa.gov.eg/English/main/protect\\_desc.asp](http://www.ecaa.gov.eg/English/main/protect_desc.asp))



Figure (9.34): Huge boulders and roots of mangroves trees in the protectorate.

Source: image taken by the author.



Figure (9.35): Different views of Wadi El-Hitan protectorate.

Source: Images taken by the author.

It accords with key principles of the IUCN study on fossil World Heritage Sites, and represents significant values that are currently absent from the World Heritage List (<http://whc.unesco.org/en/list/1186>).

## **Conservation management**

The nominated property is managed as a Special Protection Zone within Wadi El-Rayan Protected Area (WRPA). The 2002-2006 Management Plan for the WRPA was applied to Wadi El-Hitan, restricting visitors to the site to guided tours along a marked trail and proscribing many activities. These include the destruction of geological formations, discharging pollutants, hunting and littering (UNEP-WCMC, 2007).

## **Climate**

The climate is typically Saharan, hot, and dry in summer and mild with scanty rain in winter. The average ambient relative humidity is 51%. The mean winter temperature is 13.7°C with an absolute minimum of –1.2°C. The mean summer temperature is 28.5°C with an absolute maximum of 48.4°C and the average diurnal range is 15.6°C. The direction of the wind for most of the year is from the north, varying from northwest to northeast. Wadi El-Hitan is subject to both erosion and deposition which buries or exposes the skeletons (UNEP-WCMC, 2007).

## **Visitors' facilities**

Only about 1,000 visitors a year drive on to Wadi El-Hitan as the 34 km track is unpaved, crosses treacherous sands and the site itself is extreme desert. Because the area has had to be protected, the management plans for the Wadi El-Rayan Protectorate are applied to Wadi El-Hitan restricting visitors to prearranged guided tours along a prescribed trail either on foot or by camel. Sustainable tourism is beginning to be developed and tourism will increase in the future. There are some existing facilities in the protectorate (as shown in figure 9.32). The site consists

of: an open-air museum, camping sites, camel tours and shaded rest areas. Moreover, there are proposed facilities in the site.

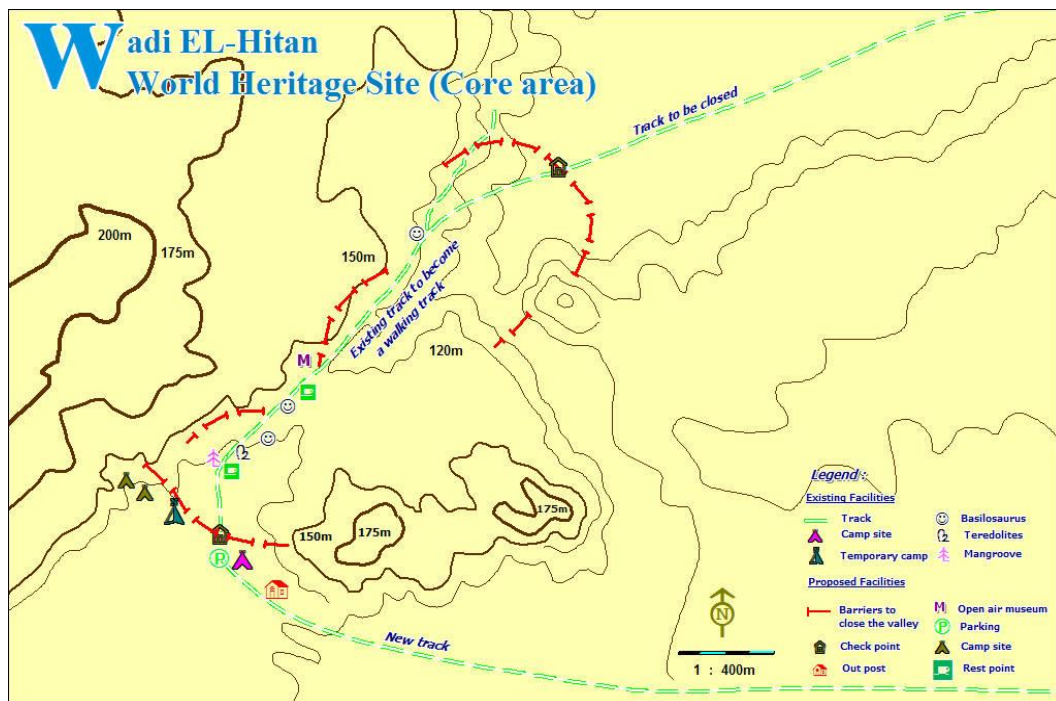


Figure (9.36): Existing and proposed facilities in the protectorate.

Source: <http://www.eea.gov.eg>



Figure (9.37): Open-air museum, the shaded areas and marked ways.

Source: Images taken by the author.

The map (in figure 9.37 below) shows:

- The open-air museum which consists of fossils areas with sites numbers.
- The entrance which contains parking area, tickets station, information and toilets (figure 9.38).
- Shaded areas which have seats and some information about the site.



Figure (9.38): The entrance and the parking in the site.  
Source: Images taken by the author.

## Cultural Heritage

Wadi El-Hitan was probably always rather abandoned in historical times. However, the ancient Lake Moeris in the nearby Fayoum depression was large and the climate was wetter. Therefore, the abundant wildlife and surrounding soils attracted continuous human habitation to the Fayoum area from Neolithic times to the present. It was also a major cross road used for many centuries by travellers between the Nile Valley and the oases of the Western Desert. Remains of human settlements from the early Egyptian, Greek and Roman eras are found there (UNEP-WCMC, 2007).



Figure (9.39): The fossils areas in the site.  
 Source: Images taken by the author.



Figure (9.40): Fossils whales' skeleton in Wadi El-Hitan protectorate.  
 Source: images taken by the author.

# **PART 3**

# **RESULTS**

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## **Chapter 10**

### **RESULTS**

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## CHAPTER TEN:

### Results

#### 10.1 Questionnaires' results

##### 10.1.1 Results of tourists' questionnaires

Tourists' questionnaires (appendix 1) implicate a series of questions about the three case studies employed.

The tourists' questionnaires were applied on St. Katherine P., Siwa P. and Wadi El-Hitan P. The numbers of questionnaires differ from one destination to another as shown in figure (10.1 below). It indicates that there were 32 questionnaires in Saint Katherine protectorate, while 21 questionnaires in Siwa protectorate were collected, and 19 questionnaires were collected in Wadi El-Hitan protectorate.

Applying tourists' questionnaire would allow finding data resources about ecotourism concept, activities and its success factors in particular destinations as protected areas. Likewise, tourists' questionnaires were developed to get a wide range of general responses.

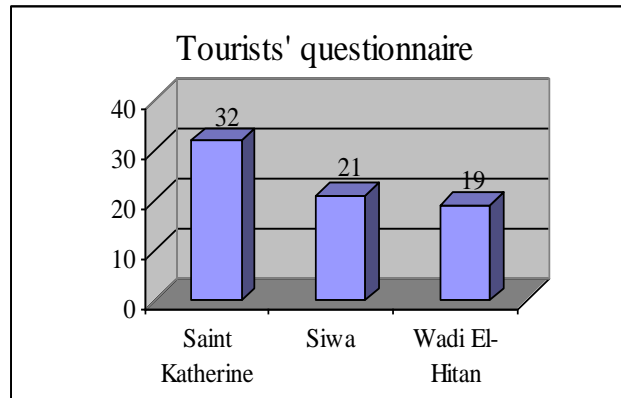


Figure (10.1): Tourists' questionnaires numbers.

Tourists' questionnaires consisted of two groups of questions. Groups of questions were asked about the personal information for the respondents. The others asked about ecotourism in protected areas. The first group of questions was about respondents' personal information:

**Question (N. 1)** was asked about the gender.

	Saint Katherine		Siwa		Wadi El-Hitan	
	Numbers	%	Numbers	%	Numbers	%
Male	13	41	11	52	12	63
Female	19	59	10	48	7	37

Table (10.1): The answers' percentages of "The respondents' gender".

The respondent's gender is presented in Table (10.1) for the three case studies. Figure (10.2) indicates that 13 of respondents (41%) were male and 19 of respondents (59%) were female in St. Katherine protectorate whereas in Siwa 11 of respondents (52%) were male and 10 of respondents (48%) were female. While in Wadi El-Hitan protectorate there were 12 of respondents (63%) were male and 7 of respondents (37%) were female.

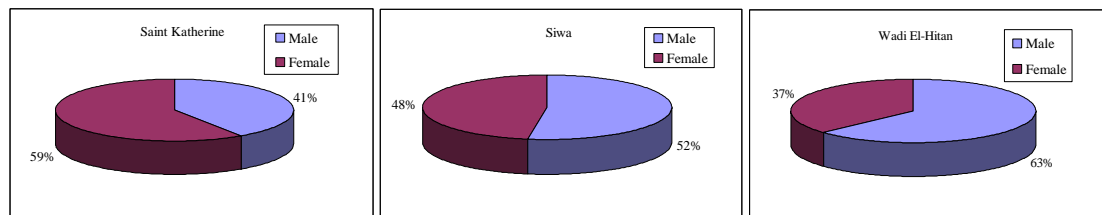


Figure (10.2): The answers for "The respondents' gender".

**Question (Nr. 2):**

The respondents were asked about their age as shown in table (10.2). Figure (10.3) showed that 41% of respondent's ages were between (31-40) years in St. Katherine protectorate. While 43% of respondents' age in Siwa P. were (31-40) years, but 58% of respondents' age in Wadi El-Hitan P. were between (18-30) years.

	Saint Katherine		Siwa		Wadi El-Hitan	
	respondents	%	respondents	%	respondents	%
18-30	10	31	6	29	11	58
31-40	13	41	9	43	3	16
41-50	5	16	3	14	2	11
51-60	3	9	3	14	3	16
over 61	1	3	0	0	0	0

Table (10.2): The answers' percentages of "Respondents' age".

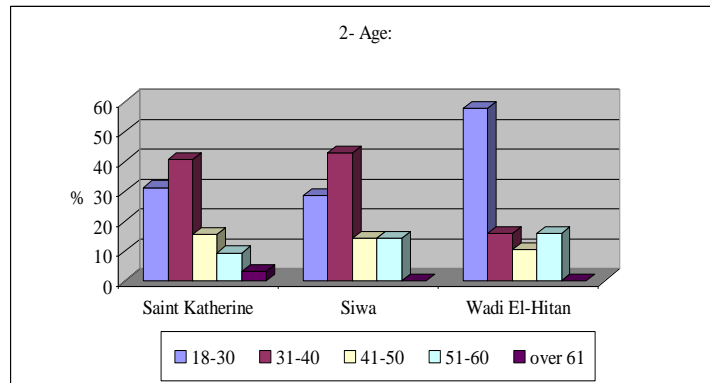


Figure (10.3): The answers for "Respondents' age".

**Question (Nr. 3): Home country.**

Most of respondents' nationalities in Siwa P. and Wadi El-hitan P. were Egyptians (as shown in table 10.3 and figure 10.4 below). However in St. Katherine P. 20 of the respondents, (about 63%), were from abroad, e.g. Sudan, Germany and Canada.

	Saint Katherine		Siwa		Wadi El-Hitan	
	respondents	%	respondents	%	respondents	%
Egypt	12	37	15	71	12	63
Abroad	20	63	6	29	7	37

Table (10.3): The answers' percentages of respondents' home country.

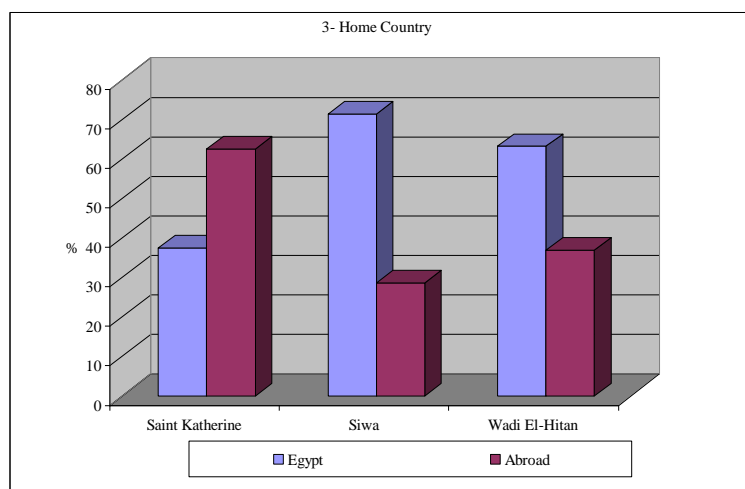


Figure (10.4): The answers for "Home country".

**Question (Nr. 4):** Level of education:

When the respondents were asked about their level of education (Table 10.4 and Figure 10.5), the results have indicated that the most of respondents were in a bachelor degree. Where there were 16 of respondents (50%) in St. Katherine P., there were 11 of respondents (52%) in Siwa P. and 11 of respondents (58%) were in Wadi El-Hitan P.

	Saint Katherine		Siwa		Wadi El-Hitan	
	Respondents	%	respondents	%	respondents	%
Primary school	7	22	4	19	3	15
Bachelor degree	16	50	11	52	11	58
Post graduate	6	19	4	19	3	16
Other	3	9	2	10	2	11

Table (10.4): The answers' percentages of respondents' level of education.

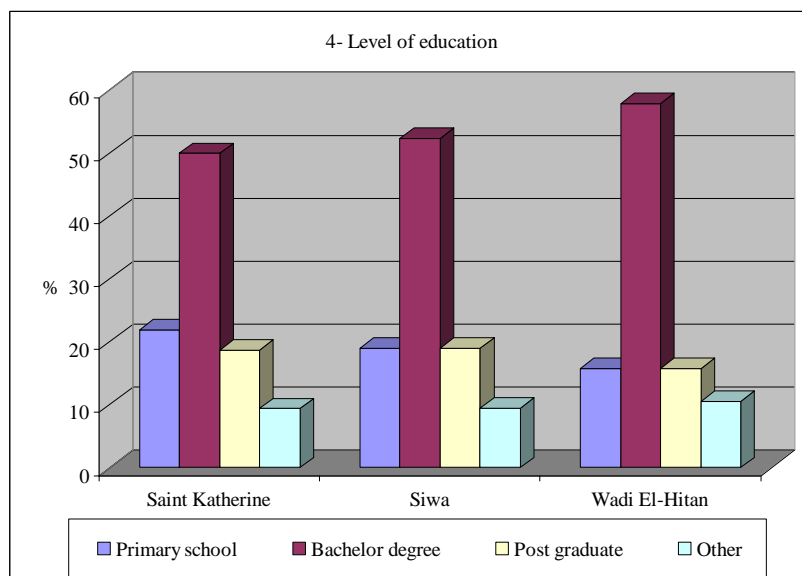


Figure (10.5): The answers for "The respondents' level of education".

**Question (Nr. 5)**

The respondents were asked about how they knew their tour, as shown in table (10.5 below), which shows their answers. Figure (10.6 below) indicates that 28% of respondents knew the tour from friends or

from their relatives in St. Katerine P., whereas 43% of respondents in Siwa P. knew their tour by internet. However, 42% respondents knew their tour by printing out about the Wadi El-Hitan P.

	Saint Katherine		Siwa		Wadi El-Hitan	
	respondents	%	respondents	%	respondents	%
By Internet	7	22	9	43	2	11
By Printouts	6	19	1	5	8	42
By Travel agent in your home country	7	22	3	14	3	16
From friends or relatives	9	28	8	38	3	16
Other	3	9	0	0	3	16

Table (10.5): The answers' percentages of "How did you know this tour".

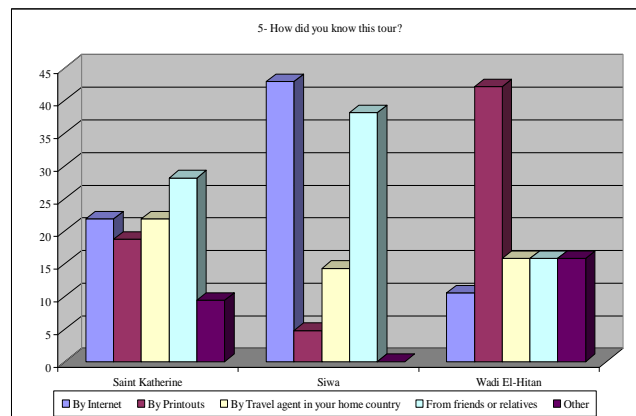


Figure (10.6): The answers for "How did you know this tour".

The second group of the questions about ecotourism in protected areas

**Question (Nr. 6):**

This question concerns: "is this the first time for the respondent to visit this site", as shown in table (10.6 below) and when was the last time?

	Saint Katherine		Siwa		Wadi El-Hitan	
	respondents	%	respondents	%	respondents	%
Yes	19	59	16	76	14	74
No	13	41	5	24	5	26

Table (10.6): The answers' percentages of "is this your first visit to the site".

Figure (10.7) and Figure (10.8) indicate that most respondents were visiting the site for the first time. It was not the first time for 13 of the respondents (41%) to visit St. Katherine P. and the last visit for most of them was in last year. Also, it was not the first time for 5 of the respondents (24%) to visit Siwa P. and the last visit for most of them was in last summer. In addition, it was not the first time for 5 of the respondents (26%) to visit Wadi El-Hitan P. and the last visit for all of them was in last summer.

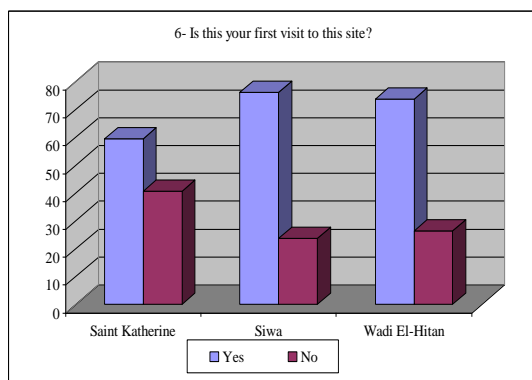


Figure (10.7): The answers for "Is this your first visit to this site".

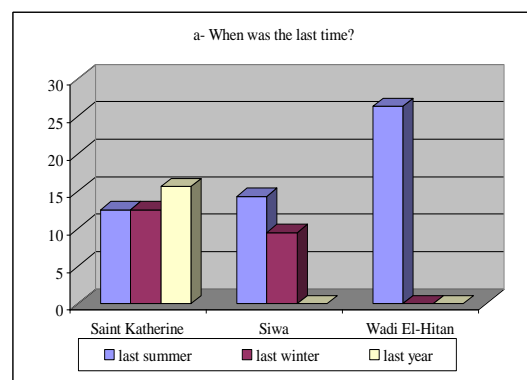


Figure (10.8): The answers for "When was the last time".

### Question (Nr. 7):

The respondents were asked about their understanding the ecotourism term as shown in table (10.7) below.

Figure (10.9) presents that most of respondents understand that ecotourism conserves the surrounding environment (25%) and has minimal environmental impact (25%) of respondents in St. Katherine P., whereas the respondents understand that ecotourism conserves the surrounding environment (29%) and it supplies financial benefits to local community (33% of respondents) in Siwa P.

While in Wadi El-Hitan P., 32% of the respondents understood that ecotourism was the travel to natural areas and it created environmental awareness for them.

	Saint Katherine		Siwa		Wadi El-Hitan	
	respond ents	%	respond ents	%	respond ents	%
Travel to natural areas	4	13	5	24	6	32
Respecting local heritage and cultures.	4	13	4	19	4	21
Ecotourism conserves the surrounding environment	8	25	6	29	3	16
Supplies financial benefits for local community.	5	16	7	33	4	21
Protects natural habitat.	6	19	3	14	2	11
Minimal environmental impacts.	8	25	5	24	4	21
Creates environmental awareness.	7	22	4	19	6	32
Ecotourism damages the environment	0	0	1	5	1	5
Management of ecological protection.	6	19	3	14	3	16
Ecotourism can reserve natural resources as well as provide knowledge to visitors	5	16	3	14	4	21
Others	0	0	0	0	0	0

Table (10.7): The answers' percentages of "What do you know about ecotourism".

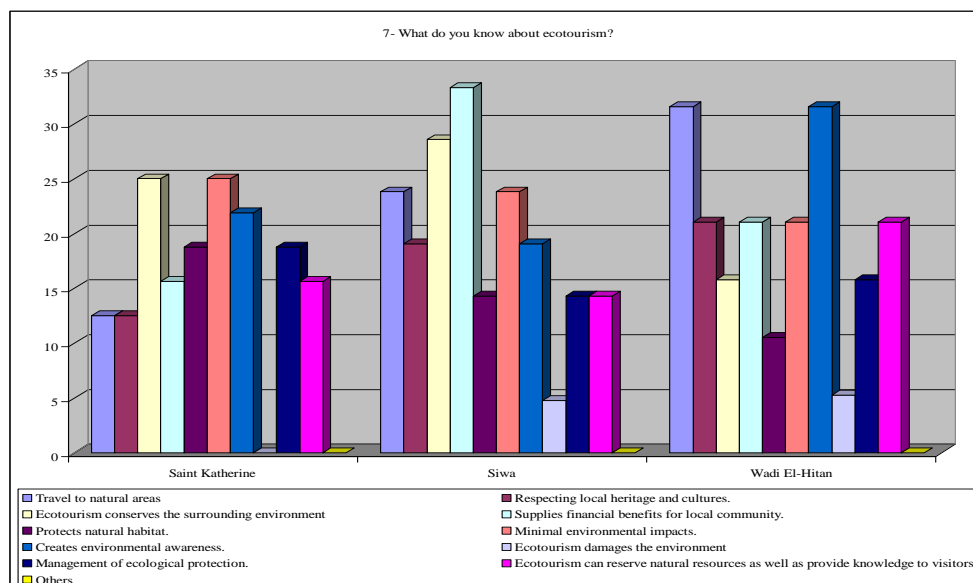


Figure (10.9): The answers for "What do you know about ecotourism".

**Question (Nr. 8):**

This question asked the respondents about the reason for coming to the tour. Table (10.8) below presents the various responses and figure (10.10) below indicates that 42% of respondents came to Wadi El-Hitan P. for recreational opportunities, 37% of them came for adventure, and 28% of respondents in St. Katerine P. came to the site to learn more about nature. However, 24% of respondents in Siwa P. came for recreational opportunities and to learn more about local culture.

	Saint Katherine		Siwa		Wadi El-Hitan	
	respondents	%	respondents	%	respondents	%
Recreational opportunities	4	13	5	24	8	42
Learn more about nature	8	25	2	10	5	26
Learn more about local culture	9	28	5	24	1	5
Birding	3	9	4	19	0	0
Observe wildlife	2	6	3	14	0	0
Relaxation	5	16	4	19	5	26
Adventure	6	19	2	10	7	37
Other	0	0	0	0	0	0

Table (10.8): The answers' percentages of "Why are you coming to this tour".

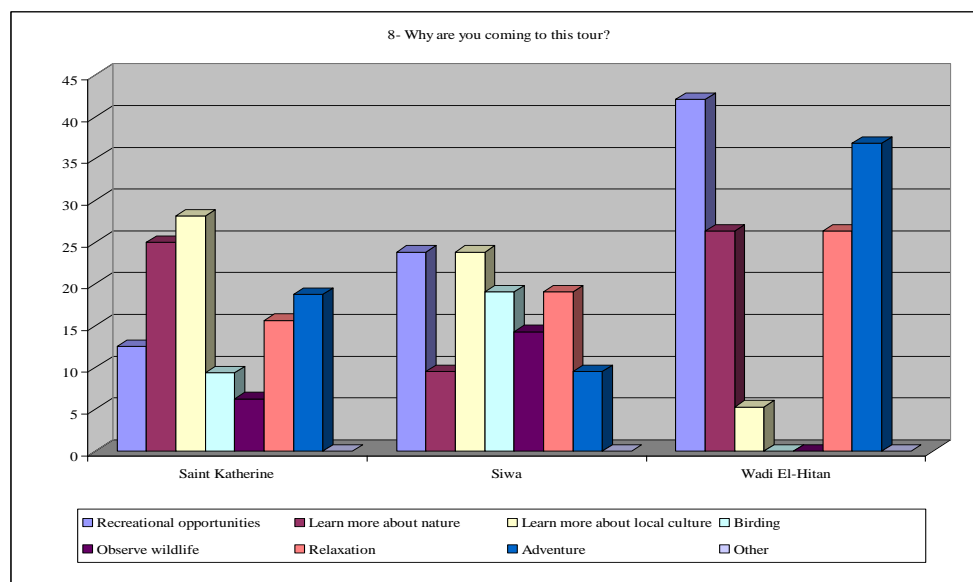


Figure (10.10): The answers for "Why are you coming to this tour".



**Question (Nr. 9):**

This question asked about factors which attract tourists to travel to a particular destination. Table (10.9) represents the responses ranked from the least important to the most important. It indicates that the factors which encourage tourists differ according to the properties of protected areas. The most important factors in St. Katherine P. are: social, cultural and economic factors, natural context, and nature-based activities.

	Saint Katherine%			Siwa%			Wadi El-Hitan%		
Nature- based activities	16	38	47	57	29	14	0	26	74
Activities for children	53	25	22	14	62	24	63	26	11
Recreational activities	6	50	44	5	24	71	16	68	16
Natural context	16	28	56	62	29	10	0	16	84
Resort activities	16	56	28	5	19	76	58	21	21
Environmental factors	16	53	31	10	57	33	21	37	42
Conservation	22	56	22	67	24	10	26	26	47
Social, cultural and Economic factors	19	22	59	0	33	67	21	32	47

Table (10.9): The answers' percentages of "factors attracting tourists to travel to a particular destination".

In Siwa P., the most important factors are resort activities and recreational activities. In Wadi El-Hitan P. the most important factors are creating eco-tours and photography due to its nature which full of fossils.

**Question (Nr. 10)**

The respondents were asked about activities which support the concept of ecotourism in protected areas. (Table 10.10) shows the responses ranked from the least important to the most important.

Activities that support the concept of ecotourism in St. Katherine P. are: using the Ecolodge, creating an eco-tour, observing and learning about protected areas and natural environment. However, activities that support the concept of ecotourism in Siwa P. are: contact with native local people and using the ecolodge. In Wadi El-Hitan P. creating an eco-

tour, observing and learning about protected areas and natural environment were the most activities that support the concept of ecotourism.

	Saint Katherine%			Siwa%			Wadi El-Hitan%		
Using the Ecolodge	3	22	75	10	48	43	84	16	0
Creating an eco-tour	6	16	78	10	62	29	0	21	79
Observing and learning about protected areas	13	25	63	62	24	14	0	32	68
Observing and learning about natural environment	9	22	69	10	57	33	11	26	63
Contacting with native local people	59	25	16	5	19	76	47	37	16
Supporting Landscape Hiking	63	28	9	81	19	0	42	58	0
Photography	72	25	3	90	10	0	5	21	74

Table (10.10): The answers' percentages of "Activities support the concept of ecotourism in the protected area".

### Question (Nr. 11):

The respondents were asked about activities which would be most attractive in the protected area as shown in (Table 10.11) below:

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Walking tour	13	5	42
Camel riding tour	38	10	42
Biking tour	0	0	0
Bird watching educational tour	19	38	5
Explaining traditional uses of local plants	31	5	0
Hiking	0	43	0
Others	0	0	11

Table (10.11): The answers' percentages of "Which activities would be most attractive in the protected area.

Figure (10.11) below shows that walking tours and camel riding tours are the most important activities in Wadi El-Hitan P., while in Siwa P. the most attractive activities are hiking (due to its nature) and bird watching educational tours. However, in St. Katherine P. the most attractive activities are camel riding tours and explaining traditional uses of local plants.

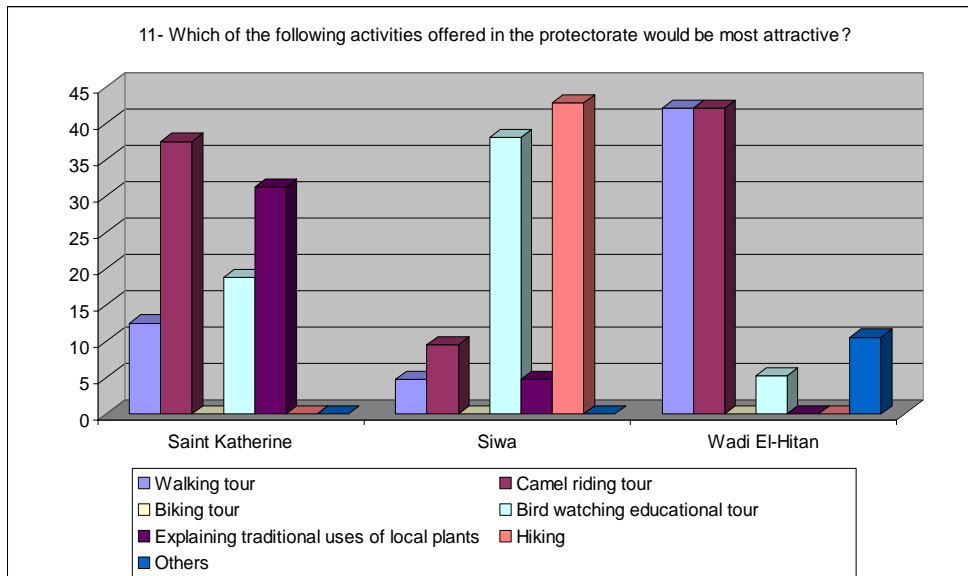


Figure (10.11): The answers for "Which activities would be most attractive in protected area".

### Question (Nr. 12):

The question asked about the suggested activities which can be added in the future in the protected areas. In St. Katherine P. most responses were about adding religious tours and mountains' climbing accessibility, whereas in Siwa P. the suggested activities were activities for children and setting a museum in the protectorate. Also, in Wadi El-Hitan P. the most suggested activities were hiking and sitting a learning center for visitors in the protectorate.

### Question (Nr. 13):

The respondents were asked about the benefits which they seek in their tour. The responses are shown in Table (10.12) below. It indicates that most benefits for tourists in St. Katherine P. lied in seeing unusual places and experiencing remote and unspoiled nature. In Siwa P. most tourists seek to benefits with interacting with native people and visiting uncrowded destinations.

In Wadi El-Hitan P., most benefits for tourists were seeing unusual places, increasing knowledge of P. A., experiencing remote and unspoiled nature, and visiting uncrowded destinations.

	Saint Katherine%			Siwa%			Wadi El-Hitan%		
Increasing knowledge of protected areas	22	53	25	24	52	24	0	16	84
Interacting with native people	59	25	16	5	19	76	47	37	16
Experiencing remote and unspoiled nature	16	28	56	52	33	14	0	21	79
Increasing confidence through challenging activities	28	47	25	57	29	24	16	21	63
Visiting un-crowded destinations	44	47	9	29	10	62	0	21	79
Seeing unusual places	19	22	59	10	57	33	0	16	84

Table (10.12): The answers' percentages of "The benefits which the tourists seek in their tour".

#### Question (Nr. 14):

The tourists were asked about the degree of their environmental awareness in the destination. Table (10.13) and Figure (10.12) below present that (47%) of responses were not always responsible and (34%) of them were not responsible in St. Katherine P. Also (48%) of responses were not always responsible in Siwa P., whereas in Wadi El-Hitan P. 37% of responses were responsible about their environmental awareness.

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Very responsible	6	10	11
Responsible	6	19	37
Not always responsible	47	48	16
Not responsible	34	5	21
Irresponsible	6	19	16

Table (10.13): The answers' percentages of "The degree of the tourists' environmental awareness in the destination".

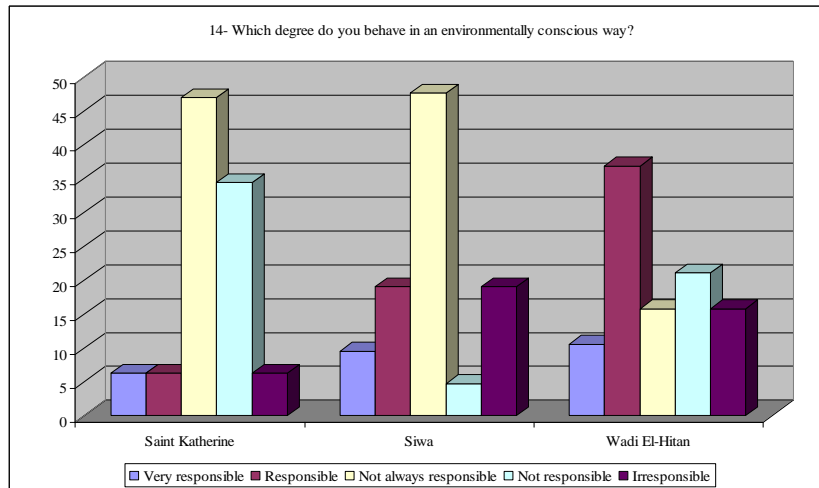


Figure (10.12): The answers for the degree of the tourists' environmental awareness in the destination.

### Question (Nr. 15):

The respondents were asked about if they are interested in participating in any local tours in the future. Table (10.14) and Fig (10.13) below indicate that (75%) of respondents in St. Katherine P., (52%) of respondents in Siwa P. and (79%)% of respondents in Wadi El-Hitan P. are interested in participating in eco-tours in these destinations.

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Yes	75	52	79
No	25	48	21

Table (10.14): The answers' percentages of "Tourists' participation in local tours in the future".

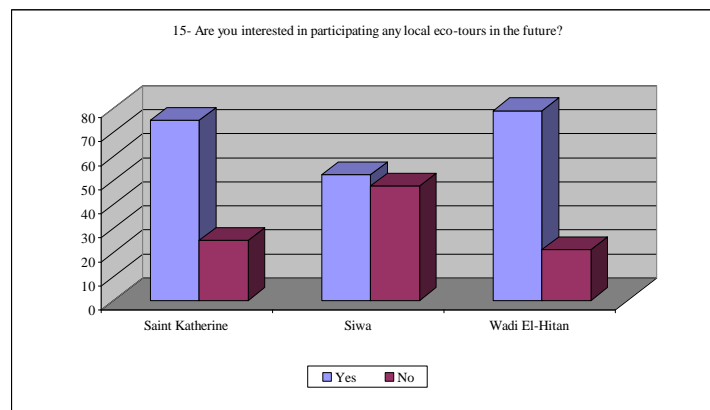


Figure (10.13): The answers for the tourists' participation in local tours in the future.

**Question (Nr. 16):**

The respondents were asked in this question about if the sustainable development in ecotourism in Egyptian protectorate will help in protecting the natural environment and improving the conservation for the protectorate. Table (10.15) and Fig (10.14) present the agreement of (81%) of respondents in St. Katherine P., (76%) of respondents in Siwa P. and (89%) of respondents in Wadi El-Hitan P.

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Yes	81	76	89
No	19	24	11

Table (10.15): The answers' percentages of "The sustainable development in ecotourism in Egyptian protectorate will help in protecting the natural environment".

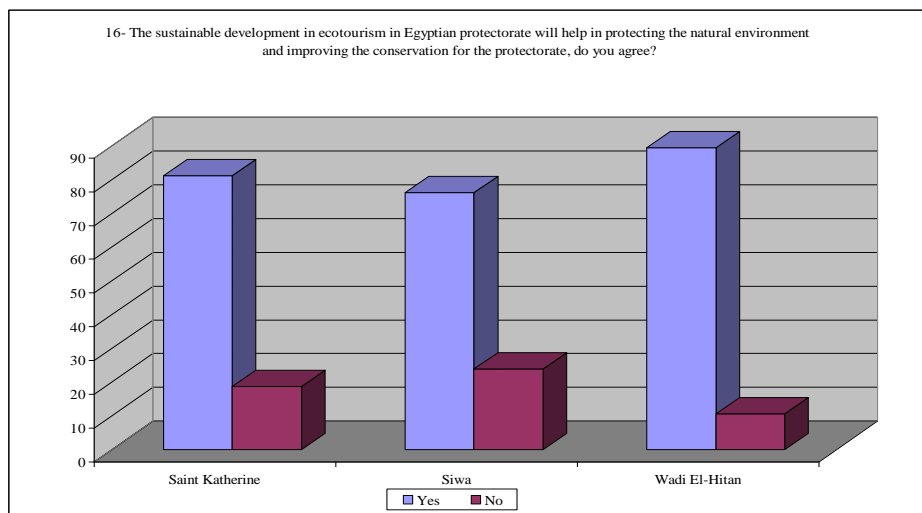


Figure (10.14): The answers for the sustainable development in ecotourism in Egyptian protectorate will help in protecting the natural environment.

**Question (Nr. 17):**

The tourists were asked about to what extent they were satisfied with their tour. Table (10.16) and Figure (10.15) below indicate that (56%) of the respondents were very satisfied with their tour in St. Katherine P., while in Wadi El-Hitan P. there were (38%) of the

respondents, who were neither satisfied nor dissatisfied and (53%) of the respondents were very satisfied .

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Very satisfied	56	33	53
Somewhat satisfied	22	14	26
Neither satisfied nor dissatisfied	13	38	16
Somewhat dissatisfied	6	10	5
Very dissatisfied	3	5	0

Table (10.16): The answers' percentages of "How the tourists satisfied about their tour".

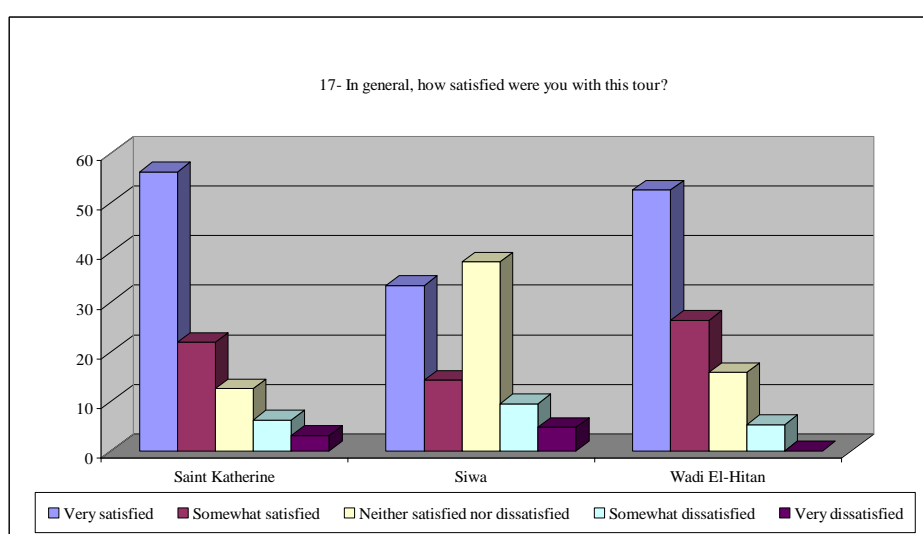


Figure (10.15): The answers for "To what extent were the tourists satisfied with their tour".

### Question (Nr. 18):

The question was asked about if the tourists will return to the protected area for another visit.

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Very likely	56	33	42
Somewhat likely	19	10	16
Neither likely nor unlikely	16	38	26
Somewhat unlikely	9	14	16
Very unlikely	0	5	0

Table (10.17): The answers' percentages of "The return of tourists to the protected area for another visit".

Table (10.17) and figure (10.16) below indicate that (56%) of responses were very likely to return for another visit to St. Katherine P., while in Siwa P. there were (38%) of the respondents who were neither likely nor unlikely and (42%) of the respondents in Wadi El-Hitan P. were very likely to return.

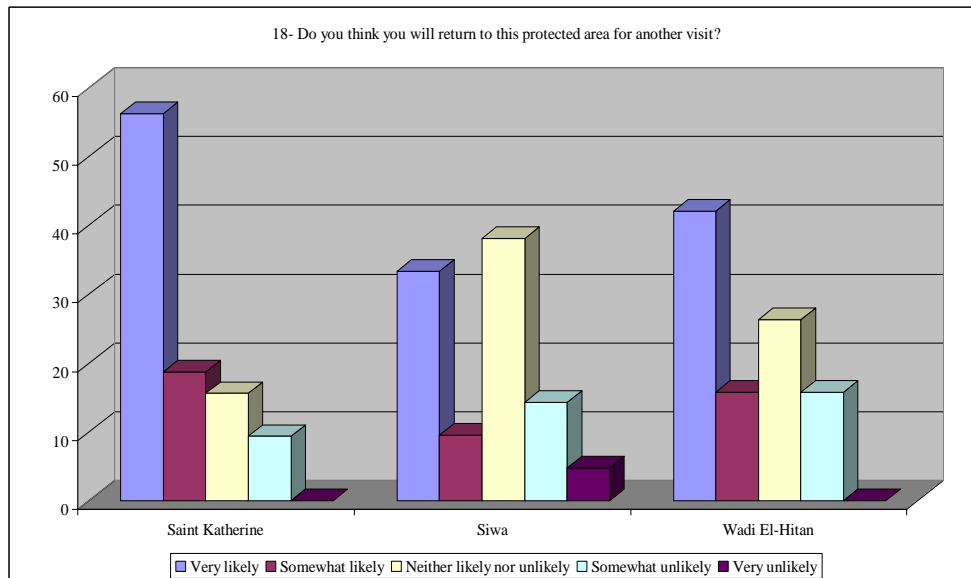


Figure (10.16): The answers for "The return of tourists to the protected area for another visit."

### 10.1.2 Analysis of managers and planners' questionnaires:

Managers and planners' questionnaire (appendix 2) was applied on eco-tours guided, managers and planners for the three case studies; St. Katherine P., Siwa P. and Wadi El-Hitan P. Applying managers and planners' questionnaires would allow finding data about the ideal ecotourism concept, activities and its success factors in particular destinations, such as the protected areas. In addition, managers and planners' questionnaires were prepared to be applied on respondents who were not less than two years in the protected area's management.

The numbers of questionnaires differ from one destination to another as shown in figure (10.17). They show that there were 17 questionnaires in Saint Katherine protectorate, while 12 questionnaires in Siwa



protectorate were collected and 13 questionnaires were collected in Wadi El-Hitan protectorate.

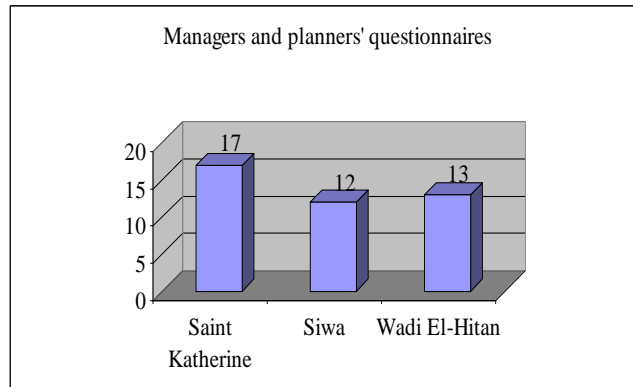


Figure (10.17): Managers and planners' questionnaires numbers.

These questionnaires consisted of two groups of questions. The first group of questions was asked about respondents' personal information. The second group asked about ecotourism in protected areas.

### Question (N. 1)

	Saint Katherine		Siwa		Wadi El-Hitan	
	Numbers	%	Numbers	%	Numbers	%
Male	10	59	9	75	13	100
Female	7	41	3	25	0	0

Table (10.18): The answers' percentages of "Respondents' gender".

Table (10.18) presents the respondents' gender for the three case studies. Figure (10.18) indicates that 10 of respondents (59%) were male and 7 of respondents (41%) were female in St. Katherine protectorate, whereas in Siwa 9 of respondents (75%) were male and 3 of respondents (25%) were female. While in Wadi El-Hitan p. all the respondents were male.

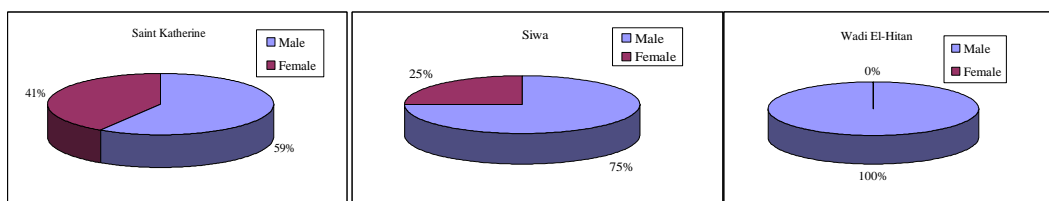


Figure (10.18): The answers for "The respondents' gender".

### Question (Nr. 2)

This question presents the respondents' age as shown in table (10.19). Figure (10.19) showed that most of respondents' ages were between (41-50) years in St. Katherine p. and in Siwa P. But 69% of respondents' ages in Wadi El-Hitan P. were between (31-40) years.

	Saint Katherine		Siwa		Wadi El-Hitan	
	respondents	%	respondents	%	respondents	%
18-30	2	12	1	8	2	15
31-40	3	18	4	33	9	69
41-50	7	41	6	50	2	15
51-60	4	24	1	8	0	0
over 61	1	6	0	0	0	0

Table (10.19): The answers' percentages of "Respondents' age".

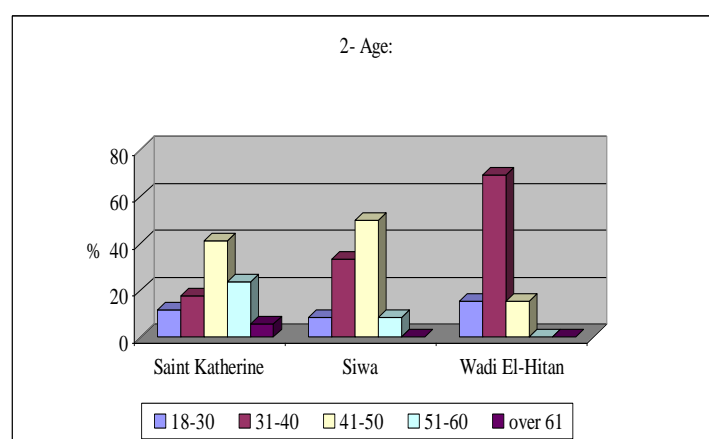


Figure (10.19): The answers for "Respondents' age".

### Question (Nr. 3)

All respondents' nationality in Siwa P. and Wadi El-Hitan P. were Egyptians (as shown in table 10.20 and figure 10.20). However in St. Katherine P. 14 of the respondents (82%) were from abroad as Germany.

	Saint Katherine		Siwa		Wadi El-Hitan	
	respondents	%	respondents	%	respondents	%
Egypt	3	18	12	100	13	100
Abroad	14	82	0	0	0	0

Table (10.20): The answers' percentages of "The respondents' home country".

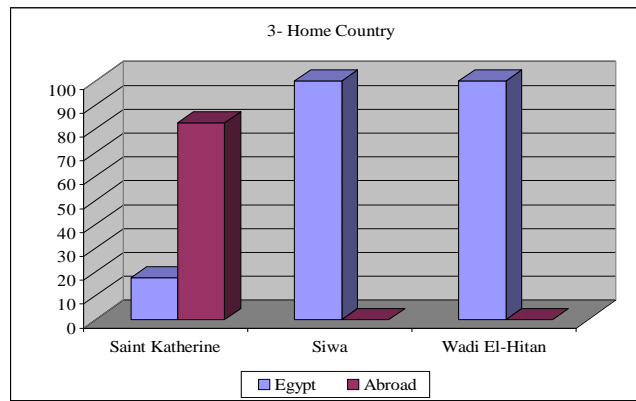


Figure (10.20): The answers for "The respondents' home country."

### Question (Nr. 4)

This question was asked about if there is a project in the area. All respondents' responses were that there is a project in the destination. However, in St. Katherine (76%) of the respondents were participating in the project and most of the work in the project was implemented. However, (58%) of the respondents participate in Siwa project and most of them were in the project operational and (69%) of the respondents participate in Wadi El-Hitan project; a lot of them work as operational in the project implementing (as shown in Table (10.21) and Figure (10.21)).

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Yes	76	58	69
No	24	42	31

Table (10.21): The answers' percentages of "Are you participating in the project".

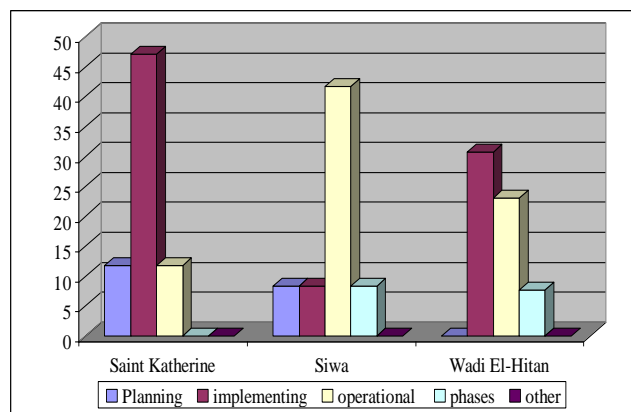


Figure (10.21): The answers for "What is your role in the project".

## B- Ecotourism in Protected Areas:

### Question (Nr. 5)

The respondents were asked about the best description for defining ecotourism (the responses were shown in table 10.22).

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Travel to natural areas	12	0	8
Respecting local heritage and cultures.	0	8	0
Ecotourism conserves the surrounding environment	18	17	15
Supplies financial benefits for local community.	0	0	0
Protects natural habitat.	0	8	0
Minimal environmental impacts.	35	8	8
Creates environmental awareness.	5	17	31
Ecotourism damages the environment	0	0	0
Management of ecological protection.	12	17	23
Ecotourism can reserve natural resources as well as provide knowledge to visitors	18	25	15
Others	0	0	0

Table (10.22): The answers' percentages of "What is the best description for the term ecotourism".

Figure (10.22) indicates the responses in St. Katherine P. (35%) of the respondents described the ecotourism as the minimal environmental impacts and (18%) of the ecotourism responses can reserve natural resources as well as provide knowledge to visitors in addition to conserving the surrounding environment.

While in Siwa P. (25%) of the respondents said that ecotourism can reserve natural resources as well as provide knowledge to visitors, (17%) of them said that it conserves the surrounding environment and creates environmental awareness and the management of ecological protection.

Whereas in Wadi El-Hitan P. (31%) of the respondents answered that ecotourism creates environmental awareness and (23%) of the respondents said that it is the management of ecological protection.

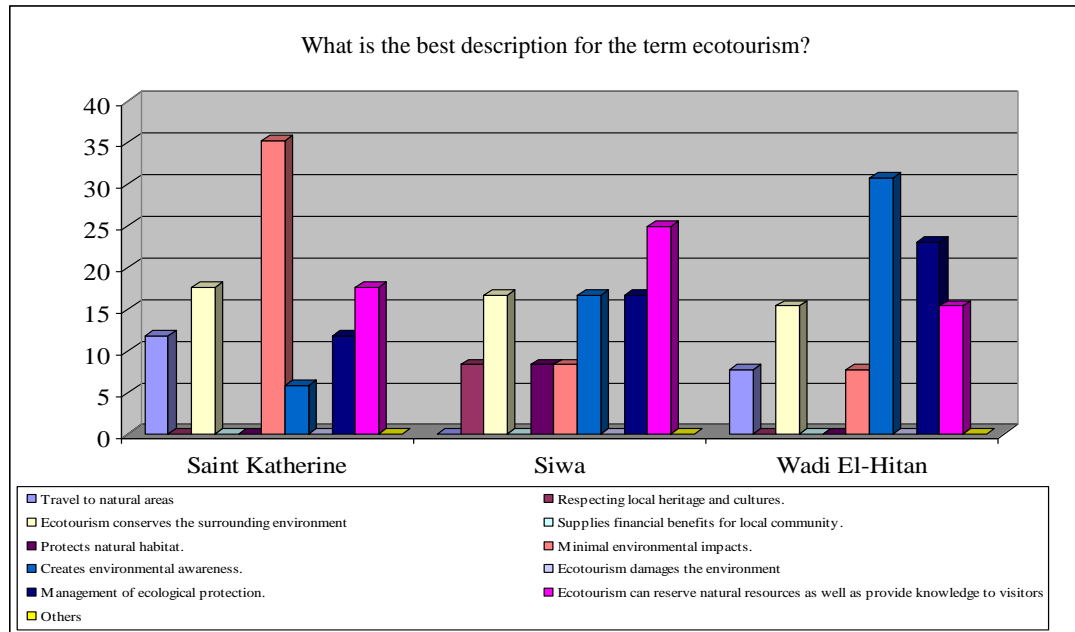


Figure (10.22): The answers for "What is the best description for the term ecotourism".

### Question (Nr. 6)

The respondents were asked about the factors which attract tourists to travel to a particular destination. The responses were shown in table 10.23) below and were ranked from the least important to the most important.

	Saint Katherine%			Siwa%			Wadi El-Hitan%		
Nature- based activities	18	35	47	50	25	25	15	31	54
Activities for children	53	24	24	17	67	17	69	31	0
Recreational activities	12	47	41	17	25	58	15	62	23
Natural context	18	29	53	58	25	17	8	23	69
Resort activities	12	35	53	33	17	50	15	23	62
Environmental factors	24	47	29	8	67	25	23	15	62
Conservation	18	53	29	50	33	17	23	15	62
Social, cultural and Economic factors	24	24	53	17	17	67	15	23	62

Table (10.23): The answers' percentages of "Factors attracting tourists to travel to a particular destination".

The table indicates that the factors which encourage tourists to travel to a particular destination differ according to the protected area's properties. The most important factors in St. Katherine P. are: social, cultural and economic factors, natural context and resort activities.

In Siwa P. the most important factors are: social, cultural, and economic factors in addition to recreational activities, whereas in Wadi El-Hitan P., due to its nature which full of fossils, the most important factors are: natural context, resort activities, environmental factors, conservation and social, cultural, and economic factors.

**Question (Nr. 7):**

The respondents were asked in this question about activities which support the concept of ecotourism in the protected areas. Table (10.24) below shows the responses ranked from the least important to the most important.

Table (10.24) represents that in St. Katherine P. and Siwa P. the activities which support the concept of ecotourism are: creating an eco-tour, using the ecolodge and using renewable resources. In Wadi El-Hitan P. the most important activities that support the concept of ecotourism in protected areas are: creating an eco-tour, observing and learning about the destination.

	Saint Katherine%			Siwa%			Wadi El-Hitan%		
Using the Ecodge	12	41	47	17	25	58	54	31	15
Creating an eco-tour	12	35	53	0	17	83	0	31	69
Observing and learning about protected areas	12	65	24	33	42	25	0	23	77
Observing and learning about natural environment	12	47	41	17	58	25	0	38	62
Contacting with native local people	41	53	6	8	75	17	31	46	23
Supporting Landscape Hiking	94	6	0	58	25	17	100	0	0
Photography	82	18	0	75	25	0	54	23	23
Using renewable resources	12	41	47	17	25	58	54	31	15

Table (10.24): The answers' percentages of "Activities supporting the concept of ecotourism in the protected areas".

### Question (Nr. 8):

The respondents were asked about activities which would be most attractive in the protected area as shown in (Table 10.25).

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Walking tour	29	17	23
Camel riding tour	29	0	46
Biking tour	6	0	0
Bird watching educational tour	6	17	0
Explaining traditional uses of local plants	29	25	15
Hiking	0	42	0
Others	0	0	0

Table (10.25): The answers' percentages of "Which activities would be most attractive in the protected area".

Figure (10.23) represents that walking tour, camel riding tour and explaining traditional uses of local plants are the most attractive activity in St. Katherine P., while in Siwa P. the most attractive activities are: hiking and explaining traditional uses of local plants. However, Camel riding tours and walking tours are the most attractive activities in Wadi El-Hitan P.

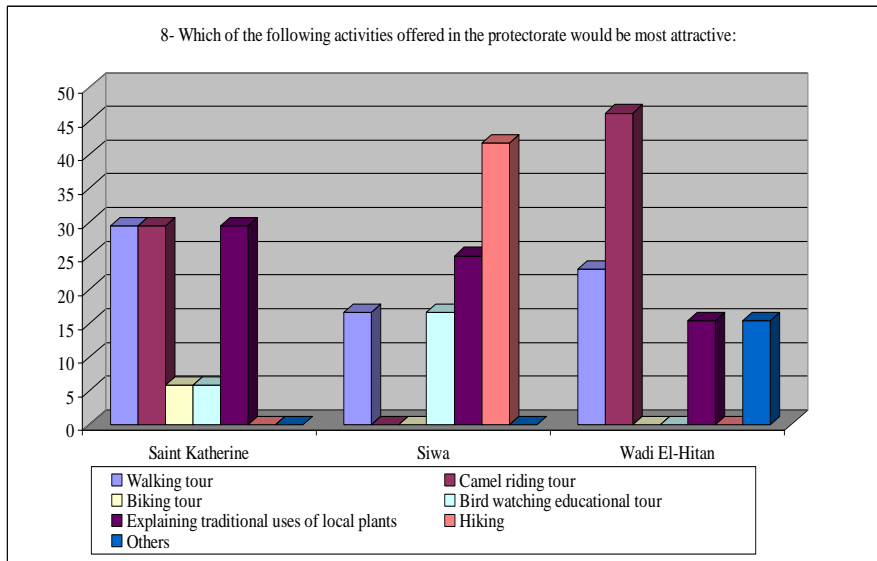


Figure (10.23): The answers for "Which activities would be most attractive in protected area".

**Question (Nr. 9):**

The question was asked about the suggested activities that can be added in the future in the protected areas. In Wadi El-Hitan P. the most suggested activities were: open air museum, parking area, check points and sitting a learning center for visitors in the protectorate. However, in St. Katherine P. most responses were about adding religious tours and mountaining climbing accessibility and in Siwa P. the suggested activities were: rest areas, activities for children and hiking.

**Question (Nr. 10):**

The respondents were asked about the benefits which the tourists gain from traveling to the protected areas. The responses are shown in Table (10.26) below.

Figure (10.24) below indicates that most benefits for tourists in St. Katherine P. lied in increasing knowledge of protected areas and Visiting un-crowded destinations and in Siwa P. most tourists seek to increase knowledge of protected areas, support economic benefits to local



communities and visit un-crowded destinations. In Wadi El-Hitan P. the most benefits for tourists were increasing knowledge of protected areas and seeing unusual places.

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Increasing knowledge of protected areas	5	4	4
Interacting with native people	2	2	0
Experiencing remote and unspoiled nature	3	0	1
Supporting economic benefits to local communities	0	3	0
Increasing confidence through challenging activities	0	0	0
Visiting un-crowded destinations	4	3	3
Seeing unusual places	3	0	4

Table (10.26): The answers' percentages of "The benefits which tourists gain from traveling to the protected areas".

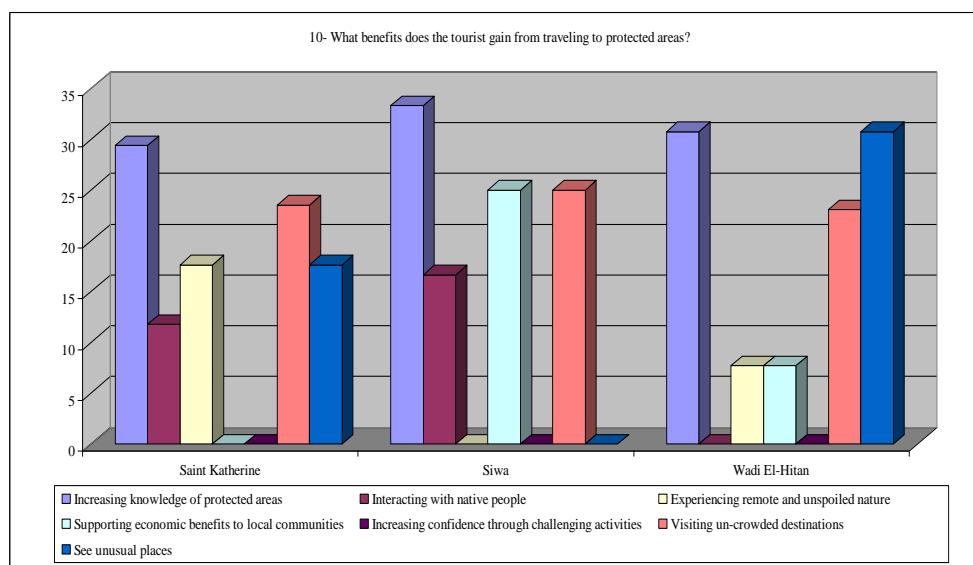


Figure (10.24): The answers for "Which benefits does the tourist gain from traveling to the protected areas".

### Question (Nr. 11)

The arrangement of the concerns that make site improvements for the protected area is shown in table (10.27) below.

The responses in table (10.27) and figure (10.25) indicate that (47%) of the respondents selected site development for visitors as the

most important and then the improvement of educational information about the site in St. Katherine P. While in Siwa P. (33%) of the respondents preferred the first improvement of recreational activities in the site, (25%) of them selected the improvement of educational information about the site.

However, in Wadi El-Hitan P. (38%) of the respondents selected the first improvement of educational information about the site and (23%) of them selected site development for visitors.

	Saint Katherine%	Siwa%	Wadi El-Hitan%
recreational activities at the site	12	33	15
improved water quality	6	17	8
educational information about the site	29	25	38
prevention of site deterioration	6	8	15
site development for visitors (improvements in nearby lodging, restaurants, etc)	47	17	23
other Additional comments	0	0	0

Table (10.27): The answers' percentages of "The arrangement of the site improvement".

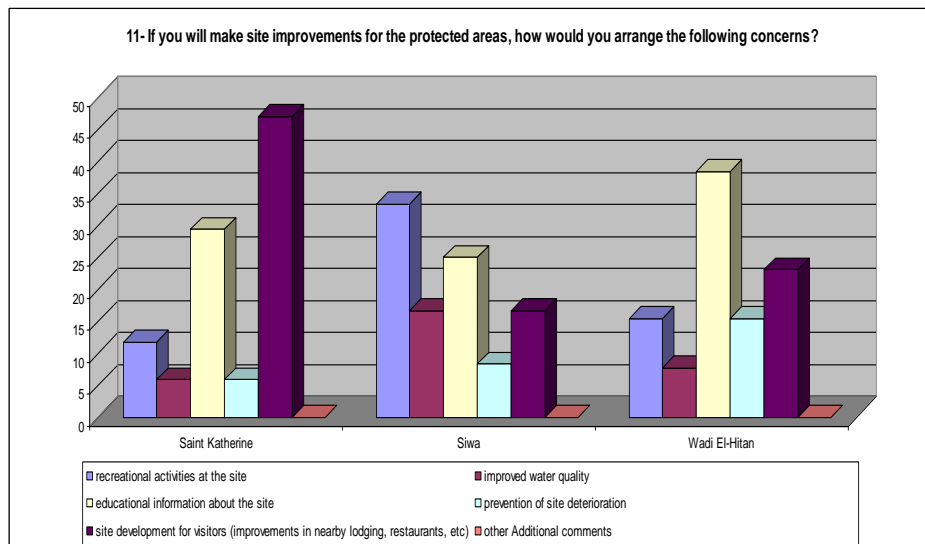


Figure (10.25): The answers for the arrangement of the site improvement.

### Question (Nr. 12):

The managers in this question were asked whether it is good to develop more recreational areas in the destination to increase tourists' arrival as shown in table (10.28) below:

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Agree	35	17	69
Neutral	41	33	23
Disagree	24	50	8

Table (10.28): The answers' percentages of "The development of more recreational areas in the destination".

Figure (10.26) below presents that (41%) of responses had neutral opinion in St. Katherine P. However, (50%) of them were 'disagree' in Siwa P. and (69%) of responses were 'agree' in Wadi El-Hitan P. to developing more recreational areas in the site to increase tourists' desire for coming back again.

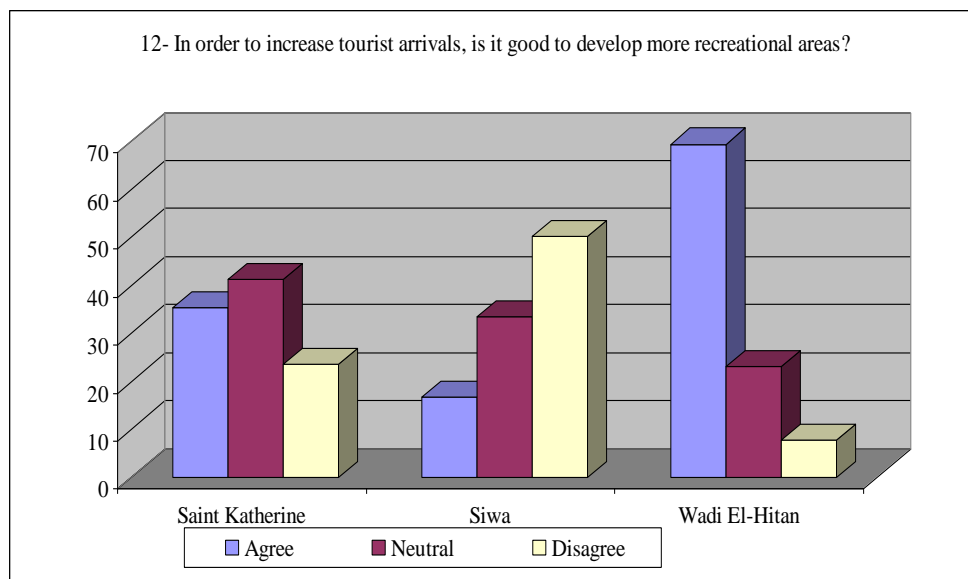


Figure (10.26): The answers for the development of more recreational areas in the destination.

### Question (Nr. 13)

The managers in this question were asked about whether ecotourism could help natural resources conservation as well as provide knowledge to visitors as shown in table (10.29) below:

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Agree	59	25	54
Neutral	41	50	46
Disagree	0	25	0

Table (10.29): The answers' percentages of "Could ecotourism help natural resources conservation as well as provide knowledge to visitors".

Figure (10.27) indicates that (59%) of the respondents agree in St. Katherine P., while (50%) of them had neutral opinion in Siwa P. However, (54%) of them were agree in Wadi El-Hitan P. that the ecotourism could help natural resources conservation as well as provide knowledge to visitors.

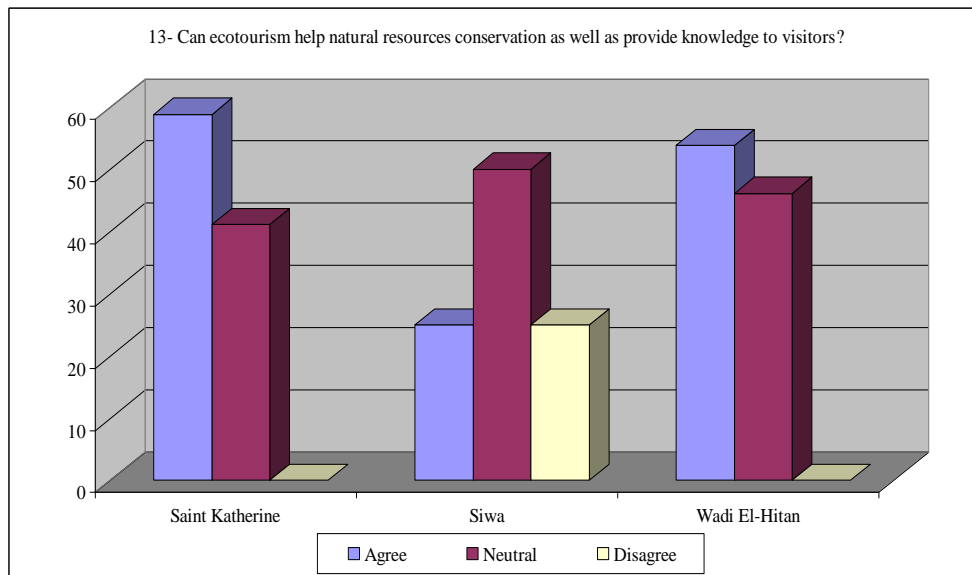


Figure (10.27): The answers for "Could ecotourism help natural resources conservation as well as provide knowledge to visitors".

#### Question (Nr. 14)

This question was whether we should encourage local people to participate in ecotourism related activities, such as being a local guide or providing ecolodges. The responses are shown in table (10.30).

Figure (10.28) represents that (59%) of the respondents agree in St. Katherine P. and (67%) also agree in Siwa P. However, (54%) of them had neutral opinion in Wadi El-Hitan P. about the need to encourage local

people to participate in ecotourism related activities, such as being a local guide or providing ecolodges.

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Agree	59	67	23
Neutral	35	16	54
Disagree	6	17	23

Table (10.30): The answers' percentages of "Should we encourage local people to participate in ecotourism related activities such as being a local guide or providing ecolodges".

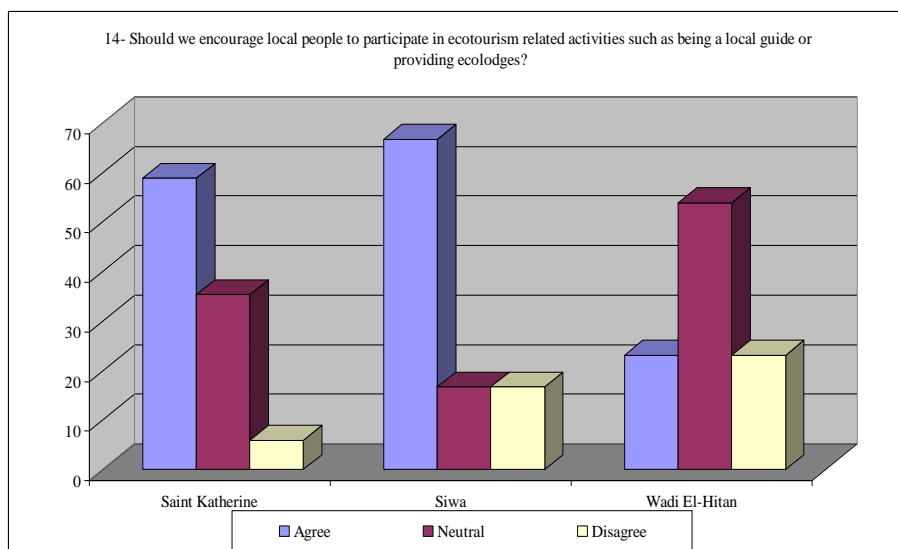


Figure (10.28): The answers for "Should we encourage local people to participate in ecotourism related activities such as being a local guide or providing ecolodges".

### Question (Nr. 15)

This question was whether ecotourists should research and learn about the destination before traveling to understand the local areas and its environment, the responses are shown in Table (10.31) below:

Figure (10.29) indicates that (82%) of the respondents agree in St. Katherine P. and (67%) also agree in Siwa P. However, (54%) of them had neutral opinion in Wadi El-Hitan P. about the need of ecotourists to research and learn about the destination before traveling to understand the

local areas and its environment because it will increase the tourists' awareness.

	Saint Katherine%	Siwa%	Wadi El-Hitan%
Agree	82	67	23
Neutral	18	16	54
Disagree	0	17	23

Table (10.31): The answers' percentages of "Should ecotourists research and learn about the destination before traveling to understand the local areas and its environment".

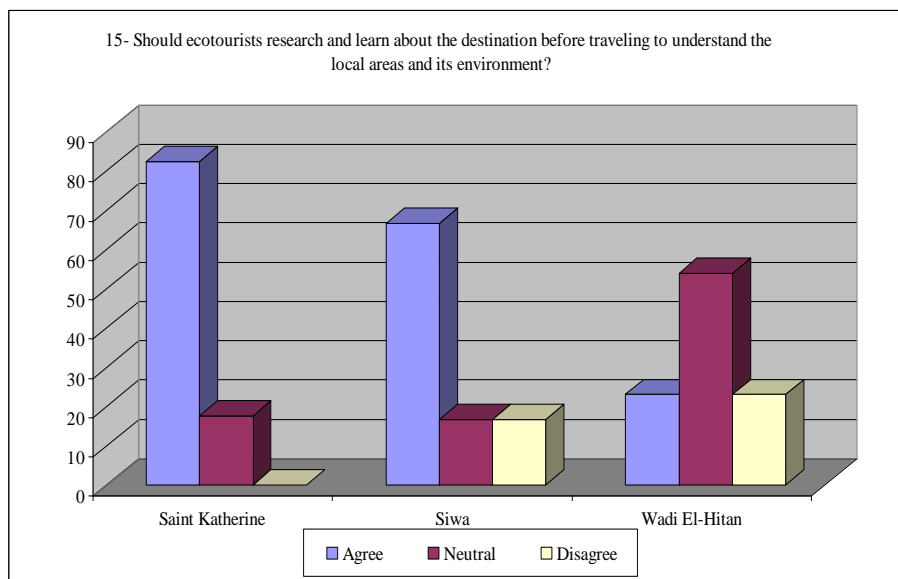


Figure (10.29): The answers for "Should ecotourists research and learn about the destination before traveling to understand the local areas and their environment".

### Question (Nr. 16)

The respondents were asked about their opinion about the most important elements in improving the success of ecotourism in a particular destination.

Most responses were about the improvement of the site for visitors and the increase of tourists' awareness in St. Katherine P., while increasing the recreational and children activities in Siwa P. However, most responses in Wadi El-Hitan P. were about the improvement of the open air museum, sitting an ecolodge, and parking areas.

## **10.2 Framework for promoting sustainable ecotourism in Egyptian protectorates:**

A framework is created as a result of this research using indicators and factors abstracted from: literature review, analyzing examples all over success countries in ecotourism and the analyzing for Egyptian case studies. The proposed framework could be applied for promoting sustainable ecotourism in Egyptian protected areas. It could be used in the site design, limitation of tourist behavior, the site management, and ecolodge design (partially or fully). It is built on the integration between Managers, Stakeholders, and tourists.

### **10.2.1 Evaluating the selected case studies**

In light of the preceding analysis, it is clear that the selected protected areas have somewhat range in respecting ecotourism indicators; minimization of environmental impacts, benefits for locals, reducing the consumption of energy and benefits for visitors. In addition, these examples have significant efforts in preserving the site heritage.

The evaluation in Table (10.32) below shows that the difference between the selected case studies is clear. Saint Katherine protected area is considered the most case study promoting the ecotourism criteria. Thus, Siwa protected area meets many of ecotourism indicators, while Wadi El-Hitan protected area needs ecotourism development and increasing of ecotourism indicators, such as designing a suitable ecolodge to meet the tourists demand. At the same time, it is important to apply the ecotourism principles, such as using the local materials, using solar cells for water heating and electricity, minimizing the windows areas to reduce the affecting of hot weather. Moreover, it is also vital to design an information center to increase the visitor awareness of site history and the whales' skeletons. Development of the open air museum by adding

information points beside every whale's skeletons explained the type and the early shape of the main whales. Furthermore, it is important to increase maps to indicate the visitor location in the site and show how to return to the entrance again.

		St. Katherine PA.	Wadi El-Hitan PA.	Siwa PA.
<b>Protected area</b>	Setting an information center	+	-	-
	Determine information points	+	+	-
	Creating open air museum	-	+	-
<b>Ecolodge</b>	Setting an ecolodge	+	-	+
	Decreasing windows area	+	-	-
	Building direction	+	-	+
	Using local material	+	+	+
	Using solar cells in lighting and electricity	+	+	+
<b>Visitors</b>	Different activities as (Camping, bird watching, education and discovering the site)	+	-	+
	maps and bulletins	+	+	+

(+) Yes (-) No

Table (10.32): Evaluating the selected case studies.  
Source: The author's construction.

### 10.2.2 Preconditions for applying sustainable ecotourism in Egyptian protectorates:

Applying sustainable ecotourism requires fundamental changes at different levels (economic, political and social levels). Moreover, the integration between planners, managers, and local community is important for promoting sustainable ecotourism in Egyptian protectorates by:



- Applying new strategies in planning and managing protected areas. These strategies include the site planning, ecolodge design, and the method of protectorate management;
- Increasing the tourist awareness: there is a need to increase the tourist awareness in visiting the protectorate by understanding the importance of the site in addition to providing means of tourist educating, such as simulating information center with a model for the protectorate, bulletins, publications and terms for using the protectorate;
- Increasing the protectorate activities which encourage tourists to visit these destinations. These activities contain utilization of the opportunities due to the site culture and heritage. Examples of these activities are camping, bird watching, education, and discovering the site;
- Increasing the local's income by increasing the tourists' numbers;

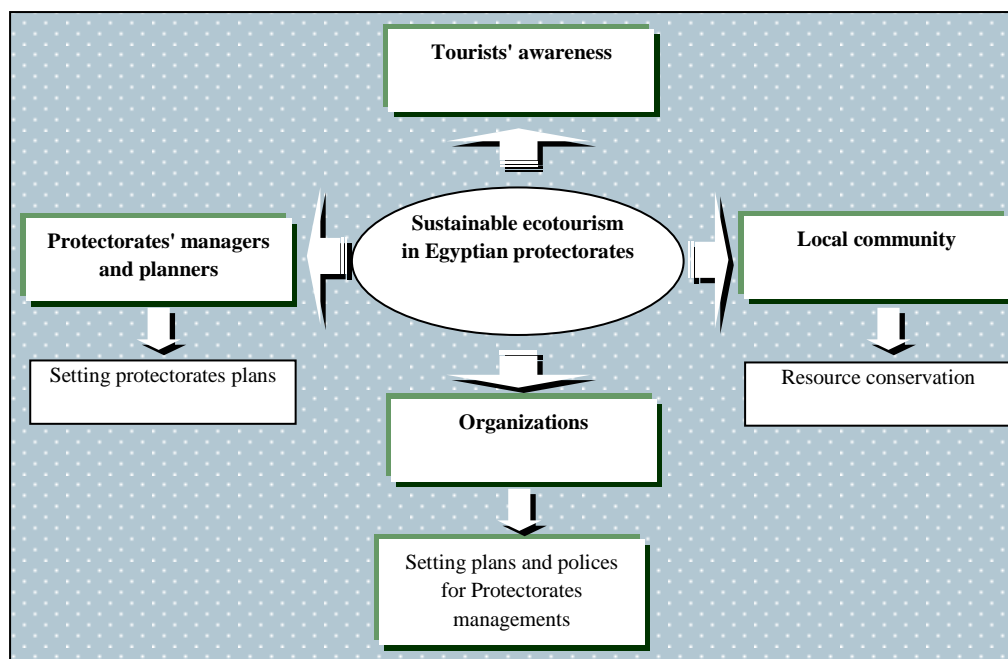


Figure (10.30): Effective elements in successful sustainable ecotourism through short and long term.

Source: author's construction.

Figure (10.30) shows that applying sustainable ecotourism in Egyptian protectorates depends on tourists' awareness, local community efforts in conservation, plans from protectorates managers and planners, and polices for protectorates managements setting from organizations.

Thus, there are steps towards successful sustainable ecotourism through the short and the long term (Figure 10.31). It is important to apply ecotourism principles, develop activities which encourage tourists to visit these destinations, ecolodges characteristics that applying ecotourism principles and publications about the destination. Consequently, we can achieve a successful sustainable ecotourism through the short term. In addition, it is vital to set educational plans for protectorate development, improve polices in the management and planning the destination will be helpful to obtain ideal and successful sustainable ecotourism through the long term.

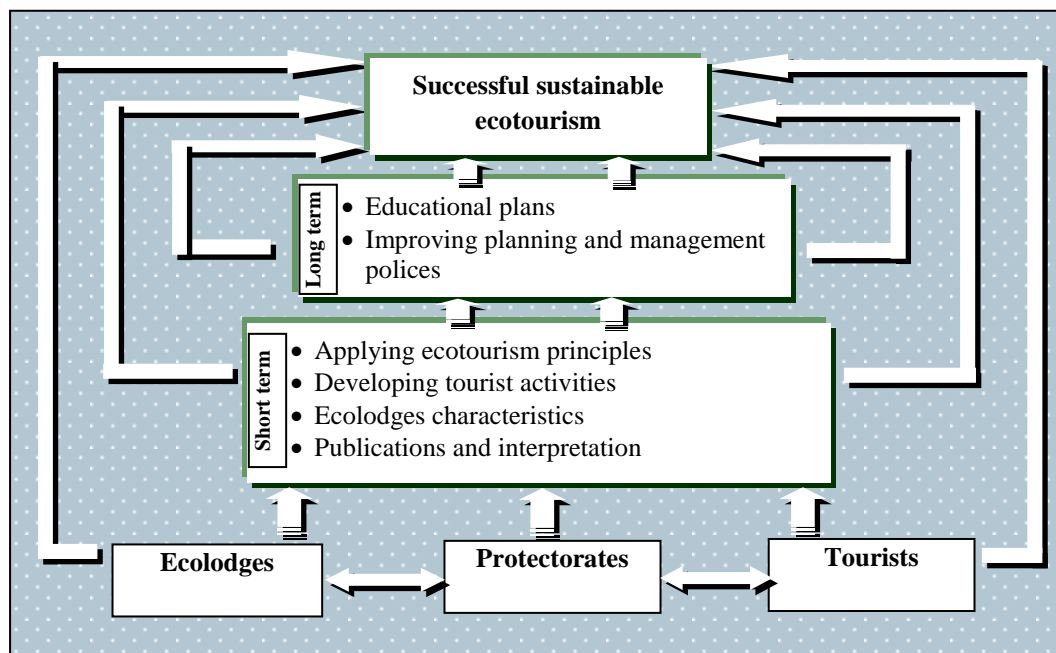


Figure (10.31): Steps for successful sustainable ecotourism through short and long term.

Source: author's construction.

### **10.2.3 Visions for future development in Wadi El-Hitan protectorate**

In the Egyptian protectorates in general, and in Wadi El-Hitan protectorate in particular any future development requires changes in the political and economic management in the country. Compared to many other ecotourism destinations, Egyptian protectorates could be developed easily due to its richness of its natural resources and cultural heritage. Touristic development schematic for Wadi El-Hitan protectorat could depend on:

- Existing situation for the protectorate.
- National, international and local demand characteristics.
- Tourism potentials and supply provisions.
- Dimensions of the potential role of the protected area as part of sustainable development.

The main objectives for this suggestion are:

- Implementing a plan for the conservation in Wadi El-Hitan protectorate as a world heritage site which ensures the long-term involvement of the local community.
- Formulating a clear strategy for sustainable ecotourism in Wadi El-Hitan destination commensurate with the site importance, destination heritage, and the history of the skeletons.

This strategic plan could contain some elements as following:

- Before the entrance there must be a model for the protectorate. This model aims to educate the tourists all information about the protectorate; (the site- fossils history and tourists behaviors in the site to conserve the sustainability concept.
- Rearranging the fossils in expedition for more excitement.

- In addition, building some shaded areas with maps which show the tourist location and the nearest fossils with its history and information about it.
- Taking the skeletons to other destinations to make experiments about it makes several problems. Thus, it is important to build an experiment center for researcher near the destinations to make all experiments on the fossils for more information about it (such as: main whale's age, kind and history).
- Building a sustainable ecolodge applies the ecotourism principles, such as:
  - Minimize impacts;
  - Environmental and cultural awareness;
  - Provide positive experiences for both visitors and locals;
  - Supply benefits for local community.

#### **10.2.4 Expected results**

The success of promoting sustainable ecotourism in protected areas depends on the performance of ecolodges, choosing the site and tourists awareness. Therefore, the expected results could be summarized as follows:

- Developing the ecotourism sector which linked to the protected areas;
- Establishment of basic criteria for all environmentally ecolodges in protected areas;
- Achieving higher standards of environmental and socially responsible ecolodges;
- Lighting and heating in ecolodges depends on Applying technology through the use of renewable resources as wind and solar energy;

- Increasing the number of tourists. In addition, increasing stay period which provides high opportunity to sell local products and services;
- Promoting ecotourism will give tourists urban natural- cultural travel experiences, furthermore, strengthen the international destination;
- Increasing the opportunities for environmental education for tourists;
- Increasing local income for the local community when visitors, staff and tourism employees consume locally grown food and drinks;
- Handmade, Artwork and crafts based on local culture could increase local economic impact;
- Raising awareness and ensure the economic opportunities for local community;
- Offering more locally-made goods for sale, available directly and indirectly to the visitor which helps in increasing visitor expense and local incomes;
- Developing local handcrafts, carpentry, job creation, and services provision for tourists such as: Guiding to local sites and horse riding trip;
- Protectorate planning and managing in a way that conserves the surrounding environment and raising awareness both for tourists and the local community;
- Promoting sustainable ecotourism in protected areas improves marketing strategies and policies;
- Ideal ecotourism increases the total experience and a set of responsible behavior for both tourists and locals;

## **10.3 Recommendations**

The previous chapters provide detailed insights into practice of sustainable ecotourism in protected areas. Additionally, case studies conclude that the Egyptian protectorates have several attractions and characteristics. Sustainable ecotourism in these destinations can be developed if they establish a strong ecotourism marketing that promotes their attractions. Tourists have trends to travel more widely, seeking natural and cultural destinations. This makes them ideal tourists for protected areas. In addition, they benefit these destinations.

In light of the current study, some general recommendations could be reached on the concept of sustainable ecotourism in protected areas in Egypt. These recommendations could be classified into four groups: Planning and Landscaping, Architectural, Structural, and Technical recommendations.

### **10.3.1 Recommendations for Planning and Landscaping**

- Improving the environmental performance of protected areas, which is one of the main axes of sustainable ecotourism development;
- The site ecological characteristics should be compatible with its elements (as: location, wind, sun, climate, etc.) in order to obtain ideal sustainable ecotourism in special destinations such as protected areas;
- Supplying protected areas sites with infrastructure networks to establish a good sustainable ecotourism development;
- Developing the urban policies for ecotourism in protected areas proportional with the nature of each area in terms as form and content;
- Using plants and crops that are in line with the natural environment and local (desert) including the sustainability of life;

- Using local materials and natural resources in landscape elements design;

### **10.3.2. Recommendations for ecolodges Architecture**

Sustainable ecolodges are considered an important tool in sustainable development when it is designed and managed in a way that conserves the natural environment and reduces all negative impacts on the surrounding environment. Therefore, there would be potential of creating an alternative niche market encouraging development in social, economic, and cultural aspects at all levels (regional, local and global levels).

Architectural standards are considered as important tools in designing ecolodges in protected areas. These principles need to be applied in all decision making planning, designing, construction, operation and renovation as follows:

- Establishment of ecolodges which is achieving and investigating the concepts of sustainable ecotourism in protected areas.
- It is important to apply the general principles of sustainable ecotourism. These principles must be included in all decision making. Thus, it contains different solutions for windows, doors, ventilation, natural lighting, and waste management.
- Endeavoring to apply contribution between Managers, Stakeholders, and tourists.
- Offering interpretative programs to improve the destinations employees and tourist's knowledge about the surrounding natural and cultural environments.
- Contributing to sustainable local development through research programs.

- Achieving ventilation inside spaces and accommodations through natural methods ratios and size of the windows.
- The building should be in the right direction in order to achieve thermal comfort to space user by protecting the building from direct solar radiation falling on the outer shell of the building through different architectural processors.
- Using finishing materials, floor spaces and accommodations from local materials with renewable sources.

### **10.3.3. Recommendations for structure**

- Identify the most appropriate construction methods in the site considering economic, cultural, natural, and environmental aspects.
- Choice of structure methods which is suitable for the protected area.

### **10.3.4. Recommendations for technology**

- Using clean and renewable methods in the local projects such as (solar energy, wind energy, etc.)
- Re-using of wastewater after treatment in watering and fertilizing the soil.
- Applying waste recycling.

### **10.3.5. Recommendations for ecotourists**

- Learn about the place where you are going to travel.
- Respect the local way of living.
- Learn some words of the local language.



## 10.4. Conclusion

Having introduced a potential conceptual for sustainable ecotourism in Egyptian protectorate and having illustrated the visions for future development in Wadi El-Hitan protectorate, it would be helpful to summarize the specific properties that should be presented in order to achieve the sustainable development:

- Improving the planning strategy in protected areas and achieving integration between NGOs and local community;
- Establishing an ecolodge in the protectorate which applying the sustainable ecotourism concept;
- Adding integral activities in the protectorate which encourage the tourists to visit these destinations;
- Using renewable building materials to the greatest possible extent;
- Using the simplest suitable technology in the needed function;
- Respecting the natural and cultural resources of the site to minimize the impacts of any development;
- Avoiding the use of intensive energy, environmentally damaging and waste producing;
- Striving for "smaller is better" for optimizing use, flexibility of spaces in building size and the resources necessary for construction.

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# **APPENDICES**

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**Appendix (1)**  
**TOURISTS'**  
**QUESTIONNAIRE**

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**B- Ecotourism in Protected Areas :**

**6- Is this your first visit to this site?**

- Yes
- No

- If no,

a- when was the last time? -----

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**7- What do you know about ecotourism? (May tick more than one)**

- Travel to natural areas.
- Respecting local heritage and cultures.
- Ecotourism conserves the surrounding environment.
- Supplies financial benefits for local community.
- Protects natural habitat.
- Minimal environmental impacts.
- Creates environmental awareness.
- Ecotourism damages the environment.
- Management of ecological protection.
- Ecotourism can reserve natural resources as well as provide knowledge to visitors.
- Other, please specify -----

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**8- Why are you coming to this tour? (may tick more than one)**

- Recreational opportunities
- Learn more about nature
- Learn more about local culture
- Birding
- Observe wildlife
- Relaxation
- Adventure
- Other: -----

**9- In your opinion, Factors attract tourists to travel to a**

**particular destination :** (Rank the importance from (1) to (3))

(1) Least important

(2) Important

(3) Most important

- Nature- based activities
- Activities for children
- Recreational activities
- Natural context
- Resort activities
- Environmental factors
- Conservation
- Social, cultural and Economic factors

(1)	(2)	(3)

**10- Which of the following activities support the concept of ecotourism in the protected area:**

(Rank the importance from (1) to (3))

(1) Least important

(2) Important

(3) Most important

- Using the Ecolodge
- Create an eco-tour
- Observing and learning about protected areas
- Observing and learning about natural environment
- Contact with native local people
- Supporting Landscape Hiking
- Photography

(1)	(2)	(3)

**11- Which of the following activities offered in the protectorate would be most attractive:**

- Walking tour
- Camel riding tour
- Biking tour
- Bird watching educational tour
- explaining traditional uses of local plants
- Hiking
- Others: please specify -----

**12- Are there any other activities would you like to be added in the future?**

-----

**13- What benefits do you seek in your tour?**

Please list in order the importance using numbers (1)-(3)

(1) Least important

(2) Important

(3) Most important

- Increasing knowledge of protected areas
- Interacting with native people
- Experiencing remote and unspoiled nature
- Increasing confidence through challenging activities
- Visiting un-crowded destinations
- See unusual places

(1)	(2)	(3)

**14- Which degree do you behave in an environmentally conscious way?**

- Very responsible
- Responsible
- Not always responsible
- Not responsible
- Irresponsible

**15- Are you interested in participating any local eco-tours in the future?**

- Yes  No
- 

**16- The sustainable development in ecotourism in Egyptian protectorate will help in protecting the natural environment and improving the conservation for the protectorate, do you agree?**

- Yes  No
- 

**17- In general, how satisfied were you with this tour?**

- Very satisfied
  - Somewhat satisfied
  - Neither satisfied nor dissatisfied
  - Somewhat dissatisfied
  - Very dissatisfied
- 

**18- Do you think you will return to this protected area for another visit?**

- Very likely
  - Somewhat likely
  - Neither likely nor unlikely
  - Somewhat unlikely
  - Very unlikely
- 

**Thank you, for your contribution!**

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**Appendix (2)**  
**MANAGERS AND PLANNERS'**  
**QUESTIONNAIRE**

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**"Eco-Tourism as Frame of work for Sustainable Touristic  
Development"**

**Managers and planners' Questionnaire:**

\* The name of protected area:

<input type="radio"/> Saint Catherine Protectorate	<input type="radio"/> Siwa Oasis Protecorate	<input type="radio"/> Wadi El-Hitan Protectorate (Valley of The Whales)
--	--	---

**A- Personal Information:**

- 1- Gender :**                       Male                       Female
- 2- Age:**                               18-30 ( )     31-40 ( )     41-50 ( )     51-60( )    over  
61 ( )
- 3- Home country:**              -----
- 4- Is there a project in this area?**
- Yes                               No

- If yes:

- Are you participating in the project?
- How?
  - Planning
  - Implementation
  - Operational
  - Phases
  - other -----
- What does the project include?

-----



**B- Ecotourism in Protected Areas :**

**5- In your opinion what is the best description for the term ecotourism?**

- Travel to natural areas
- Respecting local heritage and cultures.
- Ecotourism conserves the surrounding environment
- Supplies financial benefits for local community.
- Protects natural habitat.
- Minimal environmental impacts.
- Creates environmental awareness.
- Ecotourism damages the environment
- Management of ecological protection.
- Ecotourism can reserve natural resources as well as provide

knowledge to visitors

---

**6- Factors attract tourists to travel to a particular destination:**

(Rank the importance from (1) to (3))

(1) Least important

(2) Important

(3) Most important

- Nature- based activities
- Activities for children
- Recreational activities
- Natural context
- Resort activities
- Environmental factors
- Conservation
- Social, cultural factors and Economic factors

(1)	(2)	(3)

**7- Which of the following activities support the concept of ecotourism in the protected area?**

(Please, rank the importance from (1) to (3))

(1) Least important

(2) Important

(3) Most important

- Using the Ecolodge
- Create an eco-tour
- Observing and learning about protected areas
- Observing and learning about natural environment
- Contact with native local people
- Supporting Landscape Hiking
- Photography
- Using renewable resources

(1)	(2)	(3)

**8- Which of the following activities offered in the protectorate would be most attractive:**

- Walking tour
- Camel riding tour
- Biking tour
- Bird watching educational tour
- explaining traditional uses of local plants
- Hiking
- Others: please specify -----

**9- Are there any other activities would you like to be added in the future?**

-----

**10- What benefits does the tourist gain from traveling to protected areas?**

- Increasing knowledge of protected areas
- Interacting with native people
- Experiencing remote and unspoiled nature
- Supporting economic benefits to local communities
- Increasing confidence through challenging activities
- Visiting un-crowded destinations
- See unusual places

---

**11- If you will make site improvements for the protected areas, how will you arrange the following concerns?**

- recreational activities at the site
- improved water quality
- educational information about the site
- prevention of site deterioration
- site development for visitors (improvements in nearby lodging, restaurants, etc)
- other Additional comments -----

---

**12- In order to increase tourists' arrival, is it good to develop more recreational areas?**

- Agree                      ○ Neutral                      ○ Disagree

---

**13- Can ecotourism help natural resources conservation as well as provide knowledge to visitors?**

- Agree                      ○ Neutral                      ○ Disagree

---

**14- Should we encourage local people to participate in ecotourism related activities such as being a local guide or providing ecolodges?**

- Agree                      ○ Neutral                      ○ Disagree
-

---

**15- Should ecotourists research and learn about the destination before traveling to understand the local areas and its environment?**

- Agree                       Neutral                       Disagree

---

**16- What do you think are the most important elements in improving the success of ecotourism in a particular destination?**

-----

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**Your participation in this questionnaire is greatly appreciated!**

Thank you, for your contribution

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**Appendix (3)**  
**DIFFERENT VIEWS FOR CASE**  
**STUDIES**

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**St. Katherine protectorate**  
**(All images were taken by the author)**

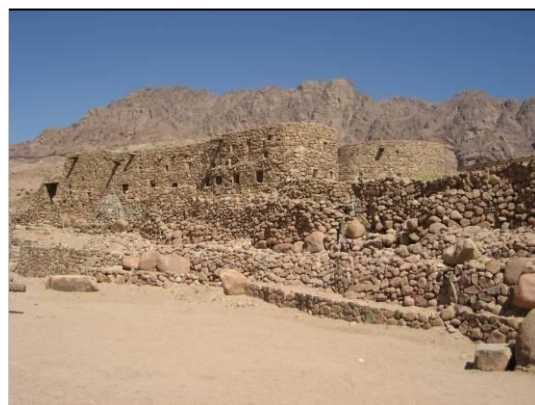
**El-Karm ecolodge**



**Source: Google earth**

El-Karm Ecolodge was financed by the European Union (EU) with funds left over from the project that established the St. Katherine Protectorate from 1996 to 2002. Early on the development of the Protectorate, it was concluded that one of the most effective ways to direct benefits to the Bedouin who live in and around the Protectorate would be to link sustainable tourism with local community development.

Community-based tourism aims at engaging local communities in the decision



making process, ownership, and administration of tourist products.

It ultimately looks to empower them economically and politically. Community-based tourism bases sustainability on the ability of local peoples to manage their own natural and cultural environment, thus maximizing the economic impacts at the local level.

The ecolodge is an example of community-based tourism enterprise that can be defined as: "accommodation facilities and services established in, or very near, natural areas visited by ecotourists".

In that regard, an ecolodge is a facility that is critical to the development of ecotourism experiences since their design, operation and management influence the natural environment, local communities and customers' satisfaction and education.

### **Outside Landscape:**

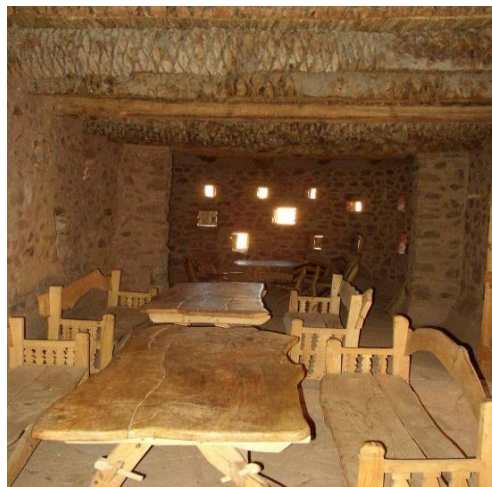








**Dining and Eating Area:**



**Information center:**



**Sleeping Area:**



**The Kitchen:**





**The Bathrooms:**



**Water Stores:**



## Energy Cells:



## Reception:



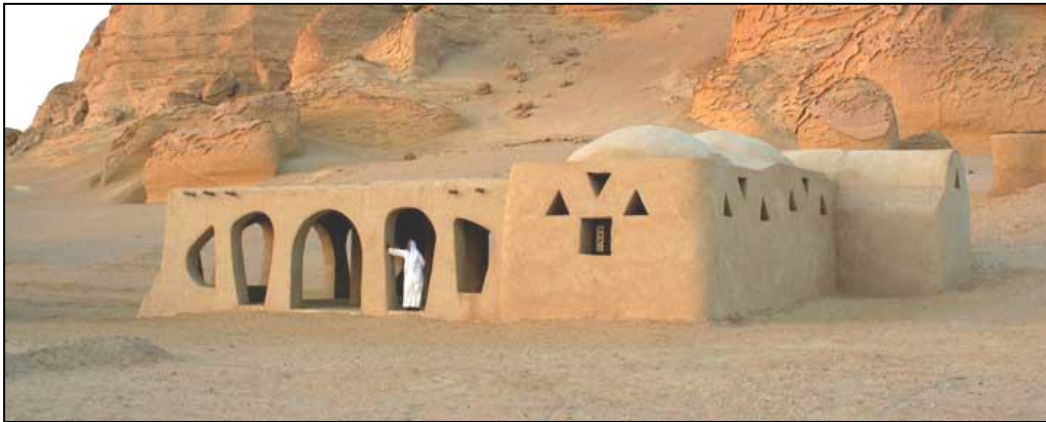
## Archeology:



## The Protectorate:



**Wadi El-Hitan protectorate**  
**(All images were taken by the author)**



In 2005, Wadi El-Hitan (Valley of the Whales), located within the protected areas, was designated by UNESCO as a World Heritage Site in recognition of the 40million years-old whales skeletons found there. With the support of Italian cooperation and Gran Sasso National Park, Italy, WRPA's staffs are working to prepare ecotourism infrastructure for visitors. Now, new displays have been established to help people understand the story of ancient whales and marine life in the desert.

Wadi El-Hitan is one of the most significant fossil sites in the world. The fossils of ancient whales discovered in the Western Desert of Egypt have helped answering important questions about the evolution of life on Earth. Studies of these fossils have confirmed that the whales of today's oceans evolved from an existence on land.



Why are there so many? The fossilized roots of the mangroves in front of the protectorate offer clues to this question and confirm that it was an ancient shoreline. Shorelines are often the most active parts of ecosystems because of the abundance of sunlight, water, shelter, and food. Here in Wadi El-Hitan, fossilized crabs, sea turtles, sea cows, clams and the roots of mangrove trees all indicate a shallow water environment teeming with life.



Excavated skeletons include toes, ankles, knee caps, lower and upper leg bones, and a pelvis.

### **The whales in the rocks:**

The rocks around the visitor formed between 37 and 42 million years ago when sand, silt and clay settled from the waters of the Tethys Sea. The remnants of ancient plants and animals, including the whales, were trapped in these sediments. Over time, these remains turned into the fossils we see today .

The valley exists because some of the rock has been removed. As the level of the Tethys Sea lowered, the rock was exposed to wind and water. Over millions of years, these two elements cut into the rock leaving this distinct valley and uncovering the fossils .

About 400 skeletons of ancient whales and sea cows have been identified in Wadi El-Hitan.

