Profile of Sustainability in some Mediterranean tourism destinations

Case studies in Egypt: Marsa Matrouh, Al Alamein, Siwa Oasis (Matrouh Governorate)

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Introduction

The aim of this report is to measure and evaluate the tourism performance and link it with the destination's sustainable development. It includes the environmental parameters as well as the economic and the social ones.

The proposed approach for the report considers the tourism as a driving force of which the report have firstly to measure results and performance within the destination according to the three pillars of sustainable development. Secondly have to estimate the impacts of tourism results on the sustainability state of the destination. Finally, to reflect on policy measures that are able to ameliorate tourism performance or impact within the destination; policy measures have to be oriented to address specific problems affecting the sustainability state of the destination.

The report is structured in 6 chapters as follows:

1) Description of the destination, and the national and local contexts,
2) Tourism as a driving force,
3) Results and performance of tourism,
4) Impacts of tourism on the destination,
5) Policy measures to improve sustainability of the destination,
6) Systemic analysis of the tourism destination (see scheme in the ToR).

I. Description of the destination - the national and local contexts

According to the kick-off meeting of the project organized by Blue Plan on 15-16 October 2009 in the UNEP/MAP Headquarters in Athens (Greece), the general characteristics of the destinations under selection was as follows:

- The destination should have a permanent population, so sustainability refers to the local society and not just the touristic resort.
- The destinations have to have a past of more than 10 years.
- Tourism should to be an important activity in the destination but not a mono-activity in the wider area, so it allows the study of the interaction with the other economic sectors.

Preference was for a wider administrative unit which allows better distribution of data, resources and indirect flows (NUTS 3). Then the report can zoom in for more detail in local level in NUTS 5 units, or even aggregates of a province which are easy to summarize. In other words, the report will move from an administrative level to an operational unit that represents fully the essence of the touristic activities under study.

According to this characteristic and after the presentation for the proposed destination for Egypt the selected case study area were three local or operational units in Matrouh governorate as the administrative unit. The three local or operational units chosen were Matrouh city, Al Alamein town, and Siwa oasis as the operational units that represent fully the essence of the touristic activities.

1. The destination's profile

1.1. Matrouh Governorate

1.1.1. Administrative unit - "NUTS 3"

Matrouh Governorate occupies a wide sector in the northwest of Egypt and is stretched from km 61 in the west of Alexandria up to the Egyptian- Libyan borders on the northern coast of Egypt (Figure 1). The area of Matrouh governorate is about 212,112 km^2 (about 21% of Egypt's area) of which 3921.40 km^2 only is the total populated area. This area ranked the second largest Governorate in Egypt. The Governorate is characterized by a very low population density (population density of about 1.6 people per km^2). Matrouh is the western gate of Egypt, a transit for travellers from East to West and the connective point between the countries of northern Africa and Asia continent. The north – western coast itself was used as a farm during the Greek and Roman eras where the cistern and Roman wells were used for irrigation.

1.1.2. Markazes

Administratively, Matrouh Governorate is divided into 8 districts or centers each of them is known as "Markaz". These are from east to west: El-Hammam, Al Alamein, El-Dabaa, Matrouh, Siwa, El Negeela, Sidi Barani, and El-Salloum (Figure 2) and (Table 1), also it comprises 8 cities, 43 villages, and 182 subvillages (kafr).

Figure 1 - Location of Matrouh governorate in Egypt

Source: (IDSC) Matrouh Governorate

Figure 2 - Matrouh governorate eight localities

Source: (IDSC) Matrouh Governorate

Table 1 - Distance from Marsa Matrouh

Salloum 215 km	Marsa Matrouh	El Hammam 226 km
Sidi Barani 136 km		El Dabaa 133 km
Negeela 75 km	Siwa 306 km	Al Alamein 104 km

1.1.3. Morphology and topography

Matrouh governorate can be morphologically divided into five sectors.

- Coastal area

  It is a plain paralleled to the Mediterranean Sea Coast, with 25-60 km width, formed by deposits made by heavy rain.

- Libyan plateau

  It adjoins the plain in the south. It is considered a high surface stretches to Sidra Gulf in the west in Tripoli.

- Qattarah depression

  It extends from the south of Al Alamein at distance 31 km. It is a huge depression in which the Government studies the potential of generating electricity by digging a canal that takes the Mediterranean seawater to the depression, but this project hasn't finished yet because of minefields which hinder a lot of development projects in Matrouh.

- Oases area

  It includes Siwa oasis which is located about 17 m under the sea level. Siwa contains a lot of water springs which are enough for local consumption and provide thousands of Acres with water. Siwa is located at 300 km in the southwest of Marsa Matrouh.

- Great sand sea

  It begins From the Southwest of Matrouh and it is sometimes called the Great Sandsea. The soil of this area is very soft and heavy and extends for thousands of kilometers.

  The topography of the area is of unique features. The area contains different elevated hills varying from 5m to 90m above the sea level.

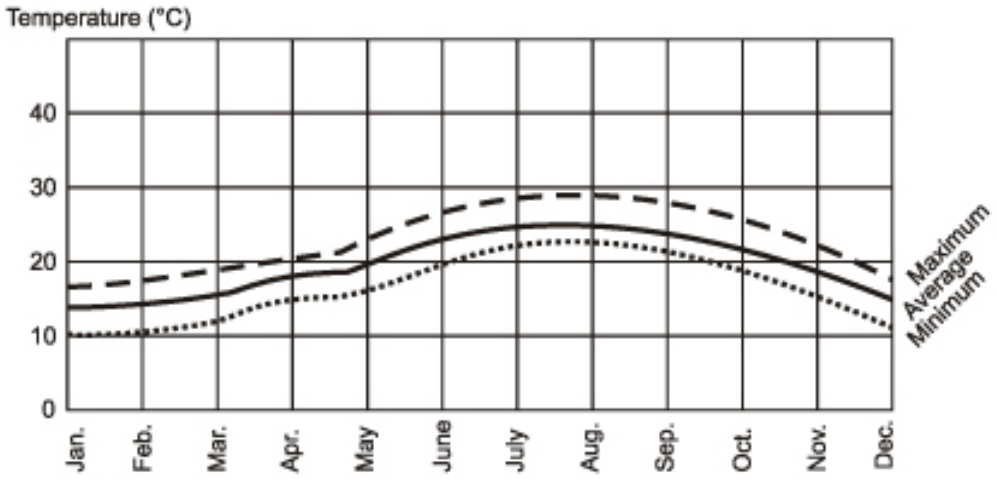
1.1.4. Geology

The geology of Matrouh area is covered by sedimentary rocks that vary from limestone to lime-sandstone and marl. The country rocks belong to the Miocene, Pliocene and Pleistocene age.

1.1.5. Climate

The project area has a semi-arid Mediterranean climate, characterized by a brief, mild, rainy winter and long warm summer months (May to September) of clear sky, high radiation, and no rain. The picture changes in October when a windy and relatively rainy winter begins. The climate is described completely in the following climate parameters.

Figure 3 - Average temperatures in Marsa Matrouh

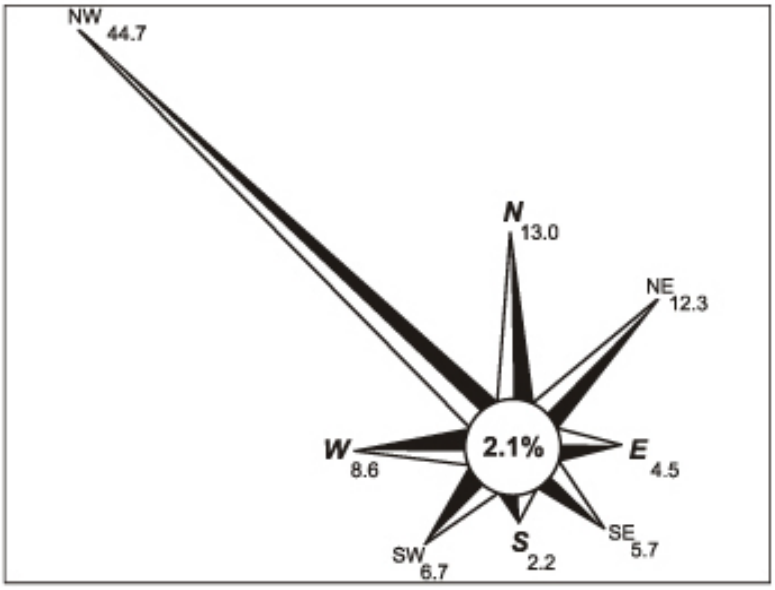


Source: Egyptian General Authority for Meteorology. Figures 1999-2009

- Temperature

The temperature does not exceed 28.5° C in the summer and does not go below 10°C in winter, from June till October where the maximum and minimum average temperature are around 27°C and 21°C respectively.

Figure 4 – Wind directions in Marsa Matrouh



Source: Egyptian General Authority for Meteorology. Figures 1999-2009

- Humidity

  The average humidity percentage is around 61.3% and 75.6% during the year.

- Rain

  The amount of rainfall in the project area is approximately 140 mm/yr. Most of the rainfall occurs in winter with maximum in December (in Marsa Matrouh 38.7 mm) and January. Summer seasons are virtually dry.

1.1.6. Natural resources

- Water

  The area depends mainly on winter rain for irrigation and most of the drinking water.

  In general the underground water is found at the sediments layers. Water generated by shallow well is limited in quantity. It is of deteriorated quality due to its presence in thin layers with low coefficients of permeability and dependence on seasonal rainfall. Underground water can also be found in the limestone layers available under the Fuka basin. It can give a rate of 20 m^3/ hour for some wells with an average quality, which gives approximately 2 million m^3/year, only 72 000 m^3/year are used which gives a special importance for the basin.

  Also, some additional potable water is provided, mainly to the population on the coast, through the water pipeline from the Nile through Alexandria, which extends Matrouh desalination units.

- Flora

  The area has a heavy flora that begins at the coastal zone and extends to the rocky plateau. There are two kinds of flora in this area:

  – The first kind: arks planted with olive, palm tree, wheat depending on rainfall and wells that are randomly distributed.

  – The second kind: parks of coastal plants and herbs.

- Soil

  All the beaches are composed of white, loose carbonate sands, well polished and round moving towards island. The loose carbonate sand gradually changes to fairly consolidate limestone-forming ridges that skirt to coast. The ridges are of marine origin and represent bars and depressions, which separate ridges from lagoons in which alluvial loam deposits are present, mixed with calcareous sand. The depressions that are close to the shore are salt affected, i.e. unsuitable for cultivation. In winter, salt marsh conditions prevail in the low parts of these depressions. Generally; the soil in the beaches – that is affected by salt – are unsuitable for cultivation; opposite to the solid in the wadies and around highways.

- The shore line

  The coastline of this area is of sandy rocks covered by soft sand along the shore, with certain solid rocks headland and sandy beach, with smooth degradation in the area, which gives a good opportunity for tourist development. The shoreline is characterized by the presence of successive bays, formed by rocky headland. This rocky edge decreases in the south.

1.1.7. Population

Results of the 1996 census shows that Matrouh Governorate population was 262 210 inhabitants, and in 2006 was 323 381 and is estimated in 2008 to be 337 399 inhabitants, which gives a population density of about 1.6 person per km^2. About 40% of the total Governorate population are concentrated in Marsa Matrouh City and its hinterland.

The population of the region has certain characteristics that could be summarized as follows:

- High percentage of population under 15 years, and low percentage of working population in the productive age, compared with the national standards.
- Low educational standards, and high illiteracy, which reached 75% of the population.

Neither the number of the population, nor the educational or training conditions, can offer satisfactory economic base considering the vast acreage of the region, a matter that leads to possible in-migration to the region with application of development programs.

Despite the fact of the small size of the population, it should be necessary to depend on local skills in traditional agriculture and husbandry grazing, in trade and commerce. Their long acquired experience will enable them to play an important role in developing and financing different projects.

As for urban / rural distribution, 53% were living in urban areas, while the rest in rural areas.

About 86% of inhabitants are Bedouins.

1.1.8. Labor force

The total actual labor force in the Governorate is estimated to be 85.1 thousands, and total sum of labor is estimated to be 90.6 thousand workers in 2008.

1.1.9. Tribes

Tribal borders are one of the best-known and documented facts in Matrouh. Part of this problem is due to the mobility of Bedouins, particularly within tribal boundaries, especially where a tribe has land in several zones.

1.1.10. Economic activities

- Tourism

  When domestic tourists think of a summer destination, he thinks of Matrouh city, as a quiet coastal city, with many beaches, despite congestion in the summer months.

  There is about 47 hotels with 4 093 rooms (8 186 beds), in the Governorate where 527 611 touristic nights were spent in the governorate hotels in 2009.

- Agriculture

  According to governmental estimation of the agriculture state in Matrouh area the land use for agriculture is about 86 543 feddan, the main crops are wheat and barley. The main problem that faces agriculture is water, as local farmers depend on rainfall, so crops productivity varies according to rainfall.

- Grazing

  Grazing is the main activity for Bedouin. The flocks/herds are estimated at: 555 300 sheep; 313 737 goats; 8 thousand camels. This is in addition to some cattle and donkey breeding. The value of investment on grazing is estimated at 37.5 million Egyptian pounds.

- Handicrafts and agro-Industry

  Women of the region mainly undertake handicrafts and agri-products. To a large extent they depend on agriculture and animal raw materials. The most important of these activities are:

  - Producing handmade carpets, blankets and tents, spinning wool, leather curing, embroidery and sewing; picking olives, drying peppermint, and producing olive oil;
  - Breeding poultry and rabbits.

1.2. Local level / Operational Units Profiles

1.2.1. Matrouh City

Marsa Matrouh is a seaport, summer tourist destination and the capital of Matrouh Governorate, distinguished by its 7 km. long beach.

Figure 5 - Areal View of Matrouh City

Source: (IDSC) Matrouh Governorate

- Transport links

  The city is located about 290 km to the west of Alexandria City and 222 km from Sallum. The distance from Cairo to Matrouh is 524 km. and can be easily reached by the Alexandria-Matrouh Coastal road or by plane through Matrouh International Airport or Burg El Arab Airport in Alexandria.

  Location within the country: The city is located in the north-west of Egypt.

- City area

  Permanent population in the city and its hinterland were 43 157 in 1986 and 52 317 in 1996 and 120 539 in 2006 and were estimated to be 134 960 in 2008, which shows the accelerated growth rate in the last ten years.

1.2.2. Al Alamein

It is a small town in north-western Egypt on the Mediterranean Sea coast in Matrouh Governorate. It is west of Alexandria and northwest of Cairo. Until early eighties it has mainly been a port facility for shipping oil but like the whole north coast of Egypt is now developing as a luxury resort. Two important World War II battles were fought in the area.

Figure 6 - Al Alamein location

Source: (IDSC) Matrouh Governorate

Permanent population of Al Alamein was about 7 397 inhabitant in 2007.

Marina Al Alamein is a tourist village located near the town of Al Alamein in the northern coast of Egypt, with an 11 km long beach. It is about 300 km away from Cairo, is a gated community only accessible to those who live inside. Spanning almost 15 miles, this beach resort is split into eight different sections named Marina 1-7. Limestone villas and chalets and beautiful greenery are what characterize this exclusive part of the Middle East. In the summer of 2005, Porto Marina, one of the hottest hotel/mall destinations in the Middle East was

opened in the center of Marina Village. Porto Marina is characterized by its Venetian canals and exclusive boutiques, and it has a wonderful view over a lake.

1.2.3. Siwa

- Historical background

  The ancient city of Siwa was originally at Aghurmi, where the remains of the two principal temples of the oasis still stand. During the ages, the ancient town suffered greatly for the attack of the Bedouins; many of the latter lived in the oasis where they found pasture, plenty of water and abundant palm trees.

Figure 7 - Overview of Siwa Oasis

Source: (IDSC) Matrouh Governorate

- Geographical features

  Siwa Oasis is the only "Markaz" in Matrouh Governorate which is located in the western desert while the others are on the northern coast, and is located between longitude lines #16

- Boundaries

  The depression of Siwa is stretching between 25° and 16' and 26° 7' east, and 29° 7' and 29° 21' north. Its western boundary begins at al-Maraqi and is eastern at al-Zaytun; the town of Siwa is roughly at the center.

- Transport links

  Siwa Oasis is connected to the surrounding zones by several roads; the most important one is the Siwa-Matrouh road with length 310 kilometers and Siwa - El Saloum road with length 307 kilometers.

Figure 9 - Transport links for Siwa Oasis

Source: (IDSC) Matrouh Governorate

- Water resources

  The water resources in Siwa Oasis is the Nubian water ground reservoir with depth, varying between 2500 and 3000 meters under pressure reaching 75 meter which leads to the bursting of natural springs. The number of wells, springs and streams is about 1,400 spread over an approximate area of 40 thousands cultivatable feddan. The present problem is too much water and not enough drainage.

- Population

  Beside the town of Siwa, in which live the majority of the inhabitants, there are a few villages scattered through the depression, each having a small population. The total inhabitants in the Oasis are about 8,000 inhabitants.

II. Tourism as driving force - Measuring tourism performance

There is a need to analyze the supply and demand of tourism services that are the Driving Force of changes on the operational level, in order to see the characteristics and the "complexity" of tourism activities, and that covers:

- Tourism infrastructures as accommodation, marinas, conference centers, golf, restaurants etc, with the capacity of the infrastructure (number of beds, number of mooring….) and the area occupied, as well as the category of the accommodation.
- General infrastructure necessary for tourism activity as transport, energy, waste and sewage treatment network and its development due to tourism.

Tourist arrivals and nights-spent (per nationality -or at least distinguished in nationals and foreigners- and per type of accommodation) are necessary for the estimation of the intensity of the tourism activity, the duration of the season and the occupancy rate.

The specific objective of this part of the report is to analyse all the tourism sector data in the local units to show how these forces have influenced the evolution of the destination.

1. Tourism infrastructures of the destination

Tourism is considered as one of the driving forces affecting the state of the destination area. The changes are depending on the intensity of the activity and its performances. The intensity can be measured by number, type and size of the tourist infrastructures.

1.1. Tourists attractions

1.1.1. Natural attractions

Matrouh City

- One of the features of the shoreline in Matrouh City is the succession of bays, and due to the above features, the city area is distinguished from other north coastal areas in Egypt. The coastal capes adjacent to the bays are formed by rocky projections.
- Bath Queen Cleopatra located to the west side of the city within short distance of its center, and although it is not suitable for swimming because of the backlog within the rocks but the turquoise waters and the name of Cleopatra attracts many tourists..
- Rommel Marine Cave: after the name German commander Rommel (1891-1944), who served as commander of German troops during World War II, and used to visit the Cave of the bottom surface of a natural mountain near a beach Marsa Matrouh, which turned into a small museum, including some clothing he was wearing military commander and some of his soldiers, and some types of ammunition, weapons and maps, and some furniture warplanes.
- Marsa Matrouh beautiful beaches, universally by all standards, most of them are located in the lap of the high mountains. Other beaches are Love beach with its white sand, Bost, Lido beaches, and others.
- Under water traces of the Second World War mainly sunken ships.

Al Alamein

- Al Omaid Protected Area is located near Al Alamein and stretched 12 km from the coast line. The area is of a considerable scientific interest and touristic potential due to its unique geological and geomorphological features such as coastal sand dunes, sandstone, and rare geological formations and diverse wildlife-fauna, flora, and attractive natural scenery, also the protected area management will establish a desert wildlife park for the re-introduction program of native animals of the coastal area such

as dorcas Gazelle, Slender-Horned Gazelle, African Ostrich and Saharian Cheetah. Al Omaid national park will play a great role for eco-tourism activities of the Alamein area, and offer very marketable element for the Europeans (Figure 10).

Figure 10 - Reintroduction program in Al Omaid Protected Area

Source: (IDSC) Matrouh Governorate

- The battle ground of Al Alamein in October 1942, where the allied forces won a decisive victory that changed the course of history.
- Natural beaches of Porto Marina sub-centers.

Siwa

- These oases are renowned for its beautiful scenery, water springs, irrigated fields and orchards, millions of palm groves, Acacia groves, olive trees, as well as large lakes.
- The sand dunes, water streams, mountains.
- Water springs, where the hot water coming from springs includes ordinary and sulfurous water especially at km no 18 in the way to Matrouh city, hot sand and particular mud used for skin diseases and also for respiratory system.
- Dry climate that helps curing respiratory system diseases.
- Rays in Darkrour Hill attract with its curative characteristics for skin diseases.
- Sand dunes in Siwa Oasis.
- Siwa Natural Reserve which was established according to ministers' council decision 1219 in 2002.

1.1.2. Cultural heritage attractions

Matrouh City

- Archaeological sites to the west of Matrouh like Cleopatra Site 15 km west of Matrouh, including Cleopatra's Bath and the famous Cleopatra's Rock. Also Agiba Site at Um Al-Rakhm about 30 km west of Matrouh, including Roman catacombs. The site is still being excavated.
- The other compelling example, with vast capacity for comprehensive development potentials, is that of the World and Regional Heritage , which lends itself rapidly to fill restoration of function (if not also of form). Whereby, it can recover its past glory as a pilgrimage center of great popularity and attraction throughout the Mediterranean region.
- Sidi Barani archaeological hills and engraved graveyards from Greco- Roman time.

- Abo Lahw: archaeological hills and engraved graveyards, far 4 km west Matrouh.
- Samla area to the east of Matrouh city, an archaeological hill needs more explorations
- Alam El. Room and Hosheema to the east of Matrouh city, an archaeological hill that needs more excavation.

Al Alamein

- The nearest major culture heritage site east of the area is found at the Marina/Alamein some 190-km, from Marsa Matrouh and is still being excavated as it comes under extremely heavy tourist development pressure on all sides.
- Marina Al Alamein- the ancient "Leokathbes" about 100 km west of Alexandria. It is Roman settlement, still being excavated.
- In Mediterranean context, however, the site of "Abu Mena" eminently appears both on the World Heritage List and the list of "100 historic sites of common Mediterranean interest".
- The German, Italian and allies cemeteries were built in 1959 about 3-5 km west of El-Almain town on a high hill called Tell el-Eisa Hill. Cemeteries include 4 280 German victims' bodies and 4 800 victims Italian bodies, beside a signboard stating that 38,000 solider were killed there. They are considered as the most beautiful graveyards, including a little church, a mosque, a memorial hall and a little museum (Figure 11).

Figure 11 - Al Alamein World War II cemeteries

Source: (IDSC) Matrouh Governorate

- The Al Alamein War Museum is located about five kilometers west of the Marina resort. The museum was opened in the year 1956 with some remnants of the second war of weapons used by the Germans and the British, and some of the figures or what is known as Aldiorama, the corresponding proportions tripartite embody some military operations and some of the soldiers and their instruments.
- Wadi El-Halafawi Cemetry: it includes Second World War victims' bodies, for a battle in which Rommel gained a victory.

Siwa

- Old Siwa Oasis is famous for its traditional way of life, traditional architecture and urban character.
- Ancient monuments and archeological sites such as the crowning hall of Alexander the Great during his historic visit to Siwa Oasis, temple ruins having hieroglyphic inscription in the name of king Ramses II in1942. It was built during the reign of the 26th dynasty (Figure 12).

- Siwa also includes the Temple of Jupiter Amun (temple of secrets), the temple of Nectanebo II and Gabal Al-Mawta (Mountain of the Dead).

Figure 12 - Inside of Pharaonic temple in Siwa

Source: (IDSC) Matrouh Governorate

- Freshit Region in the east of Siwa has ruins of olive mills from Greek- Roman age. It is a rock and some archeological hills.
- Karim Region where archeological hills and engraved graveyards still need more explorations.
- Dakrour Hill Area in Siwa_Has two grave yards, date back to Ancient Egypt
- Hill of the Dead has many engraved grave yards, four of them have colored views, which are: S.Amoun, Brbatohouto, Asis & crocodile; S.Amoun graveyard has more drawings.
- Abou Shrouf with its large graveyard, from Greco- Roman time, having stone hill in the middle.
- Abou Markeek archeological hill needs more explorations.
- Al Matareeh archeological hill needs more excavation.

1.2. Accommodation

1.2.1. Matrouh city

During the last two decades, Matrouh as tourist destination has adopted an aggressive approach and has succeeded in making itself as one of the largest prime Egyptian destinations. A wide range of modern day tourist attractions can he found in Marsa Matruh city (Figure 13).

Figure 13 - Matrouh city beaches

Source: (IDSC) Matrouh Governorate

The area has started a new drive in tourism promotion in Matrouh city after the late eighties. It has been setting up its tourism infrastructure. The existing hotel capacity of Marsa Matruh city represents nearly 60% of the hotel rooms in the northern coast of Egypt. It depends mainly on domestic and group tourism from Europe (brought mainly by "Travco/TUI" group of tour operators especially after the building of Almaza Hotels). Now Matrouh Governorate booming hotel industry crossed a major milestone by hosting more than 450 thousands guests/nights at 25 hotels (with nearly 2,500 rooms) and recording 50 Million US Dollars revenues in the year 2009. The study area is currently expanding its hotel capacity, and over 5,000 new hotel rooms are expected to be constructed during the next five years (Egyptian Ministry of Tourism 2009). In 2009, the total number of operating hotel rooms in the study area was 2466 compared with 1,120 rooms in 1996 and is expected to duplicate the existing room capacity by 2017 (Ministry of Tourism 2006), (Figure 14 and Table 2).

Figure 14 - Carlos Beau Rivage Hotel, Matrouh City

Source: (IDSC) Matrouh Governorate

From the other hand the construction within real estate sector continues to witness a boom as multi-million dollar developments including mega tourism projects, resorts, tourist apartments, and shopping malls are being built along the coastal area of Matrouh city. Marsa Matruh city is galloping ahead on its competitive track and positioning itself at the forefront of leading local destinations. The tourism pattern in Matrouh city is depending extensively on the market of secondary housing units for domestic tourists especially from Cairo and Alexandria. This market stretches along the shoreline from Alam El-Rum in the east to Agiba in the west Matrouh.

Table 2 - No. of hotels and rooms in Matrouh City in 2009

1	Jaz Almaza Beach*	395	5 stars	37 km. East
2	Jaz Crystal*	263	5 stars	37 km. East
3	Sol y Mar Almaza Beach Resort*	212	5 stars	37 km. East
4	Cleopatra San Giovanni	67	5 stars	Cleopatra beach
5	Arouss el bahr hotel	54	3 stars	Town Centre
6	Beach house hotel	32	3 stars	Town Centre
7	Beau site hotel	66	3 stars	Town Centre
8	Carlos Beaurivage hotel (Figure 14)	184	3 stars	Town Centre
9	Honey Moon hotel	36	3 stars	Town Centre
10	Maimi hotel	187	3 stars	Town Centre
11	Negresco hotel	79	3 stars	Town Centre
12	New Royal Palace hotel	93	3 stars	Town Centre
13	Riviera Palace hotel	30	3 stars	Town Centre
14	El Kaser hotel	60	2 stars	Town Centre
15	El Lido hotel	40	2 stars	Town Centre
16	El Madifa hotel	42	2 stars	Town Centre
17	New Lido hotel	38	2 stars	Town Centre
18	Rady hotel	72	2 stars	Town Centre
19	Reem hotel	59	2 stars	Town Centre
20	Romel House hotel	60	2 stars	Town Centre
21	Santa Monica hotel	148	2 stars	19 km. East
22	Adriatica hotel	55	1 star	Town Centre
23	Disney Beach hotel	62	Under class.	48 km. East
24	New Beau Site hotel	88	Under class.	Town Centre
25	Saint Mary hotel	44	Under class.	Town Centre
	Total	2466		

Source: The Egyptian hotel guide 2008/2009

* The group of hotels of Almaza started by Jaz Almaza Beach in 2005 (owned by (Travco/TUI) Group.

1.2.2. Al Alamein

Tourism growth in Al Alamein Passed through three phases, Phase 1 started from the fifties with the preparations of the Cemeteries and opening of the Museum and the visitors in this phase were mainly the families of buried soldiers in the Second World War and some of them used the facilities of Al Alamein hotel which was built by the government in the early 1960's. Phase 2 started with the buildings of Marina Al Alamein real estate development in the eighties by the government and the new added visitors to the area were mainly domestic tourists coming during summer to stay in their owned villas, chalets, or apartments in the new development. Phase 3 Started with the building Porto Marina hotel and Charm Life hotel in early 2000's, and the visitors in this phase were diversified (Table 3 and Figure 15).

Table 3 - No. of hotels and rooms in Al Alamein in 2009

1	Charm Life hotel	295	5 stars	km. 140 Alex-Matrouh Road
2	Porto Marina hotel	300	5 stars	Marina Al Alamein Village
3	Aida Beach hotel	162	4 stars	km. 77 Alex-Matrouh Road
4	Al Alamein hotel	113	4 stars	Sidi Abdel Rahman
5	Atic hotel	62	2 stars	km. 89 Alex-Matrouh Road
6	Ocean Blue hotel	30	Under class.	Marina Al Alamein Village
	Total	962		

Source: The Egyptian hotel guide 2008/2009

Figure 15 - Porto Marina Hotel

Source: (IDSC) Matrouh Governorate

With the building of Porto Marina Hotel in 2000's Marina Tourist Village became one of the most prestigious beach resorts in Egypt , particularly for domestic tourism, it extends east-west for about 3 kilometers along the shore, but as the site of this development was partly covering old antiquity remains, work crews unearthed a major Greek and Roman seaport. The site, located about six kilometers east of Al Alamein town, is supposed to covers a three kilometer (1.8 mile) stretch of beach that contains a town with Roman villas, two churches and a large cemetery with Hellenistic tombs and catacombs.

1.2.3. Siwa

Siwa tourism development witnessed two phases. Phase 1, in which all of the hotels were 1-2 stars in down town of Siwa with number of rooms which does not exceed 25 rooms per hotel and in these phase the visitors were small group coming to Siwa for adventure or cultural tourism. Phase 2 started in the 2000's with the opening of Adrere Amellal hotel which was a genuine eco-lodge rebuilt from using the remains of a group of old Siwi houses with the remains of old Siwi group of houses (Table 4 and Figure 16).

Table 4 - No. of hotels and rooms in Siwa in 2009

1	Adrere Amellal hotel*	35	3 stars	Maraki Village
2	Siwa Safari Paradise*	90	2 stars	Town Centre
3	Arrous Al-Waha	23	2 stars	Town Centre
4	Cleopatra	21	2 stars	Town Centre
5	Al Nakheel	17	2 stars	Town Centre
6	Amoun	16	2 stars	Town Centre
7	Youssef	10	1 stars	Town Centre
8	Almadina	14	1 stars	Town Centre
9	Badawy	6	1 stars	Town Centre
10	Siwa Shali Resort*	99	Under class.	Gabl El Dakrour
11	Taghaghien Island hotel*	30	Under class.	Taghaghien Island
	Total	361		

Source: The Egyptian hotel guide 2008/2009. * Hotels built in the 2000's.

Figure 16 - Adrere Amellal hotel

Source: (IDSC) Matrouh Governorate

From the Table 4 we can indicate the following trends:

- Offers a diverse range of tours, each emphasizing a specific aspect of the safari experience (History and Archaeology, nature and landscape, wildlife, physical challenges) marketable to a wide range of target audience.
- Starting from the 2000's tourists, especially Europeans and Arabs are willing to pay high prices for a high level of services and the unique local characteristics has to be presented in these packages especially as in Aderar Amellal ecolodge.
- Based on the rich cultural and natural resources of the region, tourism is emerging as a key sector of the local economy. Some privately owned hotels offer a total capacity of 361 rooms and several new facilities are under construction. Some cultural and nature-based eco-tourism services are being developed; spearheading private investment in what may become one of the leading and most flourishing sectors of the Siwan economy of the future.

1.2.4. Trends in hotels growth in Matrouh Governorate

Reviewing the available statistics growth breakdown of hotels beds growth in Matrouh Governorate in the years between 2000 to 2008, we can recognize that after a negative growth rate from 1998 till 1999, the number of beds witnessed positive but declining beds Av. annual growth rate (declining from +10 to 0 growth rate) from 2000 till 2006. But in 2008, the beds Av. annual growth rate reached +9 which indicates the effect of the new group hotels of Almaza owned by Travco/TUI group of tour operators, which started operation gradually from 2006 and is still growing in numbers of beds (Table 5).

Table 5 - Breakdown of hotels growth - Matrouh Governorate (2000 - 2008)

1998	28	2 266	4 597	-
1999	27	2 223	4 411	- 4
2000	26	2 433	4 866	+ 10
2001	27	2 525	5 050	+ 4
2005	32	2 589	5 178	+ 1
2006	32	2 589	5 178	0
2008	47	4 093	8 186	+ 29

Source: Egyptian Ministry of Tourism – Tourism in Figures for different years from 1998 to 2008.

1.3. Tourist infrastructure

In the study area, shopping malls, luxury hotels, residential properties are continuously being built. Major infrastructure facilities have been improved and implemented to serve the tourism growth in the study area including extensive cultural and leisure centers, together with the wonderfully engineered Marsa Matruh avenue which offers on the evening hours many kilometers of risk-free walking, cycling, jogging and roller-blading along the seashore of Matrouh.

1.3.1. Entertainment facilities

Matrouh City

Entertainment and amusement facilities in Matrouh can be summarized according to their types like theatres, cinemas and circus etc., beside other entertainment for summer visitors like riding "Carts", which was in past the only transportation means before taxis, also Caretas, and Toftof (special kind of Carts) is wanders of the seafront road as entertainment and amusement means. There are many shops for renting bicycles as well.

Entertainment and cultural facilities include also cafeterias, theatres, green areas and gardens, the following facilities had been identified:

- 6 Cinemas including New Matrouh Cinema, Culture Palace, Summer Matrouh Cinema, El-Ghazala Cinema, El-salam Cinema & El-Fayrouz Cinema.
- Theatres which includes Summer Theatre, Culture Theatre, Child Theatre.
- 5 tourists Cafeterias: Fast break, Bon Appetite, New Romel, Andalus , El-Awam. Beside 25 local food small cafeterias for the local inhabitants.
- Entertainment places: Circus, Apidos, Bedouin Tent, Mubarak Social Club, Child club, garden and public gardens spreading in the city.
- Organized “Desert Rally”.

- 6 diving club equipped. (Tourists can dive to see traces of Second World War which are 32 ships from kilometer 61west of Alexandria to Al-Salloom).
- 9 culture centres in the city.
- 9 public libraries, 2 specialized libraries, and one academic library.
- 21 Sports courts.

Al Alamein

Al Alamein entertainment facilities are mainly connected to Porto Marina complex, while cultural facilities are connected to Al Alamein town and these both types of facilities include the following:

- Porto Marina with a capacity of 100 berthing facility.
- Golf Course with 9 holes capacity (Porto Marina sub-center).
- 5 exclusive spas and wellness centre (Porto Marina sub-center).
- Children's play grounds and aqua park. (Porto Marina sub-center).
- 10 Sports courts (Porto Marina sub-center).
- 50 different Shops (Porto Marina sub-center).
- 2 big food courts with 20 restaurant and coffee shops (Porto Marina sub-center).
- Dancing fountain show (Porto Marina sub-center).
- Second World War Museum (Al Alamein Town).
- Culture Center (Al Alamein Town).
- 3 Local food restaurants (Al Alamein Town).

Siwa

Siwa entertainment and cultural facilities are characteristics are little bit different from those of Matrouh and Al Alamein includes:

- 1 folklore museum.
- 20 Bazaars for local handicraft.
- 5 Desert Safari Center, organizing daily tours with short visits to neighbouring Oases such as Sitra, El Arag, El Bahria, Nwemsa, Tabaghbagh, etc, on desert tracks.
- Traditional Spas where the body is buried in sand, and under the sun, the cure of diseases rheumatism.
- 5 Tourist restaurants.
- 2 Sports courts.

1.3.2. Accessibility services

Matrouh City and Al Alamein

They have airports capable of accepting all size aircraft, but so far services only domestic traffic. In 2006, Marsa Matruh airport and Al Alamein received 41,613 and 17,723 passengers respectively to be compared with 18,921 in 2003 (Ministry of aviation 2006). In the last four years, the Airport has seen upgrading and several new facilities operated, including the construction of the new terminal. The existing airport of Marsa Matruh is planning to be expanded to more than double its size to handle 100,000 passengers per year (Table 6).

Table 6 - Air traffic at Matrouh and Al Alamein Airports (flights & passengers) 2003-2006

	2003	2004	2005	2006	Change % (2005-2006)
Al Alamein	0	0	229	17 723	7 639
Matrouh	18 921	19 285	20 665	41 631	102

Source: Egyptian Ministry of Aviation

Domestic tourists (90% of the tourists received by Matrouh) arrive to the area by railroad or by the main highway. International tourists arrive by flights via Alexandria or Cairo. If the area is to develop for international tourism, technical conditions of Matrouh airport ought to be improved.

Sea access is also available as there is different Cruise ships coming from Alexandria to the area as examples Princess Cruise, Oceanic Cruise , Crystal Cruise which take full day - from Alexandria to Al Alamein: Tour duration from 9:00 am to 3:00 pm. Table 6 indicates air traffic at Matrouh and Alamein Airports (Flights & Passengers) 2003-2006.

Siwa

Siwa can be reached by travelling over paved road from Marsa Matruh in about four hours. Where Siwa is reached by paved desert road of the 300 km from Bahariya oasis, it can also be reached from the east. Desert "adventure" excursions for tourists occasionally make the trip off-road. Regardless, a permit to visit Siwa must first be obtained at either Cairo or Marsa Matruh. There is an airfield 40 km north of Siwa and a helicopter landing terrace only 10 km away. These are under military control, but there is a possibility that they could be used for charter flights with military's permission.

The challenge for the study area is to retain its appeal to investors and tourists as not just an attractive place to visit, but also as a cost-effective location. There is no doubt that demand outstrips supply but there is the looming question on the minds of many people in the industry "How long can the area continue its rate of tourism expansion?"

1.3.3. General infrastructure

Roads: Total road length paved roads 801.4 km, international roads 749 km, regional roads 474 km. Railroads Alexandria-Matrouh railroad.

Water

Three possible sources of water are available: surface water, groundwater and water from other facilities:

- Surface water: The surface water in the area is very limited in magnitude as it originates from the rainfall of the winter season. Most water harvests are concentrated in northern part. Runoff is possible after rather heavy rains, and a considerable amount of water may percolate to deeper soil layers. The main elements of water balance of the project area are rainfall as input and evaporation, runoff recharge to groundwater and change to soil moisture storage as output.
- Groundwater: The main groundwater source is the Nubian sandstone aquifer; it extends to the north of Qattara Depression. In Fuka region, there is also a trapped groundwater aquifer from which water is extracted through hand dug or drilled wells, and is used for irrigation of orchards. A minimum safe yield from Fuka aquifer is estimated to be 5,000m^3/day. Salinity is low and ranges from 2,000 to 3,000 PPM. The groundwater suitable for agriculture and domestic uses occurs in relatively shallow non-artesian aquifers or in small shallow semi-perched aquifers with slight artesian pressure. The non-artesian aquifers in the coastal plain found in near land surface, are recharged directly by rainfall and the infiltration of surface runoff. The quality of the water in the several aquifers in the area varies widely according to seasons. The best quality is found in winter and the worst in autumn. Also the water contains about 20,000 ppm of solid matters, which reduces water quality.

- Currently, an estimated 434,700 m^3 per month of water in winter and 453,300 m^3 per month in summer is supplied to the Governorate via the pipeline system, train and desalination plants for areas west of and including Al Alamein. While the rural population relies mainly on cisterns for drinking and on galleries for washing, the water resources for the main population centers come from outside.

Sewage collection and treatment

Tourist villages along the coastline in Al Alamein do not have any sewage systems or treatment plants. Sewage is collected in septic tanks and it percolates though sand and likely to reach the beach. Septic tanks are used in Matrouh city and Siwa too. The waste water for the population in towns is discharged directly into creeks and practices no sanitary sewage disposal except a few who have private separate units.

Electrical power

The power plants in Matrouh city produce 60 MW, only 20% of which is being utilized. The cables are in poor condition and they cause frequent electricity cut-offs, but there is a plan to replace the present cables. Since there are no central transformers in the City, each building complex has to install its own transformer. The whole system has been connected to the interconnected network. Al Alamein Siwa tourism development depends also on private emergency generators although the governmental cables lines may be available.

Other energy production

All farmers in the area rank shrubs and wood as the primary sources of fuel for cooking and heating. Kerosene is ranked as a secondary source. However, the use of shrubs for cooking and heating contributes to the devastation of the natural vegetative cover, which in turn leads to soil erosion.

Telecommunications

The whole area is served by the radio-link system. There are 8,000 telephone lines in Marsa Matrouh, all of which are already utilized. National authority provides the service.

Post offices

In Matrouh Governorate there are 37 post offices.

2. Tourists demand in a destination

The existing tourism demand in Matrouh City and Al Alamein tends to be seasonal, with a peak period during the summer months between July and August. The majority of visitors are local visitors and the foreign visitors forming a small fraction of the visitations (only 10% of tourist arrivals) and mainly of group tourism. The location of Matrouh city in the northern section of the Governorate makes it one of foremost domestic vacation destinations that offer visitors a memorable experience. Both of the two destinations have the potential to attract a large tourist market and yet, the type of tourism that the study area currently receives is not fulfilling this potential.

Both of the Matrouh City and Marina Al Alamein has emerged in the years as a domestic tourism hub attracting visitors from all over Egypt. According to statistics of the Ministry of Tourism 2005, The total tourist arrivals (Residents of hotels) was 106,144 Hotel Residents in 2005, up by an increase of about 200% of the year 2000 (counted 55,207) in ten years, and in 2009 it reached 154,697 tourists (Residents) an increase of about 46% of the year 2005 (Table 7). The average length of stay jumped 30% to reach 7 days. The total room nights are more than 527,611 in 2009, against 310,577 in 2005, and against 187,071 in 2000 (Table 7). The average daily rate for 3 to 5 stars hotel along the study area is 60-90 US dollars, to be compared with 80-120 US dollars in Alexandria. The room rates are variable from sea side to down town hotels. The room rates for five stars hotels range from $ 80 to 90 per night.

Overall, tourism trends in the project area can be summarized as follows: about 85% can be defined as the sun-and-beach tourism (coastal belt).

Cultural, health, business, and recreation tourism (10%) and the rest (5%) is for adventure and eco- tourism. One of the measures for the tourism performance is always referring to the following indicators:

- Tour Operators' involvement: they started to be involved with the introduction of the Travco/TUI tour operators since 2005/2006.
- The role of second home vacations: it is steadily growing since the late seventies and its capacity exceeded the hotel capacity with a rate of about 10 to 1.

Table 7 - Matrouh governorate - Hotels residents and tourist nights (1999 - 2009)

Year / Month	1999		2000		2001		2005		2009	
	Resident	Nights	Resident	Nights	Resident	Nights	Resident	Nights	Resident	Nights
January	1480	3372	1227	3142	5116	7193	1841	3237	2477	5123
February	1444	3860	1362	3231	5081	6869	1715	2749	2401	3801
March	2562	6378	1976	4134	5601	7734	3317	6671	4644	9439
April	2616	5994	3150	5992	6634	8572	3828	6471	5359	9159
May	2062	5381	2423	5194	5371	7562	4350	8304	6090	11957
June	3334	10424	4379	10147	12251	15224	8733	25899	12576	38331
July	22885	83627	13359	49847	19674	74709	25834	85441	38234	128168
August	23241	84681	14886	73506	27044	95979	35467	109550	52491	204325
September	7685	32827	5854	18266	17272	26185	11951	45409	17209	65389
October	3149	6450	2640	6079	6327	12261	2722	5143	3920	7802
November	214	5827	2575	5138	4068	5345	3969	7493	5715	10490
December	1185	3263	1376	2395	3466	4669	2417	4218	3481	6105
Total	73787	252084	55207	187071	117905	272302	106144	310577	154697	527611

Source: Egyptian Ministry of Tourism - Tourism in Figures (different years)

Visitors to the city of Matrouh and Al Alamein are defined mainly as Egyptian and Arab visitors. The Egyptian and Arab families prefer to spend holidays in the residential units that may give them privacy comparing with hotel accommodation. Over the last years, both of Matrouh city and Marina Al Alamein has been considered one of the most Prestigious areas in Egypt for domestic tourism, it has the second rank after Alexandria in the list of the preference areas for the local and domestic tourism, with a percent of nearly 31% of the total for such segment of the market.

As the City was depending mainly on the local tourism the most preferred types of accommodation was the free hold ownership system for flats, chalets, and villas (Figure 17); yet in the last period which witnessed an increase in the demand and the introduction of sea and beaches international group type of tourists, the accommodation preference for the Egyptians and Arabs began to include a new preference for the hotel accommodation. Also the tour operators started to diversify their programs to attract a part of the international tourist segments of the markets interested in the culture tourism in Al Alamein, the desert tourism in Siwa and yachting tourism in Porto Marina Al Alamein.

Figure 17 - Some tourist house types in Matrouh City

Source (IDSC) Matrouh Governorate

2.1. Seasonality

It is critically important to accurately define the seasons of operation in Matrouh Governorates and its tourist destinations. The tourist seasons are normally defined as a high, low, and shoulder season. The high season comprises the months during which the number of tourists and visitors of the destination reach its maximum. While the low season comprises the months during which the number of tourists and visitors of the destination reach its minimum. And the shoulder seasons are defined as brief time periods in which a specific tourist market may be attracted to the region. The duration of the seasons has a direct effect upon the investor's decision to invest in the destination and to expect positive return for his investment. Obviously, extending the high season maximize the efficiency of tourism facilities and contribute to the increase of the return on investment.

2.1.1. Matrouh City and Alamein

High season

The high season in Matrouh City and Al Alamein extends from June to the first week of September. The zenith of the high season begins in July and August because of the favourable weather conditions.

The high season for water based recreational activities could conceivably extended for another two months, Currently, the high season for water based activities is approximately from June through August. However, as the water based activities and facilities at the sea side become operational and integrated with other tourism activities in the study area, the water based recreation season will most probably lengthen in duration.

Low season

As a result of the cold temperature during the winter months, mid-November through mid-February, it would be cold to conduct tours through the study area. The ambient temperature in the study area depression average 15 to 5°C during late December through February. The cold temperature in winter makes it difficult for the sea side activities.

Shoulder season

The very brief shoulder seasons would be springtime, defined as approximately mid- April through mid-May, and early autumn, defined as late-September through October.

2.1.2. Siwa Oasis

High season

The high season in Siwa would extend from November to the first week of March. The most popular months for tourism in Siwa have historically been December and January because of the favourable weather conditions.

Low season

As a result of the hot temperature during the summer months, First-May through mid-September, it would be hot to conduct tours through the desert areas around Siwa. The ambient temperature in Siwa depression average 40 to 45°C during late July through August.

Shoulder season

The very brief shoulder seasons would be springtime, defined as approximately Mid March through mid-April, and early autumn, defined as late-September through October.

2.2. Demand characteristics

We can brief the major demand characteristics in each destination as in Table 8 that follows:

Table 8 - Main markets according to tourist nationalities in 2009

Domestic Market/ Egyptian	75
Arab Market	15
International Market / Germans, Italians, and Russians	10

Source: Personal meetings with hotel operators in Matrouh city, Al Alamein, and Siwa

Most of the Tourism flow to Matrouh City and Porto Marina in Al Alamein are for Sun, Sand, and Sea for groups of International Tourists and local /Domestic Tourists.

Business and transit tourism represent in Marsa Matrouh about 5% of the total incoming tourism as a result of the adjacency to Libya.

For the Al Alamein Town Most of the international tourists and local/ Domestic Tourists comes for visiting the World War two Cemeteries and the Museum of the Battles of Al Alamein during the World War two.

For Siwa Oasis comes the eco-friendly, adventure oriented, health and curative, and cultural oriented tourism, whether from International or local/ Domestic origins.

2.2.1. Tourist demand according to nationalities

As to the to the overall distribution of demand for Matrouh Governorate, the share of the three main markets according to tourist nationalities is estimated as follows in 2009 (Table 8).

Compared to characteristics of tourist markets for Egypt as a whole, one should note that Matrouh Governorate differs considerably in comparison with other tourist regions of the country with regard to the market segment it attracts. International / western market tourism demand is limited in Matrouh as compared to other tourist areas of the country, which attract considerable foreign / western market segments, either of the "traditional" type (visiting historical/cultural attractions in Cairo, Luxor and Aswan), or of the "sun and beach charter" type, visiting the Coastal resorts in the Red-Sea and the Gulf of Aqaba.

3. Economic performance of tourist activities in Matrouh Governorate

3.1. Tourist expenditures

In the last decade the Central Bank of Egypt in Cooperation with the Egyptian Ministry of Tourism Estimated the average tourists expenditure in Egypt as a fixed average rate of 140$ per tourist per night, this national average rate varies between the different tourist regions and destinations with the highest tourist expenditures in old mature destinations and big cities like Cairo and Alexandria where the tourism products and offers are diversified and the lowest expenditure are in newly emerging tourist destinations which still depend in mono tourism product. For Matrouh it is expected to be within the national average rate of 140$ per tourist per night taken into consideration that although it is still far from being a mature tourists destination and its cities are relatively small cities and towns, but in the same time it is not a new one as you can trace tourism in the area back to the late 1940's. Table 9 shows the growth of tourist expenditures in the last decade according to this rate.

Table 9 - Growth of tourist expenditures in Matrouh from 1999 till 2009 (in million $)

	1999	2000	2001	2005	2009
	35.3	26.2	38.1	43.5	73.9

Source: The Central Bank of Egypt

From this table we can understand that the growth of the income generated from tourism in Matrouh Governorate witnessed higher rates starting from 2005 the year which introduced the group tourism to Matrouh through the starting of the new hotels of Almaza Bay owned by (Travco/TUI) group of Companies. The socio/economic effects of such expenditures and income on the local population and local community of Matrouh will be analyzed in the following section of the report.

III. Tourism socio-economic and environmental results and performance in the destination

This section of the report, contain different analyses for the performance of the tourism activity within the three pillars of sustainable development: expenditure (economy), employment (society), natural resources consumption and land use changes (environment). The following paragraphs encompass evaluating tourism footprint in three different fields:

- Economic results: tourism expenditure,
- Social results: employment creation and its qualitative characteristics (gender, age, qualification, seasonality),
- Environmental results: land use changes, water and energy consumption, waste disposal.

1. Economic results

This part of the report try to high light the economic effect as represented by the tourism expenditure in the area, the tourist expenditure per capita /per day, and the Composition of Tourists' Expenditure.

1.1. Tourists' expenditure

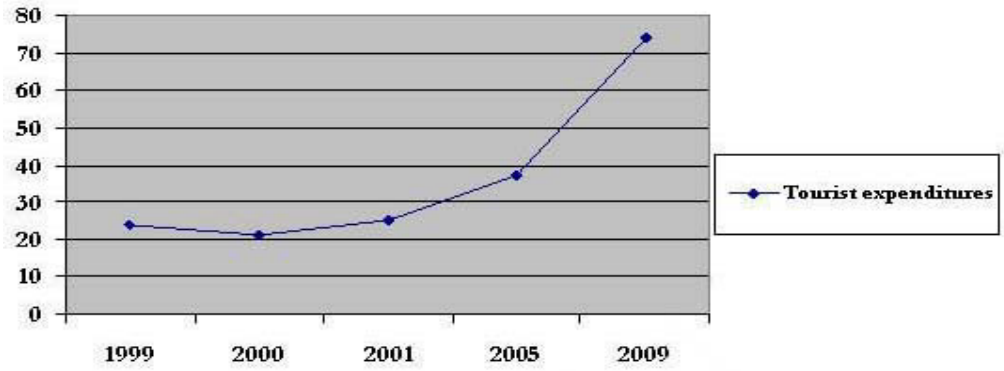
In the last decade the Central Bank of Egypt in Cooperation with the Egyptian Ministry of Tourism Estimated the average tourists expenditure in Egypt as a fixed average rate of 140$ per tourist per night, this national average rate varies between the different tourist regions and destinations with the highest tourist expenditures in old mature destinations and big cities like Cairo and Alexandria where the tourism products and offers are diversified and the lowest expenditure are in newly emerging tourist destinations which still depend in mono tourism product. For Matrouh it is expected to be growing within the national average from 90$ in the 1990's to 140$ per tourist per night in 2009 taken into consideration that although it is still far from being a mature tourists destination and its cities are relatively small cities and towns, but in the same time it is not a new one as you can trace tourism in the area back to the late 1940's.Table 10 and Figure 18 show the growth of tourist expenditures in the last decade according to this rate.

Table 10 - Growth of Tourist Expenditures in Matrouh Governorate from 1999 till 2009 (in million $) (for international tourists)

Tourist expenditures	23.8	21.0	25.0	37	73.9
Average Annual Growth Rate %	-----	- 11.8	+19	+8	+20.6

Source: Ministry of Foreign Trade, Monthly Economic Digest, February 2010

Figure 18 - Growth of Tourist Expenditures in Matrouh Governorate from 1999 till 2009 (in million $)



Source: Ministry of Foreign Trade, Monthly Economic Digest, February 2010

From this table we can understand that the growth of the income generated from tourism in Matrouh Governorate witnessed higher and growth rates starting from 2005, which attributed to the growth in tourists nights, the year 2005 introduced the group and mass tourism to Matrouh through the starting of the new hotels of Almaza Bay owned by (Travco/TUI) group of tour operating Companies. The socio/economic effects of such expenditures and income on the local population and local community of Matrouh will be analyzed in the following Phases of the report.

1.2. Tourist expenditure per capita per night

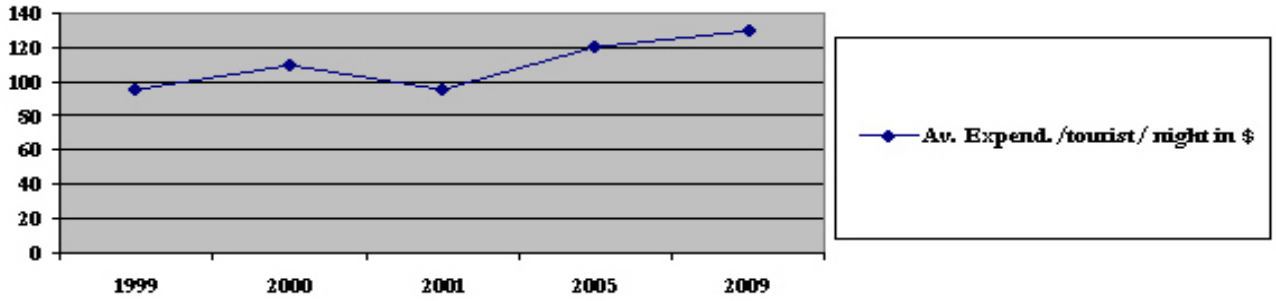
As was mentioned above For Matrouh it is expected to be growing within the national average from 90$ per tourist per night in the 1990's to 130$ per tourist per night in 2009. Table 11 and Figure 19 shows the growth and growth rate of tourist expenditures per capita per night in the last decade according to this rate.

Table 11 - Growth of Tourist Expenditures per capita per night in Matrouh Governorate from 1999 till 2009 (in $) (for international tourists)

Average Expenditure / Per Capita / Per Night ($)	95	110	95	120	130
Growth Rate %	---	16	14	6.5	2.1

Source: Ministry of Foreign Trade, Monthly Economic Digest, February 2010

Figure 19- Growth of Tourist Expenditures per capita per night in Matrouh Governorate from 1999 till 2009 (in $) (for international tourists)



The consultant evaluation of this data is that the most probable tourist expenditure in Matrouh City is 70$ per tourist per night, and for Al Alamein is 120$ per tourist per night, and for Siwa Oasis is 80$ per tourist per night.

1.3. Composition of tourists expenditure

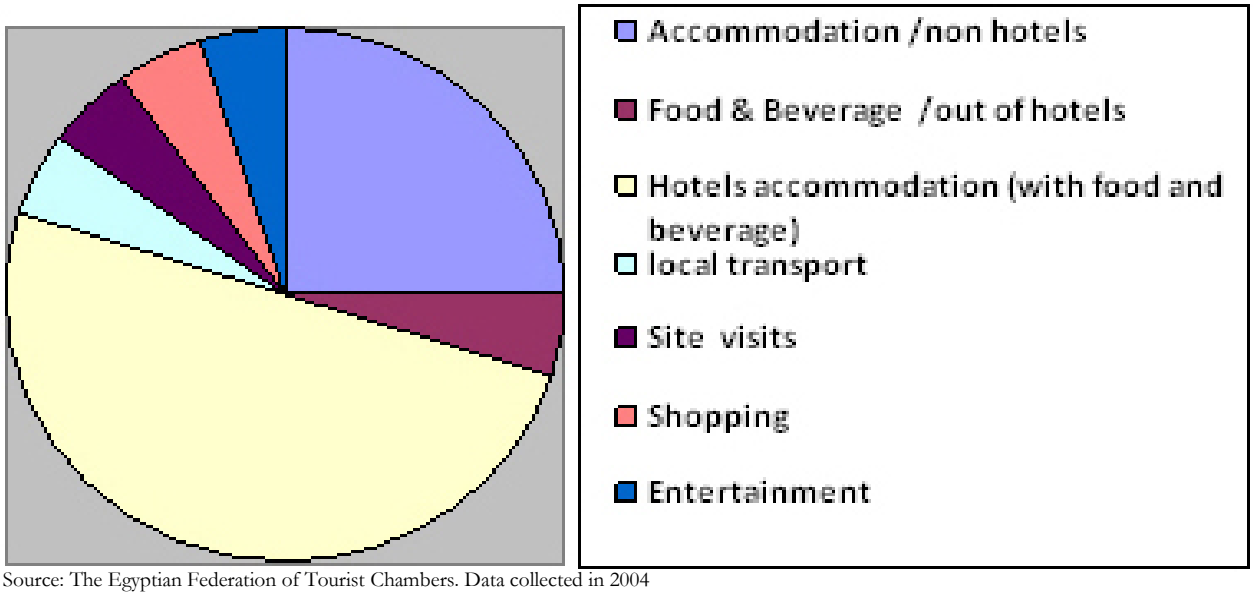
Tourists expenditures in Egypt on a wide range of other goods and services such as, transportation, recreational and cultural activities, and shopping, with Information on tourist average expenditures comes from two sources: (1) the Passport and Immigration Authority, which documents numbers, nationalities, and tourist nights; and (2) The Central Agency for Capital Mobilization and Statistics (CAPMAS), which provides estimates of tourists' expenditure patterns. The latter relies on a sample survey to estimate average tourist expenditures, the distribution of their expenditures on different groups of goods and services, and the distribution of these expenditure patterns by nationality, age group, purpose of visit, and so forth. This study attempts to assess the tourists expenditures in Matrouh Governorate through the analyses of the above mentioned data sources, taking into consideration the characteristics of the chartered flights for the group and mass tourism that comes to Matrouh Governorate. Table 12 and Figure 20 explain the study view of the composition of tourists' expenditure in Matrouh Governorate.

Table 12 - Composition of tourists' expenditure in Matrouh Governorate in 2002 (for domestic and international tourists)

Accommodation / non hotels	25
Food & Beverage / out of hotels	5
Hotels accommodation (with food and beverage)	50
local transport	5
Site visits	5
entertainment	5
shopping	5
total	100

Source: The Egyptian Federation of Tourist Chambers. Data collected in 2004

Figure 20 - Composition of tourists' expenditure in Matrouh Governorate in 2002



Source: The Egyptian Federation of Tourist Chambers. Data collected in 2004

From Table 12 we can see that the big item is spent in hotels and the second homes rents (both represent about 75% of the total expenditures of the tourists in Matrouh Governorate.

2. Social results

2.1. Hotel employment

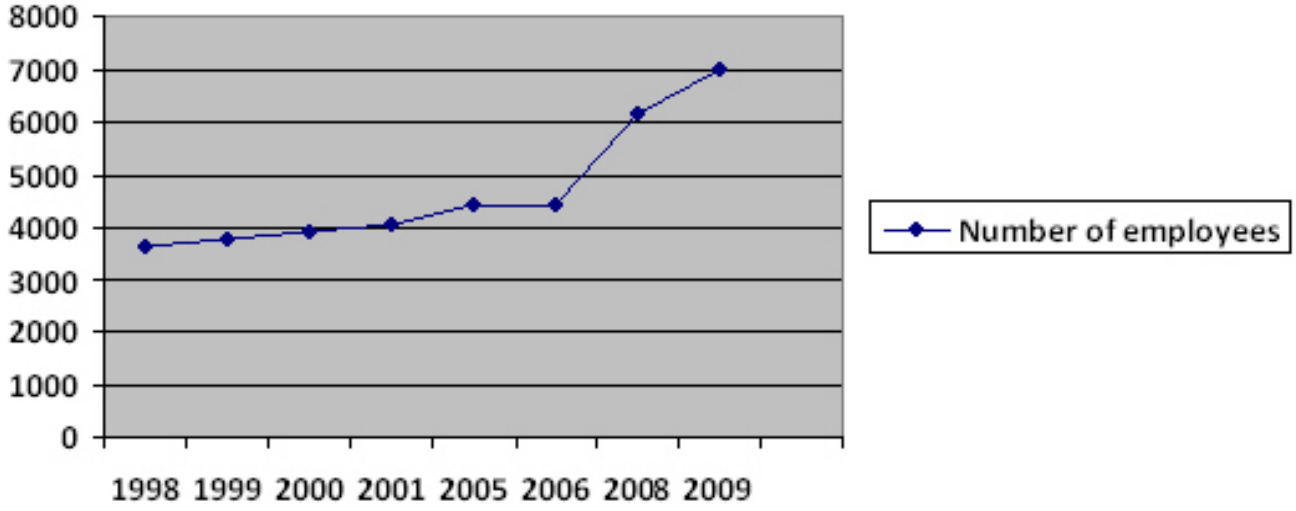
The total actual direct tourist employees in hotels in Matrouh Governorate in 2009 were estimated to be 7,000 employees (see Table 13 and Figure 21), while total sum of tourism sector employees in the governorate is estimated to be 15,826 workers in 2009.

Table 13 - Breakdown of hotels' employees growth - Matrouh Governorate (2000 – 2008)

1998	3 630	-
1999	3 760	+ 4
2000	3 895	+ 4
2001	4 060	+ 4
2005	4 402	+ 8
2006	4 402	0
2008	6 140	+ 39
2009	7 000	+14
Average Annual Growth Rate 1998-2009		+8

Source: Egyptian Ministry of Tourism – Tourism in Figures for different years from 1998 to 2009.

Figure 21 - Hotels' employees growth - Matrouh Governorate (2000 - 2008)



Source: Egyptian Ministry of Tourism – Tourism in Figures for different years from 1998 to 2009.

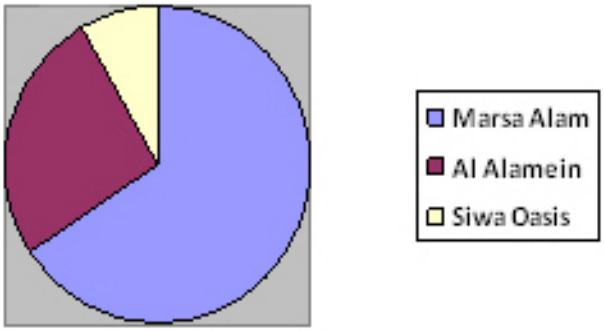
Again from the table and the figure we can identify the years between 2005 and 2009 as the booming years for tourism in the governorate. The above mentioned numbers of employees are distributed between the three destinations (Table 14 and Figure 22).

Table 14 - No. of hotels employees in the three destinations in 2009

Marsa Alam City	4 400
Al Alamein	1 730
Siwa Oasis	550
Total	6 680

Source: The Egyptian hotel guide 2010

Figure 22 - No. of hotels employees in the three destinations in 2009



Source: The Egyptian hotel guide 2010

2.2. Tourism sector direct employment

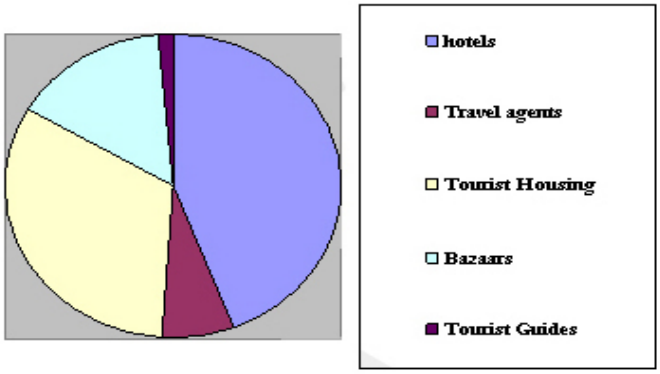
As mentioned earlier the total sum of tourism employees in the governorate is estimated to be 15,826 workers in 2009. This number of workers is distributed between hotels, travel agents, tourist housing, bazaars, and tourist guides as shown in Table 15 and Figure 23.

Table 15 - Tourism Sector Direct Employment in Matrouh Governorate according to Kind of Tourist Establishment in 2009

Employees	7 000	1 092	5 080	2 414	240	15 826
%	44.23	6.9	32.1	15.2	1.5	100

* Source: The Egyptian Federation of Tourist Chambers. Data collected in 2009
** Source: The Egyptian Federation of Tourist Chambers. Data collected in 2004

Figure 23 - Tourism Sector Direct Employment in Matrouh Governorate according to Kind of Tourist Establishment in 2002



Source: The Egyptian Federation of Tourist Chambers.

The tourism sector long-term employment needs for the three destinations are estimated to be 30,000-35,000 persons (qualified employees and seasonal migrants' workers).

2.3. Qualitative characteristics

The previous analyses for the tourism sector employment situation in Matrouh Governorate between 2000 and 2009 was concentrating on the quantitative characteristics of the employees and not their qualitative characteristics which encompass nationality of employees whether local Egyptians or foreigners, their classification according to gender, age, and qualification. These characteristics will be highlighted as follows.

2.3.1. Nationality (Local/Foreigners)

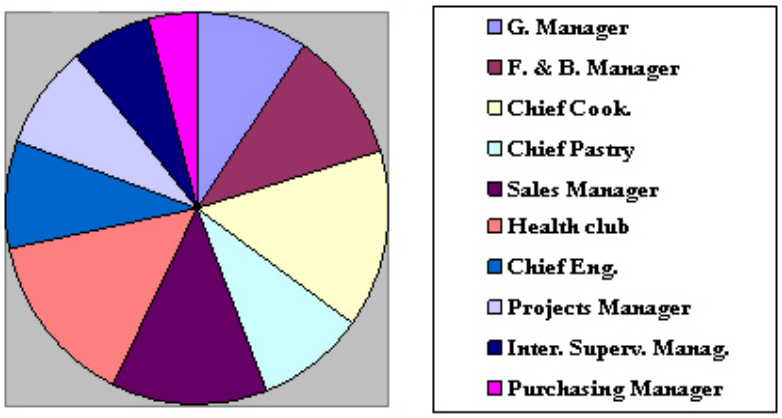
The percentage of the foreigner employees in the tourism sector in Matrouh Governorate in 2009 is still very low compared to their percentage in tourism sector on the national level (estimated to be 2.9%). But the new trend of using foreign employees is starting in the new hotel projects in the Governorate and especially the 5 stars hotels. This foreign employees' percentage are classified according to the jobs (Table 16 and Figure 24).

Table 16 - Percentage of foreign employees in hotels sector in Matrouh Governorate in 2006

General Manager	7.6	9.2
Food and Beverage Manager	8.5	11.9
Chief Cooker	11.7	16.4
Chief Pastry	7.3	7.5
Sales Manager	10.5	17.5
Health club supervisor	11.5	13
Chief Engineer	7.2	5.9
Projects Manager	6.8	8.5
Internal Supervision Manager	5.3	6.7
Purchasing Manager	3.3	5.8

Source: The Egyptian Federation of Tourist Chambers. Data collected in 2009

Figure 24 - Percentage of Foreign Employees in Hotels Sector in Matrouh Governorate in 2006



Source: The Egyptian Federation of Tourist Chambers. Data collected in 2009

Neither the number of the population, nor the educational or training conditions, can offer satisfactory employment flow to the tourism sector in the governorate a matter that leads to possible migration of foreign tourist employees to the region with application of development programs.

2.3.2. Gender and employment

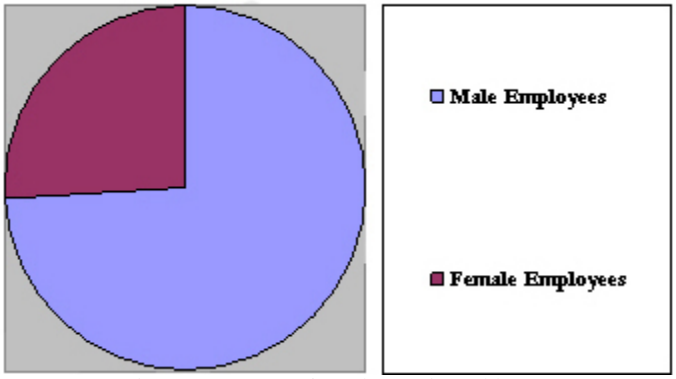
Women formed 26% of the Employees in tourism sector in Matrouh Governorate in 2009 (Table 17 and Figure 25). Women employees occupy 21% of private and 30% of public sector tourist posts in the Governorate.

Table 17 - Tourism Sector Employees by Gender in Matrouh Governorate 2009

11 711	4 115	15 826
74%	26%	100%

Source: Matrouh Governorate, Information and Decision support Center (IDSC)- Data collected in 2010.

Figure 25 - Percentage of Tourism Sector Employees by Gender in Matrouh Governorate 2009



Source: Matrouh Governorate, Information and Decision support Center (IDSC)- Data collected in 2010

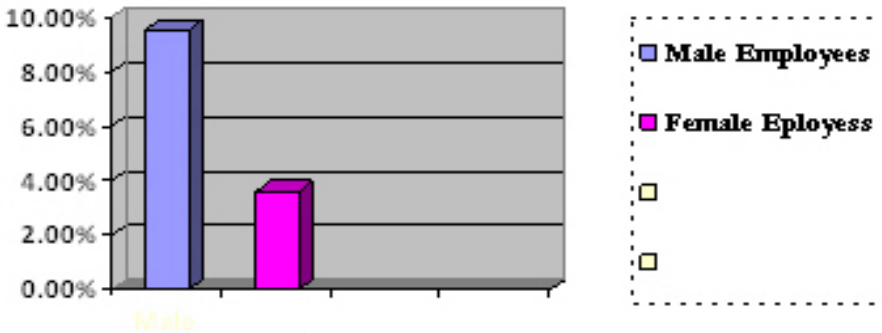
On average, women occupied 35% of the managerial positions in the public agencies and 25% of these positions in the private ones. In private agencies, women held 26% and 20% of the middle and senior management positions, respectively. Women dominated both as employees or middle managers, in the departments that practice office work and were much less present in the operational and ground handling departments. The growth rate of women employees (3.6%) is far less than men employees in the Governorate between years 2001-2008 (Table 18 and Figure 26).

Table 18 - Growth of the Employees in Tourism Sector in Matrouh Governorate by Gender, 2001-2008

9.5%	3.6%	8.0%

Source: Matrouh Governorate, Information and Decision support Center (IDSC)- Data collected in 2009

Figure 26 - Growth of the Employees in Tourism Sector in Matrouh Governorate by Gender, 2001-2008



Source: Matrouh Governorate, Information and Decision support Center (IDSC)- Data collected in 2009

Women's career development in tourism sector is influenced by three groups of closely interrelated overlapping and interacting factors: the personal, organisational and societal factors. Personal factors are divided into two sub-groups as family-related and individual-related. There are five family-related factors (parents' attitude towards unmarried daughters, husbands' attitude towards wives' careers, dual career

demands, work/family conflicts and career interruptions) as well as two individual related factors (work motivation and career choices). Identified organisational factors are initial staffing decisions, promotion decisions, family-friendly arrangements, training opportunities, informal systems of career development and equal opportunity (EO) policies. Societal factors are religious doctrine, social mores, gender stereotypes, legislation, government programs and social change.

2.3.3. Age

In general there is high percentage of population under 15 years, and low percentage of working population in the productive age, in Matrouh Governorate as a whole compared with the national standards. A large percentage of young (under 15 years) population do not contribute to creating a sound economic base at least in the short term, and do not support large tourist inflows. As for the tourism employees there is no available data about age characteristics of employees.

2.3.4. Qualifications

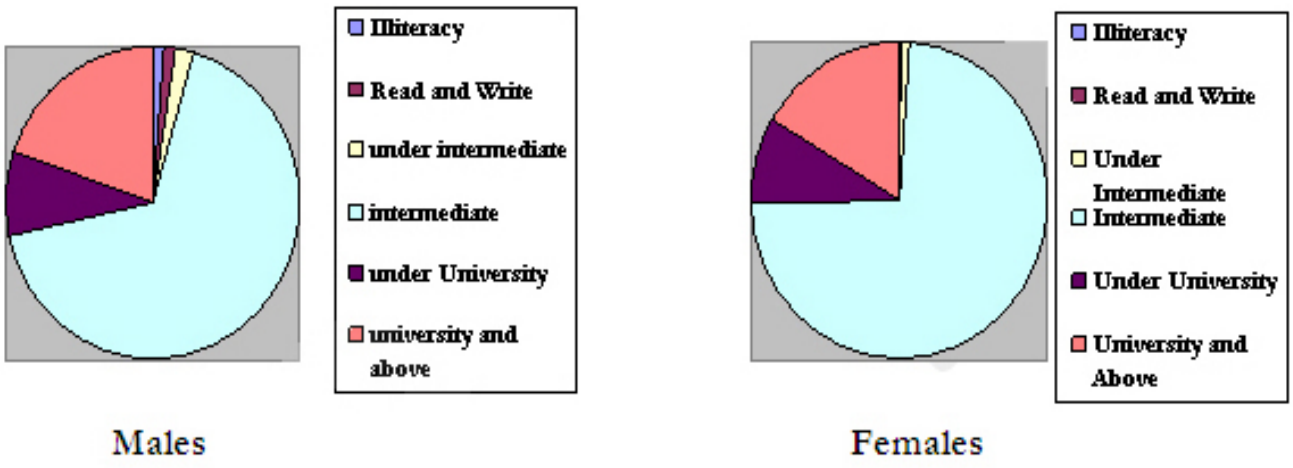
There are low educational/professional standards and high percentages of illiteracy which reached 45% of the total population in the whole of Matrouh Governorate, but for tourism sector the situation is totally different as can be seen from Table 19 and Figure 27. From these table and figure we can see that intermediate education level is the most prevailing in the tourism employees in the Governorate.

Table 19 - Educational status of tourism sector employees in Matrouh Governorate 2008

Illiteracy	1.00	0.15
Read & Write	1.51	0.26
Under intermediate	1.93	0.70
Intermediate	67.23	73.45
Upper intermediate – under Univ.	8.69	8.96
University and above	19.64	16.49
Total	100.00	100.00

Source: Matrouh Governorate, Information and Decision Support Center (IDSC) Data collected in 2009

Figure 27 - Educational status of Tourism sector employees by gender in Matrouh Governorate 2008



Source: Matrouh Governorate, Information and Decision Support Center (IDSC) Data collected in 2009

2.4. Seasonality of employment

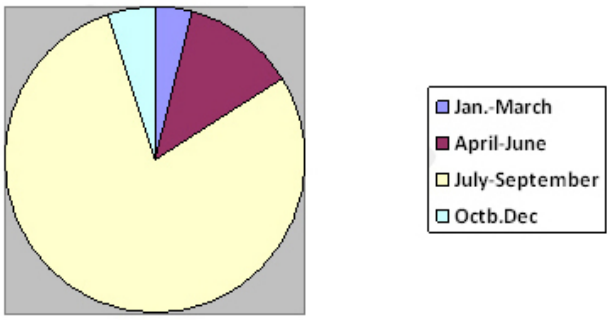
As previously indicated the touristic seasons in Matrouh Governorates are normally defined as a high, low, and shoulder season. The high season comprises the months during which the number of tourists and visitors of the destination reach its maximum. While the low season comprises the months during which the number of tourists and visitors of the destination reach its minimum. And the shoulder seasons are defined as brief time periods in which a specific tourist market may be attracted to the region. The duration of the seasons has a direct effect upon the investor's decision to invest in the destination and to expect positive return for his investment. Obviously, extending the high season maximize the efficiency of tourism facilities and contribute to the increase of the return on investment. Table 20 and Figure 28 indicate the percentage of seasonal variations on the seasonal Hotels employees in Matrouh Governorate.

Table 20 - Percentage of Seasonal Hotels' employees in Matrouh Governorate in year 2009

	5%	7%	7%	4%	4%
	9%	8%	12%	12%	12%
	80%	77%	73%	79%	79%
	6%	8%	8%	5%	5%
	100%	100%	100%	100%	100%

Source: The Egyptian Federation of Tourist Chambers

Figure 28 – Percentage of Seasonal Hotels' employees in Matrouh Governorate in year 2009



Source: The Egyptian Federation of Tourist Chambers

3. Environmental results

The environment pressure provoked by tourism distinguished in permanent (land use changes) and functional (consumption of natural resources as water and energy, production of wastes).

3.1. Urbanization & Land-Use Changes

Land use changes emanating from tourism investment for accommodation, infrastructure, other activities and the artificialisation of the coastal areas are some of the effects that tourist activities leave on the tourists destinations. The government policies for tourist development of Matrouh Governorate depended on the Spatial Clustering Model as an appropriate spatial structure and physical distribution of tourism it was very important factor in attaining sustainable development. Now in 2010 the spatial structure and physical distribution of tourism development in the Matrouh Governorate is based on this model of the spatial clustering which constitutes an intermediate choice between two alternatives: one of over-concentration of tourism, and the other of a complete dispersal of tourism development. But nevertheless the real practice of

development on the local government distribution of land for tourist projects started a ribbon like model along the shoreline between the sea and the parallel regional road connecting Alexandria to Matrouh which created a situation of concentration of projects on the coastal roads, mainly due to easy access and concentration of built up areas.

For main land use types, structure planning, and development some prominent factors (geographic, topographic, climate, soil) have been already mentioned are affected by the current distribution of the main land uses pattern, as well as that of the spatial distribution of urban areas and rural settlements. The existing resources of land, water, and the main connection lines (like the coastal road and the parallel railway line) have greatly affected the land use types of the area, as well as their current sizes and locations.

The main land use types of the area under consideration could be grouped in the following way:

- Agriculture;
- Tourism/leisure/summer holiday;
- Settlements (urban, rural);
- Industry/agro-industry and commerce;
- Infrastructure and Services;
- Coastal areas without any use;
- Undeveloped areas.

However due to the lack of essential (size, quality, etc) fertile land, water, and adequate technologies of use, this area will, no doubt, continue to search for new methods and means for efficient and sustainable land use distribution and economic development opportunities. The region is characterised by a definite pattern of spatial variation showing unorganized land use profile, and consequently, the distribution of income depending on the land nature of the region in combination with variability of climate and physiographic features. However, the land use planning, as it is happening in most cases in Egypt and elsewhere, is carried out at both regional and local levels could be regarded as insufficient, since it is defining basic land use patterns rather than balancing social, market and environmental values.

3.2. Water consumption

Under this heading we are going to analyze Supply/ Demand and identify the shortage or surplus of Water Groundwater: From the supply side we have two sources:

- Groundwater source: where there is three aquifers:
  - The first extends to the north of Qattara depression and is recharged directly by rainfall and the infiltration of surface runoff., this aquifer supply Al Alamein City with water and
  - The second is in Matrouh City region, which is trapped groundwater aquifer from which water is extracted through hand dug or drilled wells. A minimum safe yield from Matrouh aquifer is estimated to be 5,000 m^3/day. Salinity is low and ranges from 2000 to 3000 PPM.
  - The third is in Siwa Oasis region, in two layers from which water is extracted through hand dug or drilled wells. A minimum safe yield from Siwa aquifer is estimated to be 35,000m^3/day. Salinity is low and ranges from 2500 to 3000 PPM.
- Treated water pumped from the Alexandria distribution network into two pipelines running parallel through the Matrouh Governorate. The average capacity of those pipelines is about 12000m^3 in summer. Water is served to customers along the pipeline from Alexandria to Marsa Matrouh. Consequently, additional water is often transferred to Marsa Matrouh via railroad tanker cars and private trucking companies. Most tourism facilities, oil companies, and construction activities that do not have a dependable connection to the pipeline, use the private trucks for water supply.

Currently, an estimated 434,700 m^3 per month of water in winter and 453,300 m^3 per month in summer is supplied to the Governorate via the pipeline system, train and desalination plants for areas west of and including Al Alamein.

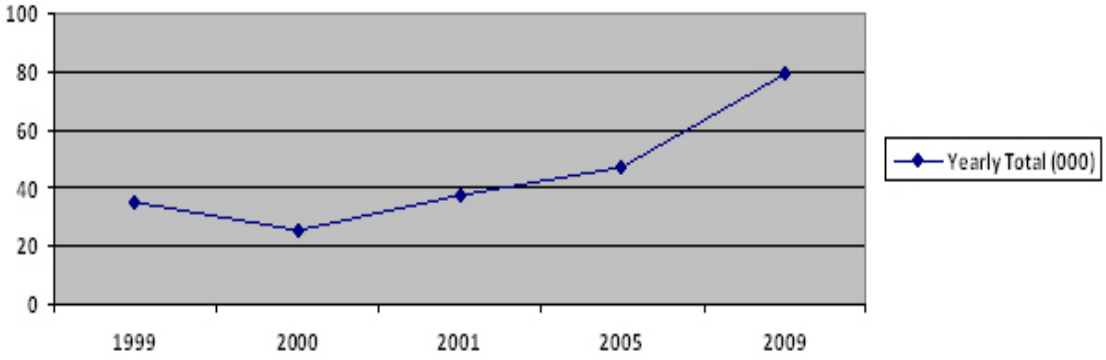
To look only for hotels excluding second homes, summer houses, domestic uses of the population, and agriculture and industrial uses, we can see that hotel sector demand for water is growing from the average of 96 m3 per day in 1999 to the average of 217 m3 per day in 2009 (Table 21 and Figure 29), and this situation lead the new hotels starting from 2005 to use desalination units to desalinate the brackish water coming from the high salinity wells or even sometime from the sea water directly.

Table 21 - Water Consumption in Hotels of Matrouh Governorate 1999-2009

Total Yearly Consumption (m^3)	35 000	26 190	38 122	46 587	79 142
Average Daily Consumption (m^3)	96	72	104	128	217
Average Per Capita/ Day (Liter)	140	140	140	150	150

Source: Matrouh Governorate, Information and Decision Support Center (IDSC) - Data collected in 2010

Figure 29 – Yearly Water Consumption in Hotels of Matrouh Governorate 1999-2009



Source: Matrouh Governorate, Information and Decision Support Center (IDSC) - Data collected in 2010

Regarding the water resources of the entire Governorate area the longer-term objective is the preservation, enhancement and rational use of water resources which is now a minority business management as practice within the tourism industry in the Governorate for controlling/limiting the over-exploitation or overuse of water resources is still limited.

3.3. Solid wastes

Existing institutions for solid wastes suffer from a number of deficits and contribute to some problems in the Governorate. These include:

- Concentration of projects on the coastal roads, mainly due to easy access and
- Concentration of built areas.
- Not all tourist villages and hotels are within administrative boundaries and therefore there is of lack administrative council representation and boundaries of villages are inconsistent with the City's boundaries.
- There is too little coordination on the regional and local levels between plans for different sectors especially tourism requirements. There is no common information pool or plans for the Governorate and furthermore, the Governorate has no planning unit capable of reviewing and coordinating such plans.

3.4. Sewage collection and treatment

Some touristic complexes along the coastline do not have any sewage systems or treatment plants. Sewage is collected in septic tanks and it percolates though sand and likely to reach the beach. Septic tanks are used in Matrouh city too. The waste water for the population in towns is discharged directly into creeks and practice no sanitary sewage disposal except a few newly built hotels and tourist villages in 2005 and on which have private separate sewage treatment units.

3.5. Energy consumption

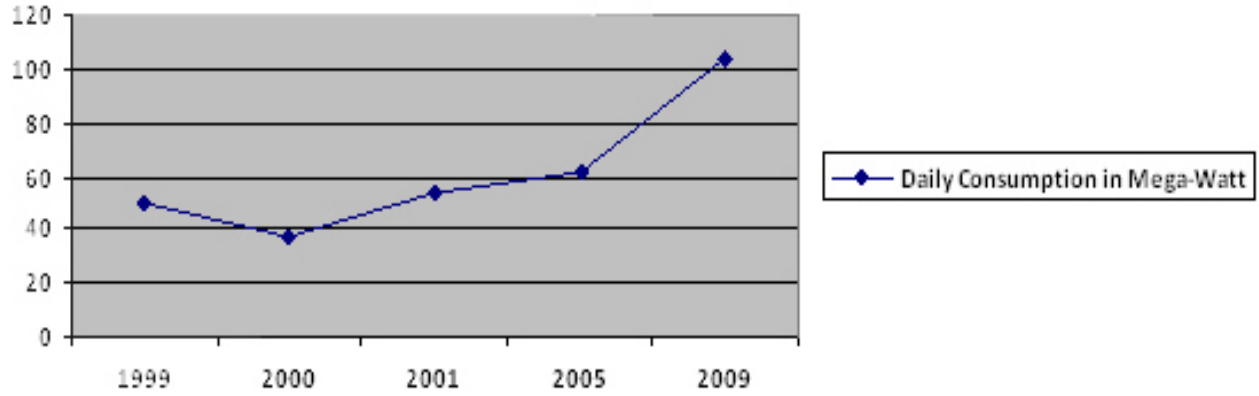
Energy consumption in hotels more than doubled from 1999 to 2009 as the yearly consumption of electrical power in Matrouh Governorate was 18 250 Mega-Watt in 1999 and reached 37 960 Mega-Watt in 2009, with an average annual growth rate of 11% (Table 22 and Figure 30).

Table 22 - Electrical Power Consumption in Hotels of Matrouh Governorate 1999-2009

Total Yearly Consumption (Mega-Watt)	18 250	13 505	19 710	22 265	37 960
Average Daily Consumption (Mega-Watt)	50	37	54	61	104
Average Per Capita/ Day (Kilo-Watt)	72	72	72	72	72

Source: Matrouh Governorate, Information and Decision Support Center (IDSC) - Data collected in 2010

Figure 30 - Electrical Power Consumption in Hotels of Matrouh Governorate 1999-2009



Source: Matrouh Governorate, Information and Decision Support Center (IDSC)- Data collected in 2010

3.6. Degradation of invaluable ecosystems

The major ecosystems in Matrouh Governorate can be divided into terrestrial ecosystems, and marine / coastal ecosystems. The terrestrial ecosystems can be clarified as follows:

According to the physiographic variations, two main sets of habitats may be distinguished in the area; one is ridges and plateau, and the other in depressions. Ridge and plateau habitats may be further differentiated into two main Types: (i) the coastal ridge, which is composed mainly of snow white calcareous grains and This is overlain by dunes in most of its parts, and (ii) the inland, less calcareous ridge, And the southern table-land.

However, seven main habitats may be recognized: (1) calcareous dunes, (2) non-saline Depressions, (3) saline and marshy depressions, (4) ridges and rocky elevations, (5) Inland plateau, (6) wadis, (7) inland siliceous deposits. Each of these habitats is characterized by local variations in physiographic which results in the formation of a Mosaic of micro sites with local variations in vegetation composition.

The simplest index is merely the number of species in a community (or habitat) at a site, or in a region, and is called "species richness". In general the western Mediterranean desert is, floristically, one of the richest of

all phyto-geographical regions of Egypt. The most striking observation is that the highest richness is recorded on ridges and inland dunes: both habitats are characterized by strong heterogeneity of micro sites.

As a final result it is clearly notable that species richness is lower in man-made habitats than in natural habitats. This is recorded in all the terrestrial/land ecosystems of Matrouh Governorate and especially in the three destinations of Matrouh City, Al Alamein town and Siwa Oasis.

As for the Marine Ecosystems in Matrouh Governorate, it is rich in many marine living organisms. But it is obvious that, despite the richness in species composition, the numbers are somewhat limited. The other characteristics recorded are as follows:

- These species are endangered because of pollution and urbanization activities. It has to be mentioned that a disaster occurred in sponge fisheries since 1988, and these fisheries are still suffering from its results. There is lack in the information about the other organisms, which leads to specific conclusion. This may be due to the fact that this area was carefully studied for only one time so it is difficult to make any comparisons.
- The comparatively flat portion of the beach profile extends seaward. The offshore zone may extend about 10 km from the shore and depends on its slope. The near-shore and beach face slopes are relatively steep, but the slope becomes flatter in the offshore zone.
- The bathymetry of Matrouh area indicates that the offshore slope in front of Ras El-Hekma is steeper than that around Ras Alam El-Rum. Comparison of the different surveys shows that erosion is starting to act in deep water and then approaching the shoreline. Such type of erosion may be due to temporary seasonal conditions.
- The height and direction of the waves are affected by refraction, dissipation of energy and breaking during their propagation into shallow water near the coast.

Available data record that the predominant waves are approaching from N. W. sector. The following summarizes the wave characteristics:

- Maximum wave height: 250 cm
- Average wave height: 74 cm
- Average wave period: 6.8 sec.

Littoral currents play an effective role in sediment transport along the coast. The gradient current is dominating the surface circulation along the north-western coast and not the drift.

The computed velocity values of the total surface current in front of Matrouh coast range between 11-15 cm/sec, and feeding eastward. Bottom current values decrease noticeably down to 100m depth to be 3-5 cm/sec, and feeding westward. Rip current usually occurs along many coasts of the western region. The effect of tide variations is felt in delineating the shoreline as well as the wave characteristics, and the breaking point, while determining the current and bar formation. Tide influences, to a limited extent, the sediment movement along the coast by shifting the level of attack of wave action and by governing the flaws in lagoons.

During winter, at Matrouh the intrusion of a water mass with relatively lower salinity (39%) and temperature (18°C) moving coastward was observed. This water mass was balanced by a flow of water of higher salinity and temperature moving seaward. During spring, while a weak stratification in both temperature and salinity was observed in Matrouh, the coastal water in Matrouh was still relatively homo-thermal. In both summer and autumn seasons, a distinct seasonal thermo-cline was observed in Matrouh.

The oxygen content of the surface seawater in Matrouh showed a high value during winter and decreased during spring and summer through autumn. In general, the eastern Mediterranean is considered of the oligotrophic areas poor in nutrient salts, which are necessary for phytoplankton growth. The area of Matrouh is one of the most oligotrophic areas of the eastern Mediterranean. The phytoplankton standing crop in Matrouh was slightly higher than in Matrouh. The population increased towards offshore of Matrouh and vice-versa occurred in Matrouh. While the least population density of zooplankton was recorded during winter season in Matrouh, autumn and summer were the flourishing season respectively. Spring and summer were the flourishing seasons of benthic flora.

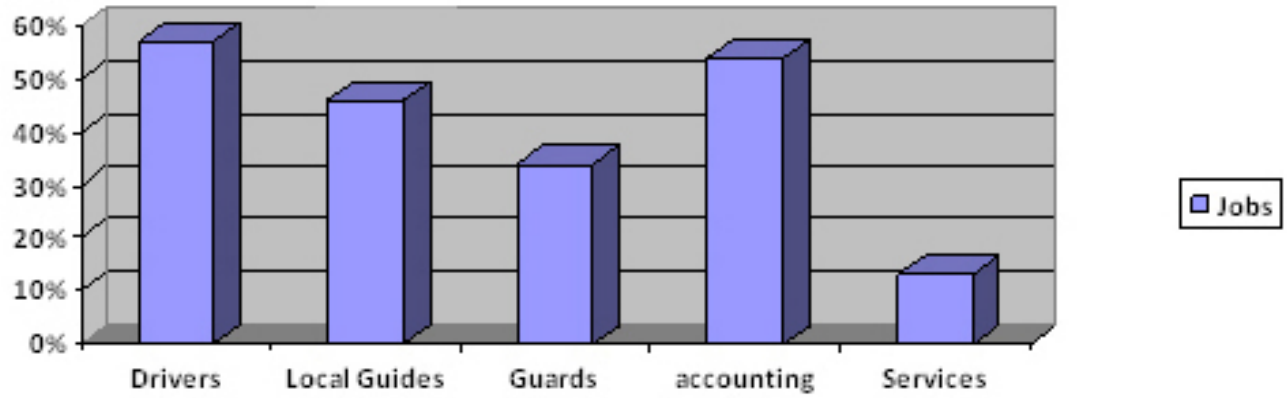
However, the highest population densities of the bottom fauna were recorded during spring and summer in both the inshore and offshore of Matrouh, during winter and summer in the inshore of Matrouh, and during spring in the offshore of Matrouh. The sponges are representing in the area by eleven species, five of which are commercial. There are three species of marine turtles known from the Egyptian Mediterranean Sea, but all tracks of emerging nesting turtles around Matrouh were identified as tracks of the Loggerheads Turtle.

Although all the marine turtles are listed as endangered throughout their range, the official statistics show the increase of the Egyptian turtle landing to 418 in 1990. The study area does not provide suitable habitats for Monk seal.

3.7. Alteration of local society

The Society of Matrouh Governorate witnessed considerable changes after year 2000. In responses to possible tourism development of Matrouh Governorate Survey done 1n 2008 about 75% of the sample accepted the possibilities of working in the tourist activities, while the remaining 25% of the cases rejected this idea. Those rejecting the idea were found to be mainly over 50 years of age. The jobs they were willing to participate in include drivers, local guides, guards, sailors, and services, accounting for 57, 46, 34, 54 and 13%, respectively (Figure 31).

Figure 31 - The most welcomed jobs in tourism sector from local society in Matrouh Governorate



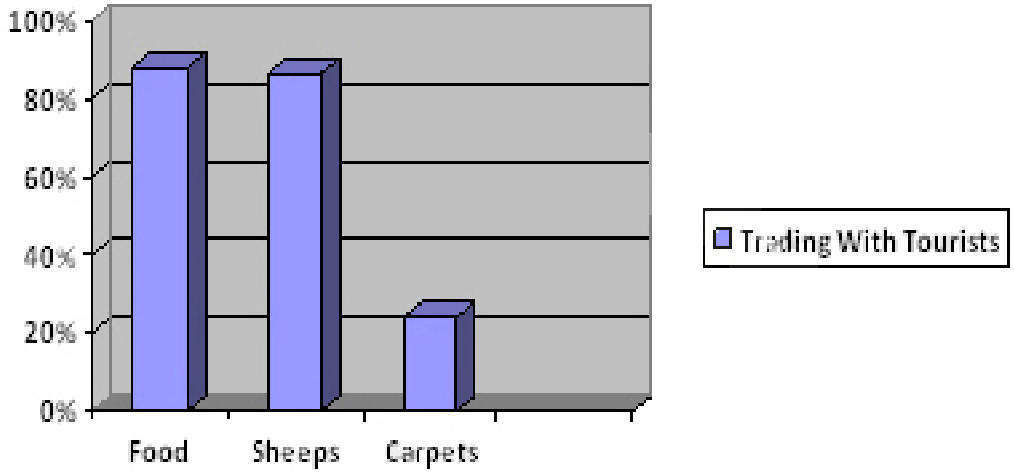
Source: Matrouh Governorate, Information and Decision Support Center (IDSC). Summary of Social Considerations in Matrouh Governorate 2009

The most attractive tourist activities for the locals were found to be aqueous, trips and hunting, representing 52, 74 and 70% of the cases. As for trading with tourists, the main goods they were willing to trade were food, cheep, and carpets accounting for 88, 86, 24%, respectively (Figure 32 and Figure 33).

Figure 32 - The most welcomed tourist activities sector from local society in Matrouh Governorate

Source: Matrouh Governorate, Information and Decision Support Center (IDSC). Summary of Social Considerations in Matrouh Governorate 2009

Figure 33 – The most flourishing trade activities with tourists from local society in Matrouh Governorate



Source: Matrouh Governorate, Information and Decision Support Center (IDSC). Summary of Social Considerations in Matrouh Governorate 2009

Concerning working in the tourist establishments, only 7% rejected the idea, while 93% accepted it. The majority of those accepting the idea had no particular preference for the type of work to be involved in. As for the establishment of tourist premises within the local areas of those interviewed, only 13% rejected the idea.

Considering such results in comparison with actual policy of Egypt regarding colonization of the area from the overpopulated areas in the delta, it can be concluded that there are no constraints for tourism development. Furthermore, such a development can be described as desirable regarding the constant problem of unemployment in the area and the need for jobs for a predominantly young population.

Among the various positive effects the concentration of diverse market segments and tourism's superstructure and infrastructure could bring about the following are selectively outlined:

- The potential for enhancing various forms of interaction between hosts and guests, as well as for developing new or upgrading existing facilities, traditional products and activities; And
- The contribution such a clustering could have in conjunction with an appropriate system of travel itineraries (outlined below) to substantially preventing the dispersal/sprawl and environmental (natural resources) degradation.

IV. Tourism impact on sustainability state of the destination

This section of the report assesses tourism total impacts in Matrouh Governorate with its three tourist destinations in the fields of Economic Impacts (as it reply to the question: how tourism influence economic performance of the area – the long term component),income and income distribution, tourism GDP (direct and indirect effects) / total GDP, tourism and competitive economic branches, tourism and economic leakages estimation: direct (profits, wages) and indirect (provisions of products and services). That means to analyze the economic efficiency, economic effectiveness, and economic development and fragility. Then the report moves to evaluate Social Equity (as it reply to the question: how tourism influences social equity of the area – the long term component. Link with tourism employment features), and this includes demography evolution (pyramid of ages, natural movement, migration), educational level, activity rate (per gender), employment, unemployment, wealth creation and distribution. That means to analyze the social justice/equity with population structure and development, and Social cohesion. And finally it assesses the environmental impacts in the fields of conservation as the supply of environmental goods and services to the society, the preserve ecosystem functions, and the destination's sustainability state.

1. Economic impacts

This part of the report is answering the question of how tourism influences economic performance of Matrouh Governorate, to clarify how to improve the tourism performance (footprint) for the welfare of local societies. The analyses will include:

- Economic efficiency,
- Income,
- Income distribution,
- GDP (direct and indirect effect),
- GDP Per Capita,
- No Specialization/monoculture and competitive economic branches,
- Tourism and economic impacts estimation.

1.1. Economic efficiency

Economic effectiveness from an economic development standpoint means the concentration and diversity/variety of the various branches of the tourism industry. This efficiency provides generally increased multiplier and synergy effects. Specifically it contributes to:

- A greater efficiency and lower costs of the necessary infrastructure and services, economizing on public facilities needed,
- Generating satisfactory visitor numbers and larger stays which consequently increase viability and ensure increased revenues in the accommodation and catering sector, as well as in other branches of the tourism industry and commercial supporting businesses,
- Creating a more stable/reliable/skilled labor force and better quality local services,

These three factors will be analyzed for Matrouh governorate in the following paragraphs.

1.2. Income

Gross National Income or GNI, current dollars is the sum of value added by all resident producers plus any product taxes (less subsidies) not included in the valuation of output plus net receipts of primary income (compensation of employees and property income) from abroad. In other words, GNI measures the total

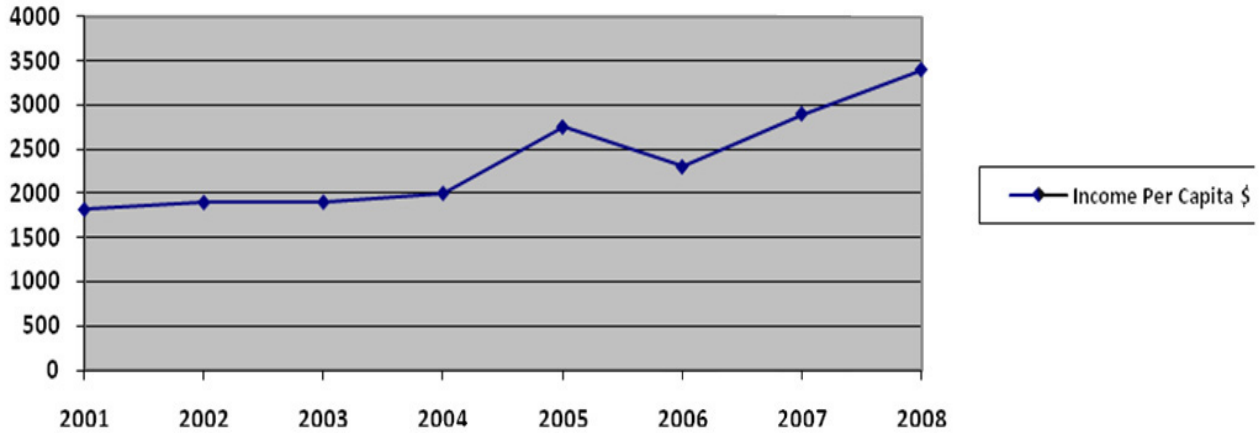
income of all people who are citizens of a particular country while GDP (gross domestic product) measures the total output of all persons living in that particular country's borders.

Table 23 - Average annual growth of per capita income in Matrouh Governorate from 2001 to 2008 ($)

Income per capita $	1 816	1 896	1 900	2 000	2 750	2 300	2 500	3 000
Growth rate %	-	4.00	0.02	5.00	4.00	2.00	1.00	2.00

Source: Central Agency for Public Mobilization and Statistics (CAPMS), Economic Indicator Report 2005. With the report writers calculations to estimate the figures for years 2008

Figure 34 - Average annual growth of per capita income in Matrouh Governorate from 2001 to 2008 ($)



Source: Central Agency for Public Mobilization and Statistics (CAPMS), Economic Indicator Report 2005. With the report writers calculations to estimate the figures for years 2008

The average annual growth rate in the years between 2001 and 2008 of the average per capita income was estimated at 2.5%. The average inflation rate in 2001 was 2.3% so the net growth rate of the real income was about 0.2%. From the other side with a population of 337399 inhabitants which was estimated for Matrouh governorate in 2008 the total income generated in Matrouh governorate in 2008 was estimated to be 1.2 billion $.

1.3. Income distribution

The income distribution index measures the degree of inequality in the distribution of family income in a country. The index is calculated from the Lorenz curve, in which cumulative family income is plotted against the number of families arranged from the poorest to the richest. The index is the ratio of two things: (a) the area between a region's Lorenz curve and the 45 degree helping line. (b) The entire triangular area under the 45 degree line. The more nearly equal a region's income distribution, the closer its Lorenz curve to the 45 degree line. Example: Scandinavian regions, and the lower its Gini index, the more unequal a country's income distribution, the farther its Lorenz curve from the 45 degree line and the higher its Gini index, e.g., any Sub-Saharan region with an index of 50. If income were distributed with perfect equality, the Lorenz curve would coincide with the 45 degree line and the index would be zero; if income were distributed with perfect inequality, the Lorenz curve would coincide with the horizontal axis and the right vertical axis and the index would be 100. The Ministry of planning reports that in 2001 per capita household consumption in Matrouh Governorate (in constant 1995 US dollars) was $1013. Household consumption includes expenditures of individuals, households, and nongovernmental organizations on goods and services, excluding purchases of dwellings. It was estimated that for the same period private consumption grew at an annual rate of 13%. Approximately 44% of household consumption was spent on food, 7% on fuel, 3% on health care, and 17% on education. The richest 10% of the population accounted for approximately 25.0% of household consumption and the poorest 10% approximately 4.4%. It was estimated that in 1996 about 23% of the population had incomes below the poverty line.

1.4. GDP Gross Domestic Product

The GDP is defined as the value of all final goods and services produced within the Governorate in a given year and computed on the basis of purchasing power parity (PPP). Gross domestic product (GDP) measures the total output of goods and services for final use occurring within the domestic territory of a given region. Gross domestic product at purchaser values (market prices) is the sum of gross value added by all resident and non-resident producers in the Governorate economy plus any taxes and minus any subsidies not included in the value of the products. The gross domestic product estimates are in constant 1995 U.S. dollars and are the sum of GDP at purchaser values (value added). It was estimated in 2005 for Matrouh Governorate that agriculture accounted for 14% of GDP, industry 30%, and services including tourism 56%. Percent from services measures the percentage of total output of goods and services which are a result of value added by the service sector. Services include value added in wholesale and retail trade (including hotels and restaurants), transport, and government, financial, professional, and personal services such as education, health care, and real estate services. Also included are imputed bank service charges, import duties. Table 24 shows the growth of GDP in Matrouh Governorate from 265 millions $ in 1991 to 1,225 millions $ in 2010 (estimated). The service sector GDP in the governorate grow from 148 millions $ in 1991 to 686 millions $ in 2010 (estimated), while the hotels sector generated GDP grow from 20 millions $ in 1991 to 75 millions $ in 2010 (estimated). These figures indicates that the percent of hotels generated GDP to the service sector generated GDP decreased from 16% in 1991 to 12% in 2010 which means the growth of the service sector in wholesale and retail trade, transport, and government, financial, professional, and personal services such as education, health care, and real estate services with less dependency on the hotels sector (Table 24).

Table 24 - GDP Growth in Matrouh Governorate between 1991-2010 (in constant 1995 US dollars)

Annual Total GDP per capita (in $)	1500	1750	1800	2750	3500
GDP (in millions $)	265	350	450	825	1225
Average Annual Growth Rate %	-	6	5.9	17	10
Service Sector GDP(in millions $)	148	196	252	462	686
% services GDP /total GDP	55.8	56	56	56	56
GDP for Hotel sector (in millions $)	20	26.2	27.2	43.5	75
% GDP for Hotel sector/Service GDP	16%	16%	12%	8%	12%

Source: Central Agency for Public Mobilization and Statistics (CAPMS), Economic Indicator Report 2005. With the report writers calculations to estimate the figures for years 2010

Average annual growth rate in GDP in the governorate for the years 1991-1995 was 6% while average annual growth rate GDP in the governorate for the years 2000-2005 was 17%, and average annual growth rate GDP in the governorate for the years 2005-2010 was 10%, this indicate that the growth of tourism in the last 10 years affected the growth of GDP in the governorate positively.

1.5. Gross domestic product (GDP) per capita

Gross Domestic Product (GDP) per capita, PPP is gross domestic product converted to international dollars using Purchasing Power Parity (PPP) rates, and divided by the population of the country that year. An international dollar has the same purchasing power in a given country as a United States Dollar in the United States. In other words, it buys an equivalent amount of goods or services in that region. GDP per capita, annual growth measures the annual growth in GDP per capita of Matrouh Governorate from 1991 till 2010. Annual total growth rate of GDP per capita (in $) grow from 4% in 1991 to 5% in 2010 (estimated) (Table 25).

Table 25 - The growth of GDP per capita in the years 1985-2000 (in Constant 1995 US dollars)

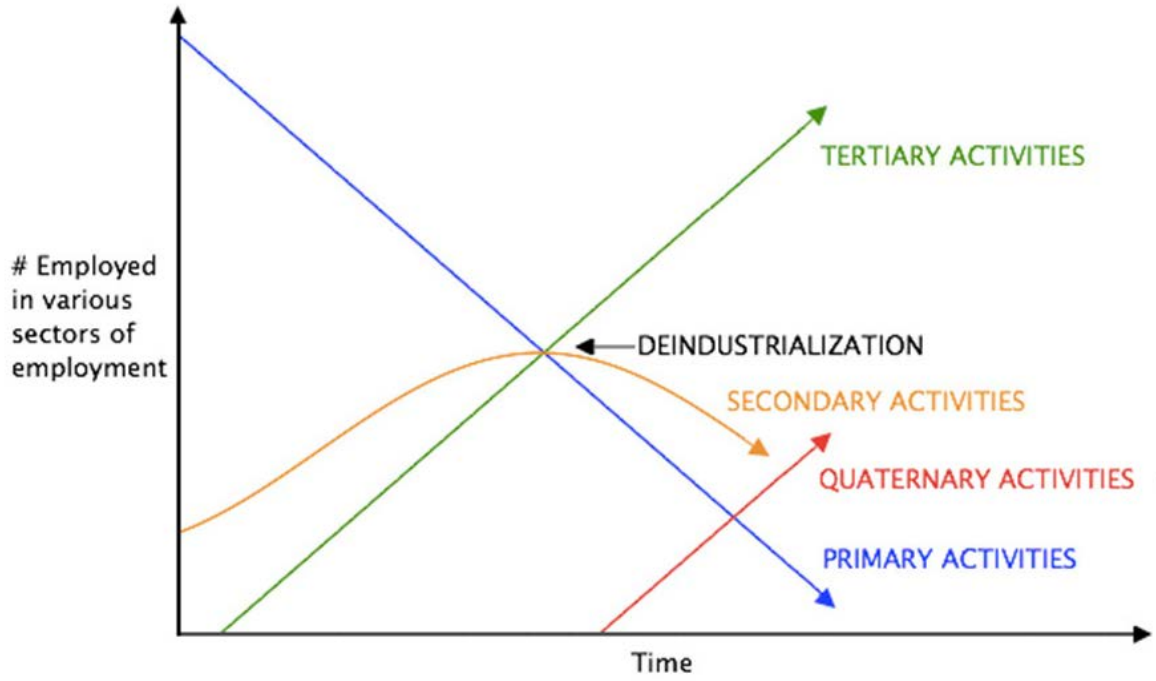
Annual Total GDP per capita (in $)	1500	1750	1800	2750	3500
Growth Rate %	-	4	3	11	5

Source: Central Agency for Public Mobilization and Statistics (CAPMS), Economic Indicator Report 2005. With the report writers calculations to estimate the figures for years 2010

1.6. No specialization / monoculture

With the two main sectors in Matrouh Governorate, the primary (agriculture and animal husbandry) which represent about 14% of GDP and the secondary (industry) now representing 30% of the Governorate GDP, both rapidly declining. And with the tertiary (services and tourism) which represent 56% of GDP in the governorate now growing so fast. It is expected that the tertiary sector will continue attracting the main employment potential in the area, and as the long-term employment needs for the three destinations are estimated in the next 10 years at 30,000-35,000 persons (qualified local labor force and seasonal migrant flows), with a possibility of future inclusion of a high tech. computer and IT services in the long term range to the region to the region to decrease the effects of monoculture in the region (Figure 35).

Figure 35 – Expected growth scenario of employment in economic sectors in Matrouh Governorate and monoculture



1.7. The economic multiplier of tourism

Although there is consensus that tourism plays an important role in Matrouh Governorate's economy, in data, the role of tourism in the economy is reflected to the extent of the contribution of hotels to the services sector. Designated as such, 'tourism' is estimated to accounts for about 16% of GDP (value-added), and for about 15% of total employment in the governorate. While this definition is reasonably based on the notion that tourism revenues include hotel and restaurant services, it is problematic because it completely disregards tourists' expenditures on a wide range of other goods and services such as, transportation, recreational and cultural activities, and shopping.

Information on tourist arrivals and their average expenditures comes from two sources: (1) the Passport and Immigration Authority, which documents numbers of visitors Matrouh Governorate and tourist nights spent there and this method ignores the tourist coming by road from Alexandria or Cairo,; and (2) The Central Agency for Public Mobilization and Statistics (CAPMS), which provides estimates of tourists' expenditure patterns. The latter relies on a sample survey to estimate average tourist expenditures, the distribution of their expenditures on different groups of goods and services, and the distribution of these expenditure patterns by Matrouh Governorate according to age group, purpose of visit, and so forth. The Central Bank uses data from these two sources to calculate tourism receipts for the Balance of Payments. Although these statistics are important, their perspective is limited and, therefore, underestimates the vital role tourism plays in the Matrouh Governorate economy.

In order to overcome this limitation, this study attempts, in the next paragraphs to assess the economic impact of tourism from the stance that the designation of a good or service as 'touristic' depends on who the good or service rather than who it.

This approach leads to results that differ significantly from the conclusion supported by other studies that tourism makes only a meagre contribution to the Matrouh Governorate economy. Alternative Techniques to Assess the Impact of Tourism Two alternative methods to evaluate the economic impact of tourism have been developed in recent years. The first relies on developing (TSA), while the second depends on using input-output tables to conduct what is called an (EIA).

Under the TSA method, primary data on a particular activity are collected with the aim of determining the size of an activity that is not explicitly listed under standard Matrouh Governorate Accounts entries. Generally, this is only feasible for developed regions with large databases and extensive human and material resources.

The second method – the EIA – traces tourists' expenditure flows into different economic sectors in a region. The analysis studies both direct and indirect effects of expenditures on the following economic variables: output of other sectors, tourism income, employment opportunities, and tax revenues. it measures: _____: which are the immediate changes associated with changes in tourist expenditures; and Secondary effects: which include the following: - _____, which are the changes resulting from various rounds of re-spending of tourism receipts in industries supplying products and services to the tourism industry; and - , which are the changes in economic activity resulting from household spending of income earned directly or indirectly as a result of tourism spending. To estimate these effects for Matrouh Governorate, the study relies primarily on assigning different categories of tourists' expenditures in years 2006 and 2009 to various economic sectors. Then, using Matrouh Governorate's 2005/06 input-output tables to calculate multipliers, the study estimated the impact of tourist expenditures on demand for other sectors' output (intermediates) used in producing goods consumed by tourists. In addition, it accounts for consumer demand generated by workers' and business owners' income from tourism activity.

The Contribution of tourism far exceeds commonly held perceptions quantitative analysis conducted in this study shows that the impact of foreign tourists' spending far exceeds the commonly held percentage of GDP. According to our calculations, the direct impact of foreign tourist expenditures on aggregate demand reached around US$ 539 million in 2010, representing 44% of GDP of the governorate. Other data that focus only on hotels exclude 80% of tourists' total expenditures going directly to other sectors in the economy. In addition to direct effects, the study estimates total effects (direct + secondary) of tourists' spending in to be US$ 142 million dollars, the equivalent of 11.6% of GDP. Using the share of value-

added/output in the Matrouh Governorate economy, which is around 65%, the net contribution of tourists' expenditures to total value-added in the economy is estimated to be around 7.5% of GDP. Thus, the results seem to be indicating that, whether measured in terms of output or value added, the strong linkages of tourism to the rest of Matrouh economy add a sizable additional contribution to the direct effects of this activity.

The Economic Impact of Tourist Spending = The number of tourists * average spending per tourist * the multiplier or the number of tourist nights * average spending per tourist per night * the multiplier direct and secondary impact of visitor expenditure to total output, employment, taxation and income generation of tourists' expenditures to total employment cannot at all be comparable to the percent share in total employment in the hotels sector over the past few years.

The study's estimation of the contribution of tourist expenditures to tax revenue is based on an average of 10% sales tax on total output and an average of 20% .The impact of this spending is comparable to that of exporting Matrouh Governorate goods and services to be consumed in other regions.

2. Society / demographic impacts

This section includes the study of Social justice/equity as a result of analyzing Matrouh Governorate's population structure and development from one side and Social cohesion from the other side.

2.1. Population structure

This includes the analyses of population growth, Geographical distribution, and characteristics in the level of Matrouh Governorate level and in its three tourist destination whenever it is possible.

2.2. Population growth

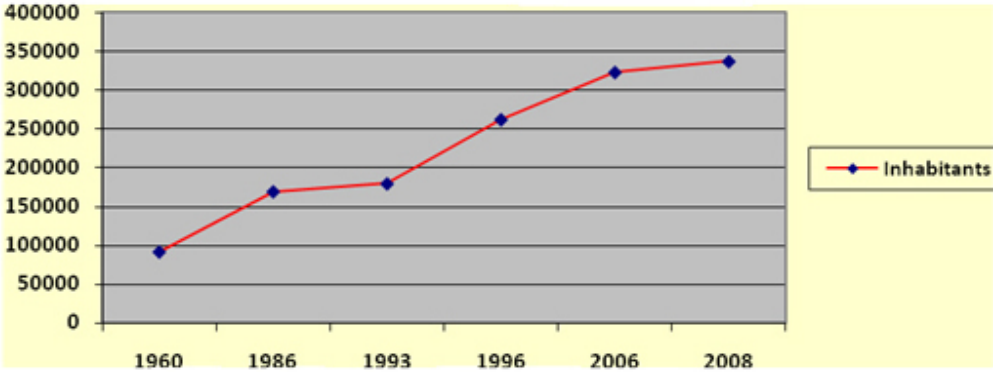
The total population of the Matrouh Governorate was 91,142 inhabitants 1960, 169,000 in 1986, 179,344 in 1993, 262210 inhabitants in 1996, and in 2006 was 323381 and is estimated in 2008 to be 337399 inhabitants, the highest average annual growth rate of the Governorate's population happened between years 1993 and 1996 (see Table 26, Figure 36, Figure 37 and Figure 38). The effect of the high growth rate of tourist nights between 2000 and 2009 is reflected in the growth rate of population in the 2000's. Although the data available are not taken in the same years but the general trend is clearly reflected, and the relation between the growth of tourism and the population growth in the Governorate can be identified.

Table 26 - Population growth of Matrouh governorate from 1960 till 2008

Population (inhabitants)	91 142	169 000	179 344	262 210	323 381	337 399
Average Annual Growth Rate %	-	3	1	15	2.3	2.1

Source: Central Agency for Public Mobilization and Statistics (CAPMS), Final results Reports 2006.
* For the years 1960 and 1993 it is estimation of number of population in old different studies and not the final results of the population counting which happens each 10 years starting from 1906 till 2006. The average annual growth rate for the time from 1986 and 1996 is about 5.5% but as the estimation of 1993 was based on 1% average annual growth rate for the the years between 1986 and 1993 the rest of the 3 years was supposed to have 15% average annual growth rate.

Figure 36 – Population growth in Matrouh governorate



Source: Central Agency for Public Mobilization and Statistics (CAPMS), Final results Reports 2006.

Figure 37 - Population growth in Matrouh governorate

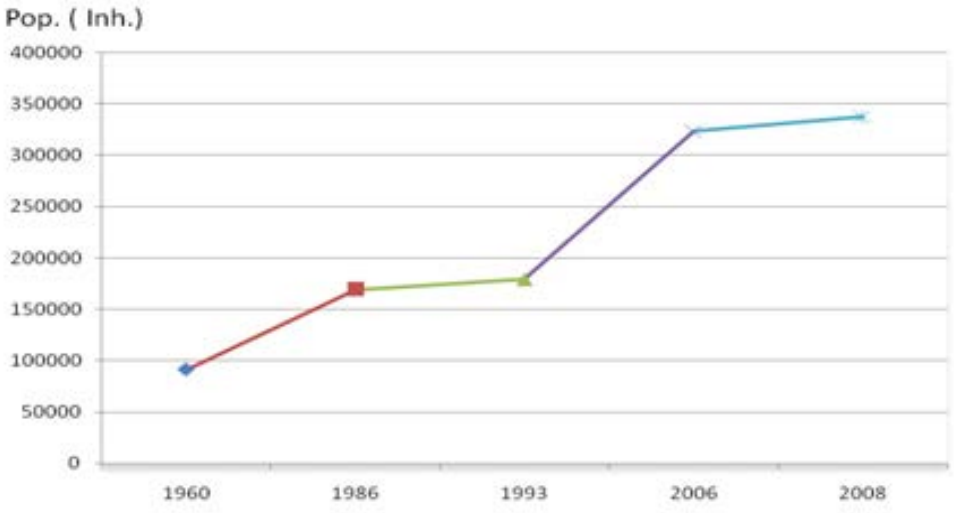
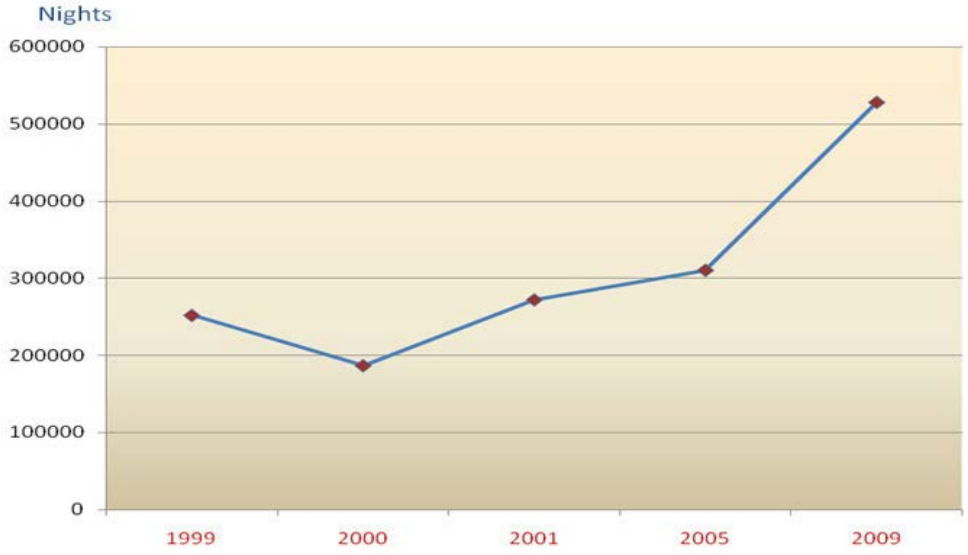


Figure 38 – Growth of tourist nights in Matrouh Governorate hotels from 1999 till 2009



Source: Egyptian Ministry of Tourism - Tourism in Figures (different years)

Most of the Governorate population growth in the years 1993-2006 comes from the immigration from Cairo and Alexandria. Birth rate is still very high in the Governorate (about 2.1%) although the family planning units have in the last three years reduced the number of newly born.

2.3. Population distribution

The population average density in Matrouh Governorate is about 1.6 inhabitants per km². Matrouh City and the surrounding area (with the hinterland) have the biggest concentration of population accounting for about 47% of the total Governorate population (Table 27) while Siwa and Al Alamein represent small population weight in the Governorate. All public functions are concentrated in the Matrouh City which also concentrates about 56% of the hotel rooms in the Governorate.

Table 27 - Geographical distribution of population in Matrouh Governorate 2006

Population (Inhabitant)	159 315	21 693	1 841	141 785	323 381
%	49	7	0.06	43.94	100

Source: Central Agency for Public Mobilization and Statistics (CAPMS). Final results Reports 2006

Also the population are not evenly distributed in the region. 48% of the population live in the zone close to the coast (<5% of the total surface), 41% in the middle zone (nearly 5-15 km inland), and 11% in the innermost zone (>15% of the total surface). Confining tourism activities to 1 km wide coastal belt and a standard of 50 users per ha on this belt; which explain the effects of central government plans and policies for the area; the growth rates by sector; and the degrees of flexibility each sector exhibits in adjusting to and meeting the changing intra- or extra regional demand conditions.

2.4. Population characteristics

The population characteristics in Matrouh Governorates are handled according to Urban/Rural, Gender, Social Groups, Education, Age, and Life expectancy at birth. The following points will highlight these characteristics to identify the impacts of tourism activities on the population and their characteristics.

2.4.1. Urban/Rural population

In 2006, about 68% of the population of the governorate were living in urban areas and 32% in rural areas (wide spreading of small settlements/dwellings), compared to 53% and 47% respectively in 1993, and 38% and 62% respectively in 1960 (Table 28, Table 29).

Table 28 - Urban/Rural Population in Matrouh Governorate (in years 1960, 1993, 2006)

1960	38	62	100
1993	53	47	100
2006	68	32	100

Source: Central Agency for Public Mobilization and Statistics (CAPMS). Final results Reports 2006

In the three chosen destinations (Matrouh City Area, Siwa Oasis, and Al Alamein) the urban population in 2006 varies between 76% in Matrouh City Area, and 74% in Siwa oasis and 78 in Al Alamein% (Table 28 and Table 29). It is clear from the table and the figure that the three tourist destinations the percentage of urban population in 2006 was higher than the average on the governorate level.

Table 29 - Distribution of Urban / Rural Population in the three destinations in 2006

Matrouh City Area	Urban	63 137	57 402	120 539	76
	Rural	19 802	18 974	38 776	24
	Total	82 939	76 376	159 315	100
	%	52	48	100	-
Siwa Oasis	Urban	8 583	7 473	16 056	74
	Rural	2 848	2 789	5 637	26
	Total	11 431	10 262	21 693	100
	%	53	47	100	-
Al Alamein	Urban	850	590	1 440	78
	Rural	215	186	401	22
	Total	1 065	776	1 841	100
	%	58	42	100	-

Source: Central Agency for Public Mobilization and Statistics (CAPMS). Final results Reports 2006

2.4.2. Gender

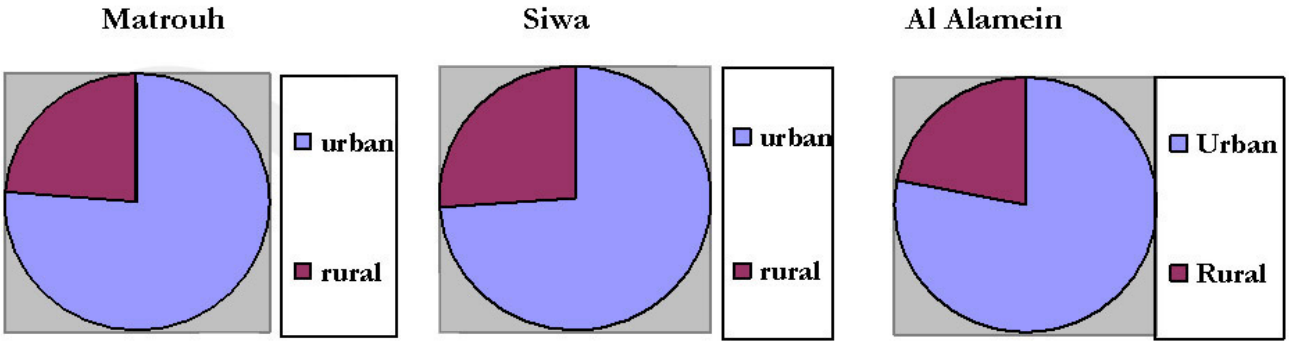
In 2006 there was about 52% of the total sum of Matrouh governorate population were males, and 48 were females; in the chosen three destinations the percentages varies between Matrouh city where 52% Males and 48% Females, and Siwa Oasis where 53% Males and 47% Females, and Al Alamein where 58% Males and 42% Females (Table 30).

Table 30 - The Male / Female Percentage in the Three Destinations in 2006

Matrouh City Area	Total	82 939	76 376	159 315
	%	52	48	100
Siwa Oasis	Total	11 431	10 262	21 693
	%	53	47	100
Al Alamein	Total	1 065	776	1 841
	%	58	42	100

Source: Central Agency for Public Mobilization and Statistics (CAPMS), Final results Reports 2006

Figure 39 – Distribution of Urban/Rural population in the three destinations in 2006



Source: Central Agency for Public Mobilization and Statistics (CAPMS), Final results Reports 2006

2.4.3. Social groups

There are two different social groups in Matrouh Governorates population the Bedouin and the immigrants who have migrated from the Nile Valley. The Bedouin tend to settle in the desert, whereas the immigrants settle in towns and tourist destinations, with separate patterns of life, at different levels of organization. The Bedouin are employed as tourist guides for safari trips and took to the tribal sheiks for leadership. The immigrants are employed in hotels, tourism, and construction and took to the national Government in Cairo for leadership.

2.4.4. Education

In 2006 less than 20% of the males and about 16% of the females of the population on Matrouh governorate had a university degree, 67% of the males and about 73% of the females have an intermediate school degree; about 1% of the males and about 0.15% of the females of the population are illiterate (Table 31).

Education since 2000 received an impressive attention. As in early 1990's, about 36,000 pupils only attend primary and secondary schools. Illiteracy among children and young men was high (70% between 6 and 30 years of age). There was no vocational training available in the region. The illiteracy was notably higher among women. few schools existed in the region Two schools for technical education provide training in the city of Matrouh in the fields of industry, commerce, agriculture, teaching and nursing (but not for tourism!!). Faculty of Education, affiliated with the University of Alexandria, was established in Matrouh to supply the region with school teachers. But still in 2006 neither the number of the population, nor the educational or training conditions, can offer satisfactory economic base considering the vast acreage of the region, a matter that leads to possible in-migration to the region with application of development programs. But in general the education for local population is still suffering from low educational standards.

Table 31 - Educational Status by Gender in Matrouh Governorate

Illiteracy	1	0.15
Read & Write	1.51	0.26
Under Intermediate	1.93	0.7
Intermediate	67.23	73.45
Upper Intermediate – under Univ.	8.69	8.96
University and above	19.64	16.49
Total	100	100

Source: Central Agency for Public Mobilization and Statistics (CAPMS), Final results Reports 2006

2.4.5. Age

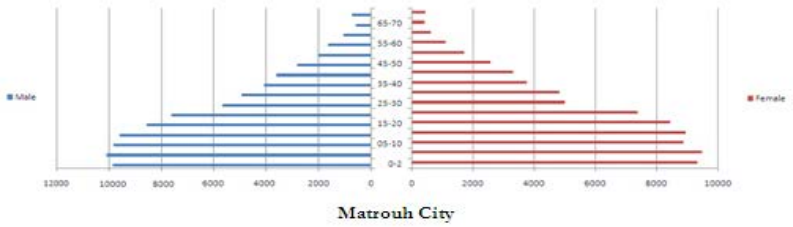
There is a high percentage of young (under 15 years) population do not contribute to creating a sound economic base at least in the short term, and do not support large tourist inflows (Table 32 and Figure 40).

Table 32 - Population Distribution according to age and gender in the three destinations in Matrouh Governorate

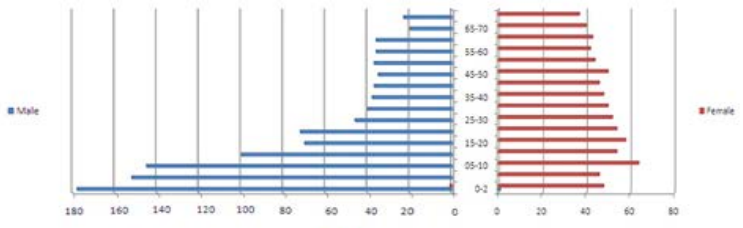
Age	0-2	2-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50	50-55	55-60	60-65	65-70	70-75
Male	9879	10112	9861	9604	8588	7635	5704	4956	4099	3617	2836	2026	1659	1050	586	727
Female	9330	9486	8878	8968	8458	7382	5013	4824	3784	3314	2578	1719	1111	640	438	453
Total	19209	19598	18739	18572	17046	15017	10717	9780	7883	6931	5414	3745	2770	1690	1024	1180
Male	1472	1462	1400	1414	1250	1020	759	626	472	414	325	271	192	139	91	124
Female	1440	1481	1435	1365	1123	819	543	518	360	345	255	177	128	97	80	96
Total	2912	2943	2835	2779	2373	1839	1302	1144	832	759	580	448	320	236	171	220
Male	178	152	145	100	70	72	46	40	38	37	35	37	36	36	20	23
Female	48	46	64	54	58	54	52	50	48	46	50	44	42	43	40	37
Total	96	73	1254	14	8	86	382	90	96	73	85	81	78	79	60	60

Source: Central Agency for Public Mobilization and Statistics (CAPMS), Final results Reports 2006

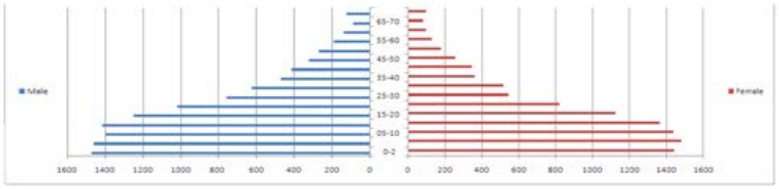
Figure 40 – The Pyramid shape of the age group of population in the three destinations



Matrouh City



Al Alamien



Siwa

Source: Central Agency for Public Mobilization and Statistics (CAPMS), Final results Reports 2006

The conclusion from the table is that the three tourist destinations having high percentage of population under 15 years, and low percentage of working population in the productive age especially for females, compared with the national standards.

2.4.6. Life expectancy at birth

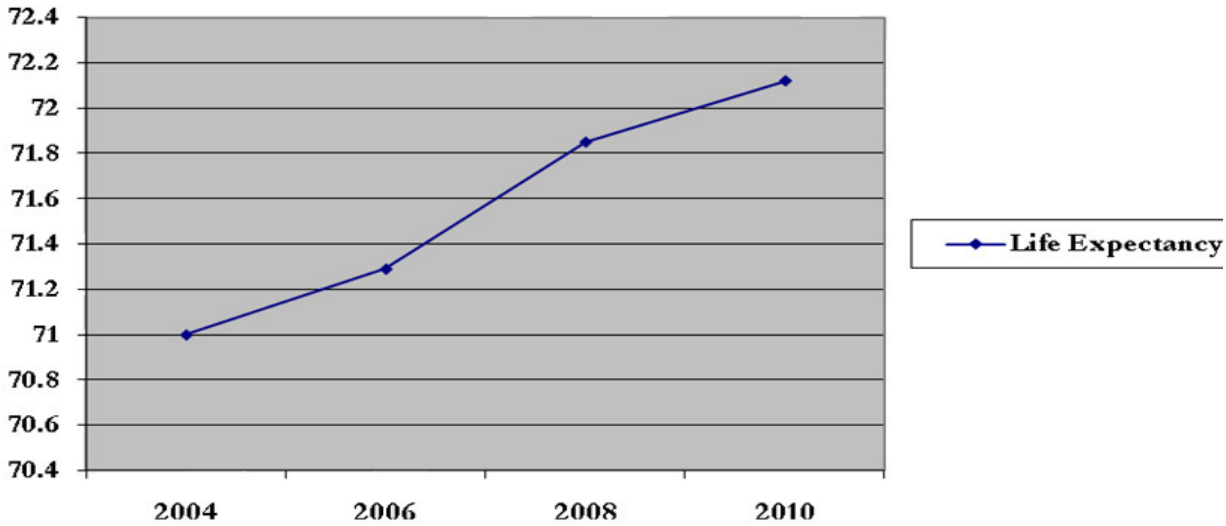
This entry contains the average number of years to be lived by a group of people born in the same year, if mortality at each age remains constant in the future. The entry includes as well as the and female components. Life expectancy at birth is also a measure of overall quality of life in a region and summarizes the mortality at all ages. It can also be thought of as indicating the potential return on investment in human capital and is necessary for the calculation of various actuarial measures. The life expectancy in Matrouh Governorate for males is 69.56 years, and for females, is 74.81 years (2009 estimates) (Table 33 and Figure 41).

Table 33 - Life expectancy at birth for Males and Females in Matrouh Governorate

2003	70.41	117		2003 est.
2004	71.00	122	0.84%	2004 est.
2005	71.00	123	0.00%	2005 est.
2006	71.29	123	0.41%	2006 est.
2007	71.57	120	0.39%	2007 est.
2008	71.85	120	0.39%	2008 est.
2009	72.12	119	0.38%	2009 est.
2010	72.12	121	0.00%	2010est.

Source: Information and Decision Support Centre (IDSC), Matrouh Governorate," Development in the information Era", Undated 2008. The years from 2008 till 2010 are based on verbal talks with the center manager.

Figure 41 – Growth life expectancy at birth from 2004 till 2010 in Matrouh Governorate



Source: Information and Decision Support Centre (IDSC), Matrouh Governorate," Development in the information Era", Undated 2008. The years from 2008 till 2010 are based on verbal talks with the center manager.

2.5. Population employment

Population employment in Matrouh governorate reflects the impacts of tourism growth in the last decade. The analyses will cover labor force, gender and active population, and unemployment in Matrouh Governorate.

2.5.1. Labor force

The total actual labor force in the Governorate is estimated to be 85.1 thousands, and total sum of labor is estimated to be about 90.6 thousand workers in 2008. Most of the people in working age are estimated segments (over 15 years) in the three destinations are working for salary (about 82% in Matrouh City, 94% in Siwa Oasis, and 68% in Al Alamein of the total) (Table 34).

Table 34 - Distribution according to work status and Gender (+ 15 years old)

Male	1879	2695	31822	212	6	464	2490	39568
Female	39	43	5467	10	3	15	606	6183
Total	1918	2738	37289	222	9	479	3096	45751
Male	137	78	5296	12	0	17	110	5650
Female	12	1	286	0	0	0	16	315
Total	149	79	5582	12	0	17	126	5965
Male	78	57	890	0	0	32	8	1065
Female	18	16	364	14	8	54	302	776
Total	96	73	1254	14	8	86	382	1841

Source: Central Agency for Public Mobilization and Statistics (CAPMS), Final results Reports 2006

2.5.2. Gender and active population

In general the females in the three destinations prefer to work in the government. Females working in the Government represent in Matrouh city and in Al Alamein about 24-30% of the total governmental employees and about 0.07% in Siwa Oasis the reason for Siwa low percent is the culture of Bedouins which does not encourage woman working in services sector in general. While the females employees' percentage in the Private investment projects is not exceeding 0.04% in both Siwa Oasis and Matrouh City, and reaches to 23% in Al Alamein.

Female work in the three destinations is faced by different obstacles and needs some support of the legislatives and administrative bodies of the government to be sustainable as follows:

- Setting more legislation to assure women's right to return to their jobs after career interruptions (childcare leave and special leave),
- Forcing governmental and economic establishments to provide sufficient in-site and/or off-site childcare facilities,

Table 35 - Population distribution according to sector and gender (+15 years old)

Matrouh City	Male	9601	767	1215	19	44	19	24
	Female	3824	76	56	0	4	8	5
	Total	13425	843	1271	19	48	27	29
Siwa Oasis	Male	1304	101	278	55	12	6	4
	Female	104	3	13	3	0	1	0
	Total	1408	104	291	58	12	7	4
Al Alamein	Male	39	41	890	18	12	17	8
	Female	12	0	358	14	18	16	2
	Total	51	41	1552	26	30	33	10

Source: Central Agency for Public Mobilization and Statistics (CAPMS), Final results Reports 2006

- Encouraging husbands to assist their working wives on household and childcare responsibilities by all means, relaxing - as much as possible - the anti-social work conditions to enable working women to co-ordinate between work responsibilities and familial obligations,
- Encouraging the slow relaxation of the traditions, customs and social mores related to women's work, combating the still existing gender stereotypes and their strong impact on staffing decisions in favour of men, optimising occupational segregation to allow maximum career opportunities for women,
- Confirming the right of veiled women to equally compete for jobs and preventing - by all possible means – depriving them employment opportunities for just being veiled,
- Supporting family-friendly arrangements such as flexible work hours, part-time jobs and job-sharing to relax the stresses of work/family conflicts on working women, and encouraging women to accept upward career mobility and get rid of the fears of more demands on their time through the different approaches to improve family-friendly arrangements and decrease work/family conflicts.

2.5.3. Unemployment

With regard to existing and potential labor and employment capacity one should consider the range of constraints and potentialities pertaining to tourism sector as follows:

- Most of the unemployed females are house wives or students,
- Most of the unemployed males are students or retired and old.

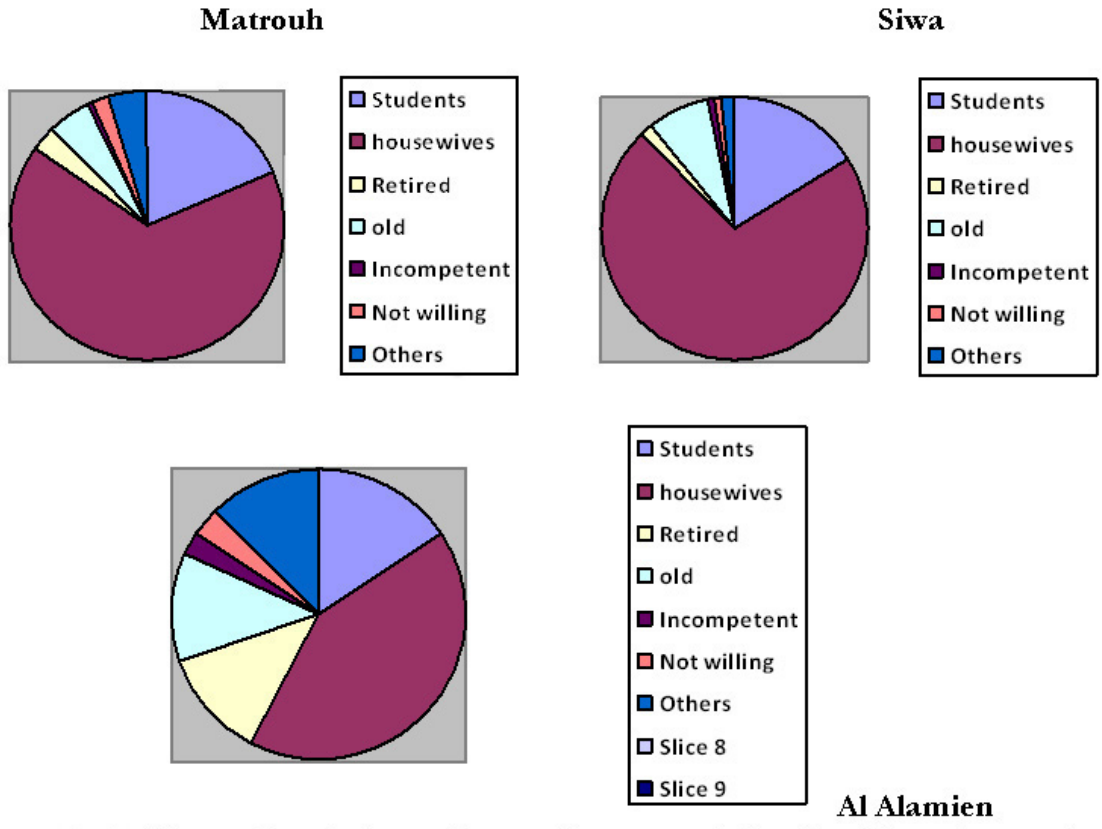
Table 36 and Figure 42 indicate the unemployed in Matrouh Governorate in 2006 according to status and gender. From this table the two major constrained mentioned above can be verified.

Table 36 - Unemployed according to status and gender (over 15 years) in 2006

Male	6372	0	1438	1775	267	1248	2419	13519
Female	4031	37117	236	940	117	0	58	42499
Total	10403	37117	1674	2715	384	1248	2477	56018
Male	869	0	80	295	45	51	107	1447
Female	266	5050	12	223	22	0	18	5591
Total	1135	5050	92	518	67	51	125	7038
Male	285	0	223	226	44	59	228	1065
Female	0	776	0	0	0	0	0	776
Total	285	776	223	226	44	59	228	1841

Source: Central Agency for Public Mobilization and Statistics (CAPMS), Final results Reports 2006

Figure 42 – Unemployed according to status and gender (over 15 years)



Source: Central Agency for Public Mobilization and Statistics (CAPMS), Final results Reports 2006

3. Environment impacts

This part reply to the question of: if tourism influence the production of environmental goods, and services it covers the following points:

- Sea water quality
- Soil quality
- Air quality
- Potable water quality
- Biodiversity
- Landscape
- Preventing degradation of valuable eco-systems

3.1. Sea water quality

Information on incidence and the levels of coastal pollution is scarce, since there is no continuous monitoring plan, and therefore, it is difficult to evaluate the situation. However, there is no visible sewage pollution or other kind of pollution resulting from off-shore oil exploration, shipping, shipbuilding, traffic and port facilities of the sea water except for the tar which comes from the ships that sail by. The colour of the sea is blue-green with no visible algae formation, and the transparency is high (Figure 43).

Figure 43 – Sea water quality in Matrouh Governorate

Source: IDSC - Matrouh Governorate

3.2. Land / Soil

The project region's soil is regarded as young and essentially alluvial, with absence of diagnostic horizons. This type of soil is produced from three main sources: The inland plateau composed of limestone alternating with strata of limestone and shale, and Beach Deposits, composed of calcareous Eolithic grains, and finally the Siwa Depression and Qattara Depression alluvial soils. Soils of the coastal ridge and dunes are loose or moderately consolidated calcareous grains of sand dimensions almost free from salts. On the slopes, the soils are pale brown and loamy in texture, while on upper and middle parts the soils are mixed with cobbles and gravel of various sizes throughout the profile. In contrast, in lower parts the surface is covered with relatively thick layers (2-5 m) of loamy soils washed down from higher levels. In non-saline depressions soils are highly variable, in some parts calcareous, while in other areas alluvial loamy soils dominate. Near the seashore line the soils may be mixed with lacustrine saline sand clays, and in lagoonal salt marshes the soils are very shallow profiles usually covered with thin salt crusts. Transitional areas between ridges and depressions are covered with layers of down-wash materials transported during the rainy

season. However, the southern part of the coastal plain is characterised by three main types of soil. One area is moderately affected by salts and pH values. The second type soil is covered by gypsum together with lime accumulations, while the third type includes soils with definite zones of lime accumulations at certain depths. The coastal plain soils, in general, are well drained, except for some scattered parts which are poorly drained, and there are some saline soils which are not suitable for agriculture. The tableland soils are loamy and loamy sand, with alternating strata of limestone and shale with a medium to shallow profile in depth strongly affected by salt, while the soils of the wadis which intersect the tableland are composed of loamy deposits and are suitable for cultivation. All the beaches are composed of white, loose carbonate sands, well polished and round, moving towards inland. The loose carbonate sand gradually changes to fairly consolidate limestone forming ridges that skirt the coast. The ridges are of marine origin and represent bars and depressions which separate ridges form lagoons in which alluvial loam deposits are present, mixed with calcareous sand. The depressions that are close to the shore are salt affected, i.e. unsuitable for cultivation. In winter, salt marsh conditions prevail in the low parts of these depressions. Generally, the soils of the beaches – that are affected by salt – are unsuitable for cultivation, unlike the soils in the wadis and around highways. The coastline of this area is of sandy rocks covered by soft sand along the shore, with certain solid rock headlands and sandy beaches, smoothly sloping towards the sea, which gives a good opportunity for tourism development. The shoreline is characterised by the presence of a succession of bays, formed by rocky headlands. This rocky edged decrease to the south till it ends up with Siwa depression and Qattara Depression. The final assessment ends up with the conclusion that up to 2008 no sign of soil pollution or erosion of soils that can be attributed to tourists' activities was discerned or recorded.

3.3. Air quality

Wind is generally light in Matrouh Governorate – since the wind speed doesn't exceeds 10 m/sec, over almost 95% of the year – but violent dust storms and sand pillars are not rare. The direction of the prevailing winds is from the north-west with percentage of 21%. However, the area is subjected to the Khamasien hot storms during the spring months, which blow from the south-east. At the city of M. Matrouh wind blows strongly during winter and early spring, with an average velocity of about 20 to 23km/hr; the end of summer is characterised by very calm days and the average wind speed drops to 15km/hr. Although strong wind occurrences only form a small part of the total, they have to be regarded because of their ability to mobilise and transport soil material. A secondary maximum in the SW sectors is very pronounced. There are almost no strong winds from any easterly sector. The fierce sand laden SW winds account for sheets of siliceous sands. Particularly silt, clay and organic matter, which account for fertility, significantly are subject to deflation. The worst effect is that once they are mobilised they hardly settle down. Natural windbreaks are an appropriate means to reduce wind speeds in agricultural areas. They can consist of trees, shrubs or even strips of annuals or a combination of those planted in parallel rows. The frequency distributions have shown that there is no need for windbreaks in any easterly wind sector (15 – 165 degrees), but in NW and SW directions. Orchards, which are located in sand sheet areas, require particular protection from south-westerly storms. It should be mentioned that an assessment and evaluation, like this one, gives important information for the establishment of wind driven devices, and provide essential information regarding whether wind energy can be efficiently utilised. However, in order to be able to decide whether or not wind energy is a considerable resource, frequency and force of average wind speeds, as well as frequency of strong and low wind events have to be known.

Prevailing wind directions govern the movement and circulation of seawater masses.

According to the frequency distribution of wind directions the sea currents are presumably driven towards easterly or ESE directions. Whatsoever, direction and force of the currents have implications on the change of the coast but no direct effects can be attributed to tourists' activities.

3.4. Potable water quality

There is three possible sources of water are available in Matrouh Governorate: surface water, groundwater and pumped water facilities.

3.4.1. Surface water

The surface water in the area is very limited in magnitude as it originates from the rainfall of the winter season. In the extreme southern portion of the area, where the landscape is elevated but almost flat in topography, water of the rainfall is partially lost through evaporation and the rest infiltrates into the shallow soil where it may subsequently either be lost by evaporation or utilized by some native vegetation. Ongoing northward, the landscape shows some wadi catchments areas. Runoff is possible after rather heavy rains, and a considerable amount of water may percolate to deeper soil layers. People store the surface running water in underground tanks (Roman reservoirs), of which still some of the old wells exist in the area. The storable volume of drinking water is estimated to be 10,000m^3/year. Most water harvests are concentrated in northern part. Runoff is possible after rather heavy rains, and a considerable amount of water may percolate to deeper soil layers. The main elements of water balance of the area are rainfall as input and evaporation, runoff recharge to groundwater and change to soil moisture storage as output. All this surface water is used by the local Bedouins and dwellers of the rural villages.

3.4.2. Groundwater

Relatively large quantities of groundwater are found at depth in rocks ranging in age from Cretaceous to Miocene, but the quality of the water is brackish to highly saline and is not suitable for agriculture. The depth of the water table varies from less than 1m to more than 50 m. The quality of the water in the several aquifers in the area varies widely. Water quality also varies with seasons. Inventory and local studies of groundwater were undertaken by governmental and international agencies. The overall picture of groundwater however, is not clear. Groundwater: The main groundwater source is the Nubian sandstone aquifer; it extends to the north of Qattara Depression. In Matrouh region, there is also a trapped groundwater aquifer from which water is extracted through hand dug or drilled wells, and is used for irrigation of orchards. A minimum safe yield from this aquifer is estimated to be 5,000m^3/day. Salinity is low and ranges from 2000 to 3000 PPM. The groundwater suitable as a source for brackish water for touristic villages and hotels desalination units, agriculture and domestic uses occurs in relatively shallow non-artesian aquifers or in small shallow semi-perched aquifers with slight artesian pressure. The non-artesian aquifers in the coastal plain found in near land surface, are recharged directly by rainfall and the infiltration of surface runoff. The quality of the water in the several aquifers in the area varies widely according to seasons. The best quality is found in winter and the worst in autumn. Also the water contains about 20,000 ppm of solid matters, which reduces water quality but can be desalinated by the reverse osmosis desalination.

3.4.3. Pumped Water Facilities

Treated water is pumped from the Alexandria distribution network into two pipelines running parallel through Matrouh Governorate. The average capacity of those pipelines is about 10,000 m^3 in autumn to 11,000 m^3 in summer. Water is served to customers along the pipeline from Alexandria to Marsa Matrouh (railroad tanker cars and private trucking companies). Most tourism facilities, oil companies, and construction activities that do not have a dependable connection to the pipeline, use the private trucks for water supply.

Currently, an estimated 434,700 m^3 per month of water in winter and 453,300 m^3 per month in summer are supplied to the Governorate via the pipeline system, train and desalination plants for areas west of and including Al Alamein. While the rural population relies mainly on cisterns for drinking and on galleries for washing, the water resources for the main population centers come from outside. Extensions of a pipeline from Alexandria supplies public water to Ras El-Hekma. With regard to the overall technical infrastructure networks among those considered to have development priority are the transport (rail/road/air) networks, the completion of the construction of the sewage collection and treatment system, particularly in the

Matrouh area, as well as of the drinking water pipeline from Alexandria covering the major built-up areas. Regarding the water resources of the entire Governorate area a longer-term objective is the preservation, enhancement and rational use of water resources (by different user, even today, is a minority business management practice within the tourism industry of the region); and focusing on controlling/limiting the over-exploitation or overuse of water resources, particularly in certain areas (e.g. in coastal aquifers prone to saltwater incursion). To this end, it is suggested to implement a specific program which indicates the necessary projects/infrastructure and prescribes all pertinent regulation/guidelines (e.g. feasible/economic irrigation methods, drilling of wells, etc.) for using and managing the water resources.

3.5. Biodiversity

The region has a heavy flora that begins at the coastal area and extends to the rocky plateau. There are two kinds of flora in this area: The first kind: plots planted with olive, palm tree, and wheat depending on rainfall and wells that are randomly distributed. The second kind: plots with coastal plants and herbs. The composition of plant growth forms in the region is a typical desert flora. The phenomenon of succulence is common to the vegetation of saline depressions. It is considered to be one of the mechanisms which enable plants to overcome the problem of "physiological dryness" caused by high osmotic pressures of the root environment.

Five major types of habitat are recognized in this region: coastal sand dunes, inland ridges, non-saline depressions, wadis, and inland plateau. Each of these habitats is characterised by the local physiographic variations, which effectuate variations in vegetation composition and species abundance.

Eight main physiographic categories of coastal dunes are recognized: Very active baby dunes, lying close to the shore; Active, partly stabilized dunes; Protected leeward slopes of active large dunes; Stabilized dunes with typical dune form; Deep protected sand shadows; Exposed barren rock and escarpment of the coastal ridge; Sand sheets overlying saline flats; Shallow protected sand shadows (occurring only in the eastern province).

Fauna: The fauna of the north-west Mediterranean land may be categorized within 3 well-defined physiographic zones: the coastal sand dunes, the salt marsh depression between the 2nd and 3rd ridges, and the inland non-saline depressions.

Distribution of animals in these dunes depends on two main factors: the soil salinity due to salt spray from the sea and the position on the dune, whether facing the sea, on the dune crest, or facing the land, where the dune is more consolidated and stabilized with higher content of fine soil material and organic matter. Animals are confined to shrub canopies where they are protected from wind and radiation, and where food from accumulated plant litter is available. Richness of fauna is greater on the leeward side of the canopies, i.e., the SE side. This difference is greater under shrubs with V-shaped branching rather than with a cushion-like form. The characteristic species of this biotype are more varied than in the inland depression. It is remarkable, however, that the land snails, which are abundant in the inland non-saline depressions, are absent from the coastal dunes. The fauna of the dunes also shows a marked seasonal differentiation. The fauna of the second, salt marshes zone has not been adequately studied, while the inland non-saline depressions third zone has.

The greater diversity at the leeward side of shrubs is also observed. The sand roach populations are of lower densities than on the coastal dunes and have a more extended life cycle, but can benefit more fully from small increases in soil moisture than on the coastal dunes. One of the noteworthy phenomena is that population irruption's of some species may occur unexpectedly and unpredictably. The four sub-types have different characteristic population of fauna, but remarkable thing is that micro-herbivores (potential pests) increase at the expense of both detrititivores and carnivores. This is due not only to better environmental conditions (more sources of plant living biomass) but also to its better quality, as well as the food sources provided by the proliferation of accompanying weeds. Together with this is the removal of grazing animals from the agro-ecosystems except after harvest of barley in rain-fed farms, or in neglected olive orchards. The majority of species are therophytes (40,8%) and chamaephytes (93.4%). Accordingly, species diversity may be assessed by several indices. The simplest index is merely the number of species in a community (or

habitat) at a site, or in a region, and is called "species richness". As for species richness, the Matrouh Governorate is, floristically, one of the richest of all phyto-geographical regions of Egypt. The most striking observation is that the highest richness is recorded on ridges and inland dunes. It is also notable that species richness is lower in man-made habitats than in natural habitats. The oxygen content of the surface seawater in Matrouh showed a high value during winter and decreased during spring and summer through autumn. In general, the eastern Mediterranean is considered of the oligotrophic areas poor in nutrient salts, which are necessary for phytoplankton growth and flourishment. The population increased towards offshore of Matrouh and vice-versa occurred in. While the least population density of zooplankton was recorded during winter season in both and Matrouh, autumn and summer were the flourishing season respectively. Spring and summer were the flourishing seasons of benthic flora. However, the highest population densities of the bottom fauna were recorded during spring and summer in both the inshore and offshore of, during winter and summer in the inshore of Matrouh, and during spring in the offshore of Matrouh. But nevertheless none of the above mentioned natural flora and fauna was threatened or endangered by tourists' activities. It was the artificial landscape that was introduced in the sea-side hotels and resorts that caused harmful effects to the natural land forms and sea side dunes as will be explained below.

3.6. Landscape

The natural landscape can also be divided into a northern coastal plateau and a southern plateau (tableland). In the eastern physiographic province a number of alternating ridges (bars) and depressions (lagoons) running parallel to the coast in the E-W direction. The ridges are formed of limestone with a hard-crystallized crust, and vary in altitude and lithological features according to age. The topography of the area is characterised by three features: coastline (presence of long stretches of sandy beaches divided by a number of capes), coastal plain (3-8 km width), and south plateau Tableland (presence of Wadis – natural drainage channels). Like most places in the north-western coast of Egypt, Matrouh area is covered mostly by sedimentary rocks, which belong to the Quaternary and Tertiary periods, and long stretches and sandy beaches (Figure 44).

Figure 44 – Land forms in Matrouh Governorate

Source: IDSC - Matrouh Governorate

According to the physiographic variations, two main sets of habitats may be distinguished in the area under consideration; one is ridges and plateau, and the other in depressions. Ridge and plateau habitats may be further differentiated into two main types: (i) the coastal ridge, which is composed mainly of snow white calcareous grains and which is overlain by dunes in most of its parts, and (ii) the inland, less calcareous ridges, and the southern tableland. However, seven main habitats may be recognized: (1) coastal calcareous dunes, (2) non-saline depressions, (3) saline and marshy depressions, (4) ridges and rocky elevations, (5) inland plateau, (6) wadis, (7) inland siliceous deposits. Each of these habitats is characterised by local variations in physiography which results in the formation of a mosaic of microaites with local variations in vegetation composition. Matrouh is rich in many marine living organisms. But it is obvious that, despite the

richness in species composition, the numbers are somewhat limited. These species are endangered because of pollution and urbanization activities. The comparatively flat portion of the beach profile extends seaward. The offshore zone may extend about 10 km from the shore and depends on its slope. The near shore and beach face slopes are relatively steep, but the slope becomes flatter in the offshore zone. At the western coast, the beach face and offshore slopes are found to be 1:3-1:10 and 1:20-1:90 respectively. Most of the touristic villages and beach hotels made alteration to the natural landscape described above whether by changing the natural land formation or by introducing soft landscape (shrubs, turf, lawns, and trees) that is alien to the natural flora of the region.

3.7. Preventing degradation of invaluable ecosystems

As mentioned above no clear affects threatened or endangered in a serious way the biodiversity of the flora and fauna in the tourist destination, but still the changes in the landscape represent a major threat from tourist activities, and to prevent this degradation of invaluable ecosystems an approach of Environmental Auditing (EA) is suggested by the Egyptian Environmental Affairs Agency (EEAA) for Matrouh region. (EA) aims at controlling overcrowding over-development and pollution and at ensuring the areas ability to cope with visitors. Various types of EA applied equally well by both private and public agents can reduce or prevent environmental damage and enhance quality for both tourist firms and destination authorities. EA is a major component of an environmental management system for tourism enterprises acting to reduce negative environmental impacts of their activities. It must be undertaken regularly (to check the firm's compliance with the endorsed objectives) and it can result in commercial benefits, like cost reduction from waste minimization, and safety/protection for both employees and visitors. The adoption and use of an EA system must be seen as a long-term objective; it is established on a voluntary basis and is based on an appropriate and widely accepted legislative framework. Equally important are educational policy measures that should be undertaken by both public and private agents in order to achieve certain objectives, such as: upgrade existing inadequately trained, or new personnel, in the hotel /catering branch or other branches of the tourism industry; support traditional professional skills and practices regarding local productive and socio-cultural activities (handicrafts, cuisine, etc.) to promote increased local inputs (and benefits) in the production and consumption of the tourism product; promote environment friendly behaviour and/or raise awareness sensitivity of both locals and visitors contributing to reduction or avoidance of negative environmental effects (e.g. the littering of beaches or depletion of vegetation and dunes, etc.). The design selection and implementation of specific programs (professional training, environmental awareness or specific programs) should consider the above objectives - setting priorities according to a certain scale, as well as criteria of cost effectiveness taking into consideration that tourism training institutions require substantial human and financial resources. Direction C: Broader Context of Policy Measures Tourism's sustainable development is inseparable from the development of other economic and social activities (public or private) in the entire Governorate area. Obviously, tourism and environmental quality are strongly affected by the size/amount, intensity and the type or quality of certain other activities taking place, such as agricultural, industrial/commercial, construction and building, cultural and entertainment, health and educational. Due to the multifaceted nature or idiomorphy of tourism an integral tourism development program should relate to and materialize in parallel and in conjunction with programs and policy measures of other sectors.

V. Policy measures

This section of the report will analyse the results provided by the previous steps in order to describe the main characteristic (profile) of the destination, to explain where the sustainability problems are and to propose action options for improving the level of sustainability of the destination.

1. Introduction

This report is structured in an introduction and three sections linked with thematic topics about the three destinations under-study in Matrouh Governorate (Matrouh city, Al Alamein Town, and Siwa Oasis. For each thematic topic (Tourist demand, water and, land uses, etc.), details are provided about:

1) Policy measures and current regulations, with references on regional and national framework;

2) Propositions, recommendations, and guidelines for policy measures in order to improve the state of sustainability of the studied destinations.

The report analyze the results provided by the previously delivered three reports in order to describe the main characteristic of the destination, to explain where the sustainability problems are, and to propose action options for improving the level of sustainability of the destination.

It uses the categorization of the proposed approach for the three previous reports:

- Policies addressing problems of tourism supply and demand,
- Policies related to socio-economic and environmental results and performances of tourism activity,
- Policies related to the socio-economic and environmental sustainability state of the destination."

"The "policy measures" in the report is used in a "free" way in order to describe existing policies at national and local level that have influenced the results and the impact of tourism in the three destinations (Matrouh City, Al Alamein, and Siwa Oasis); These policy measures are economic, social and environmental measures used:

- As incentives to attract local and international investments in the area; to encourage tourism enterprises for water and energy savings; to attract more tourists in order to ameliorate the occupancy rate; to promote the diversification of the tourism product; to ameliorate human skills; to encourage purchase of local products; to implement quality schemes (including environmental quality ones) in tourism enterprises etc.
- As legal measures to protect the environment generally or specifically within the Matrouh Destinations,
- As state and local investment or other policies in the area related to tourism and addressing already mentioned problems.

1.1. Indicators for sustainable tourism

Linkages between economic development and the environment in Matrouh City, Al Alamein Town, and Siwa Oasis, need to be clearly stated. Hence sustainable tourism indicators are mainly used for integrating tourism to its environmental and socio-cultural context. Furthermore, suggested sustainability indicators for Matrouh tourist destinations would be formulated in a way that the weak points are cleared, so actions are highlighted to be taken. Indicators help to examine the sector's relationship to the rest of the activities and the environment in an effort to achieve overall sustainability for the area.

1.1.1. Proposed indicators

Indicators for sustainable tourism are proposed in an effort to facilitate the implementation of sustainable tourism in the destinations, most of them refer to aspects such as involving local communities, sustainable use of the resources, planning for tourism, promoting information and research etc.., these suggested principles of sustainable tourism are:

- Sustainability in using resources;
- Reducing over-consumption and waste;
- Maintaining diversity;
- Integrating tourism into planning;
- Supporting local economies;
- Involving local communities;
- Consulting stakeholders and the public;
- Training staff;
- Marketing tourism responsibly;
- Undertaking research.

There is a strong relationship between the suggested indicators. This is not surprising given the complexity of tourism, the interrelation in the different components of sustainable development and the need for holistic approach. Thus, the indicators of "Integrating tourism into planning", and "Marketing tourism responsibly", are examined together. This is also the case in the principles", "Involving local communities" and "Consulting stakeholders and the public".

Policy measures include both declared current regulations and undeclared but adhered to policies, the section covers the policies addressing problems of tourism demand and supply, Socio-economic and environmental Policies, and Environmental Policies.

2. Tourism policies

Under this heading comes two points of great importance:

- The regulatory framework governing tourism (policy rules and regulations);
- The business environment and infrastructure (tourism infrastructure, and tourist demand).

2.1. Tourism supply regulatory framework

The regulatory framework governing tourism includes rules and regulations for the sustainability of tourism development in the three destinations.

2.1.1. Natural resources regulations

According to the National Parks and Protectorates law of 1981, the Egyptian Environmental Affairs Agency (EEAA) is responsible of the preservation of Natural Reserves in Egypt. From the other hand Law 4/1994 for the Protection of the Environment (Amended by Law 9/2009) has a greater role with respect to all governmental sectors as a whole. The law has designated the Agency as the highest coordinating body in the field of the environment and responsible for formulating the general policy and prepares the necessary plans for the protection and promotion of the environment. It also follows-up the implementation of such plans with competent administrative authorities. The Environmental Protection Law has defined the responsibilities of the agency in terms of the following:

- Preparation of draft legislation and decrees pertinent to environmental management;
- Collection of data both nationally and internationally on the state of the environment;
- Preparation of reports and studies on the state of the environment;
- Formulation of the national plan;
- Preparation of environmental profiles for new and urban areas, and setting the standards.

Some provisions of the Executive Regulation of Law 4 were related to the set-back area for any sea-shore development. Where it stated:

- It is prohibited to issue building permits for the construction of any establishment on the seashores of Egypt at a distance of two hundred meters inwards from the shoreline, except after obtaining the approval of the Egyptian General Authority for the Protection of Beaches, in coordination with the EEAA.
- It is prohibited to authorize the carrying out of any works which may affect the natural shoreline of the beach or alter its configuration either inwards or outwards, except after obtaining the approval of the Egyptian Authority for the Protection of Beaches in coordination with the EEAA. With regard to applications which may affect the natural shoreline of the beach or modify same.

2.1.2. Cultural heritage regulations

"Le service des Antiquités d'Egypte" was established in 1859 belonging to the ministry of public works. Since 1960, it became a part of the ministry of culture. It was transformed in 1971 into the Egyptian Antiquities Organization EAO (presidential decree 2828/1971). The EAO was then transformed by the decree 82/1994 into the supreme council of Antiquities SCA. In 2011 the Organization was transformed to "The Ministry of antiquities" as separate Ministry. In 1997 the public law 117/1983 assigned power to the central offices concerned with the different cultural Heritage categories in Egypt. According to this law, the term antiquity is applied to any building or movable object resulting from the different civilizations that span the totality of the Egyptian History (reflecting human, artistic, technical, military, religious aspects) and of more than one hundred years old. However, a building or a movable object of great cultural value could be listed a national Heritage regardless its age by a decree of prime minister. Inventories of antiquities in sites and museums are accomplished by two centers of documentation, "Information center of SCA" and "Center of Information and Decision Making of Ministries Council" and its branches in all the Governorates of Egypt. Documentation sheets are diffused and filled by local authorities together with photos and inventory exists only on administrative and scientific level. Inventories for the Antiquities sites in Matrouh City, Al Alamein Town, and Siwa Oasis are now done by electronic data base systems and some data are already available in the Governorate office. Restoration and Enhancement of Egyptian Cultural Heritage essentially funded by public funds (fees of entrance of archaeological sites, museums, exhibitions… etc), together with international donations. Foreign missions are asked by the law 117 to undergo restoration for their findings. Private associations start now to contribute for the enhancement of National Heritage.

International funds - Marina Al Alamein excavations

Decisions were made by the Supreme Council of Antiquities to start excavations in Marina Al Alamein as it comes under extremely heavy tourist development pressure on all sides. The project is implemented and funded conjointly with the Polish Centre and American projects fund. The project had bearings on how the site looks today and how it will look in the near future. In the official Egyptian strategy for the tourist development of the Mediterranean coast of Egypt, Marina Al Alamein is seen as a major attraction, not only as an open archaeological site, (a veritable Egyptian Pompeii emerging from the sands), but also as the location of a site museum, which hopefully will collect antiquities from the entire coast between Alexandria and Matrouh. The excavation started out in November 2005, conducted major earthworks combined with whatever archaeological surveying and limited testing that was required in order to remove the building-construction and archaeological dumps that had obstructed a clear view of the ancient town. Building works

were started on the site of a new parking lot for tourists and on relocating and re-shaping existing mounds into a panorama hill next to the future site entrance. The tourist itinerary was updated and a trial run of the tourist walk traced in the field. Limited restoration in the "Forum" area was also undertaken. Completion of the site presentation project together with signage and lighting on site is expected within the next two years. The major objective of the project is to carry out restoration of monuments with an eye to future site presentation (each new element of the project is consulted with the Supreme Council of Antiquities). The main thrust of the work is preservation, conservation and restoration, but before the architectural restorers can move in it is essential to complete standard documentation that is lacking for the monuments in question. It should be kept in mind that most of the Project's effort is directed at buildings which were uncovered during rescue digging in the late 1980s at the time of the original discovery, but which were never subjected to regular archaeological excavations.

2.1.3. Business environment and infrastructure

Business environment and infrastructure includes tourism infrastructure (like accommodation facilities), and tourist demand.

Accommodations

The accommodations situation in Matrouh tourist destinations are characterized by the dispute about the secondary homes and their contribution to sustainability of tourism development.

Secondary homes

One of the measures for the tourism performance in Matrouh City, Al Alamein Town, and Siwa Oasis, is always referring to the role of secondary homes, which is steadily growing since the late seventies and its capacity exceeded the hotel capacity with a rate of about 10 to 1 in some of the newly built projects. Secondary homes represent one of the major issues facing tourism sustainability in the three destinations as most of these homes are closed for about 9 month each year so they do not generate permanent employment nor contribute to local economy in sustainable way. Other issues related to this kind of tourist accommodations are related to the Mortgage law and real-state finance in Egypt.

Mortgage law in Egypt

Registration of a property is a major obstacle confronting the real estate finance activity in Matrouh destinations, even though it is essential to get a real estate financing service. Most properties in Matrouh City, Al Alamein Town, and Siwa Oasis, are not registered, hence came the delay in the enforcement of real estate finance law. The problem is related to the terms forwarded to investors and buyers to be eligible for Real Estate Finance in Egypt which include:

- Buyer must have a steady and proven income,
- Maximum monthly instalment should not exceed 35% of the gross proven income,
- The Egyptian finance organizations can fund up to 75% of the property value,
- Buyers will pay of instalments through a set monthly amount up to 5 years for non resident,
- The company holds the right to ask for any further terms or guarantees to accept the case,
- The property must be registered or able to be registered,
- The Egyptian finance organizations legal team studies the documents to guarantee your ownership. (Studies take long time),
- Applicants request must meet all credit criteria in order to get the fund.

The results of this cumber some procedures prevent some of the buyers who are willing to live in one of these destinations cannot buy their homes.

2.2. Tourist demand policies

The existing tourist demand in Matrouh City and Al Alamein, and Siwa Oasis tends to be seasonal, with a peak period for both Matrouh City and Al Alamein during the summer months between July and August and a peak period for Siwa Oasis during winter months. The type of tourism that the three destinations currently receive is not fulfilling their potential because of this acute seasonality. About 85% of the visitors of both Matrouh City and Al Alamein can be defined as the sun-and-beach tourism (coastal belt), and for Siwa the visitors goes for Cultural, adventure, and eco- tourism.

There is a need for a diversification policy regarding new tourist products development to secure sustainability for the three destinations. Tour operators started to diversify their programs to attract a part of the international tourist segments of the markets interested in the culture tourism in Matrouh City and Al Alamein, the desert tourism in Siwa and yachting tourism in Porto Marina Al Alamein. The high season in Matrouh City and Al Alamein is now extended in some tour operator packages from June to the first week of September. However, as the water based activities and facilities at the sea side become operational and integrated with other tourism activities, the water based recreation season will most probably lengthen in duration and make tourism more sustainable. The high season in Siwa could extend from October to the first of May.

Second home buyers

Over the last years, both of Matrouh city and Al Alamein received nearly 31% of the total domestic tourism. Most preferred types of accommodation were the free hold ownership system for flats, chalets, and villas. The Egyptian tradition of having secondary homes in Matrouh city, and especially summer house or a condo, has its beginnings in the late 70th of the 20th century. The pioneer generations of summer cottagers were recruited from among the urban elite, but since the mid 1980s, the social base was broadened. The middle class of civil servants, academics, and office clerks built themselves less imposing summer houses. Secondary homes and their use is expected to focus especially on people needing more facilities in their holiday homes and who want to combine the fully-equipped houses with life near nature. Moreover, there has been rise in the use of second homes in other than summer season. The market for secondary homes in Egypt started to attract foreign owners from Europe and the Europeans have been interested to buy homes mainly for retirement while Arab residents have been interested in vacation homes. There is a need for a policy of encouraging and facilitating for Europeans and Arabs to buy secondary homes in Matrouh City and Al Alamein, and Siwa Oasis.

Mass tourism

Mass tourism is the predominant form of tourism in most Mediterranean resorts and its reliance on few tour-operators may lead to an oligopoly which can limit substantially the profits for the host area and is not easy to be controlled locally. In Matrouh City it plays an ambivalent role in contributing to cultural exchange and sustainable development. On the one hand, it involves a highly buffered tourist experience of the local community of Matrouh. Tourists can pay and leave the destination, remaining isolated from any impacts at the local level. On the other hand, mass tourism may increase recognition of the importance of respecting cultural diversity. While mass tourism in the past was rather producer-driven, the industry today is becoming increasingly consumer-driven. In highly competitive tourism markets that are under-developing now for Matrouh, well informed, responsible tourist can put increasing pressure on the tourism industry to behave more responsibly.

The pressures paused on the environment because of the high tourist numbers in a limited time period and the seasonal and non-career character of the jobs offered, are important considerations. On the other hand, the "winter" pause could be considered as positive since locals could have some time to strengthen their family and social bonds while ecosystems could also take a period of "rest". The need for diversification of the tourism product in order to restructure development appears to be essential. The new consumer culture with the increasing awareness about environmental quality, make apparent the need for new alternatives to be promoted in areas which have developed a massive and undiversified product so far.

2.3. Tourism issues analyses

Over-consumption

The over-consumption of the shore line natural resources in Matrouh City, and al Alamein by tourists and tourism infrastructure is incompatible with sustainable development. The carrying capacity of natural environments is often exceeded with the addition of tourism demands. Tourist demand for resources also competes with the needs of local people and may increase social inequality, gender inequality and injustice. Tourist transport, especially air travel, is highly energy intensive and causes pollutant emissions. Many tourism activities such as boating, motorized water-sports (jet skies especially in Marina Alamein project), and desert trekking and the Safari trips organized in Siwa Oasis represent a stress to fragile ecosystems.

Lack of information

Tourists often lack information and awareness about their impact in a different culture and environment, about the impacts of tourism on socio-economic and socio-cultural development, and about the environmental costs of tourism in both Matrouh City and Al Alamein (and with a less degree in Siwa Oasis). While tourists may be open to learning, they are often unaware of inappropriate behaviour and have little guidance on how to improve.

Tourism impacts

While the tourism industry in the three destinations may be willing to improve their products and services, there is a conflict between the industry's pursuit of economic gains and social and environmental responsibility. The local industry lacks information on the requirements of sustainable tourism and on how to integrate economic forces with environmental and social requirements. This conflict of interest within industry, and consumers' low awareness of tourism impacts, has led to a widespread abuse of 'green' labelling of the three destinations tourist products.

Institutional aspects

Local Authorities of the three tourist Destinations, and local communities have little or no information on what to expect from tourism and the incoming tourists and how to influence and control tourism and guide tourist behaviour. They are controlled by international/global institutions, the industry and the tourists themselves. These Local Authorities are not yet sufficiently aware of their responsibility and methods to influence tourist behaviour by political and legal guidelines/criteria and appropriate planning and policies.

Tourism policies and regulations

Liberalizing port services and permitting licensed air companies to provide apron handling for their own flights, and also to participate in infrastructure projects under Build, Operate and Transfer (BOT) Arrangements. Laws related to hotel construction were reviewed to eliminate restrictive procedures for licensing hotels, tourism establishments and foreign investment in the travel agency segment. An amendment to the current law for facilitating the purchase of holiday residences by foreigners in Egypt was also executed.

Other institutional and regulatory frameworks for investment were provided through the TDA for supplying land at a nominal price and facilitating access to loans for developing infrastructure projects. Efforts are currently being devoted to reducing the number of regulations by adopting a one stop shop system in the context of an institutional and legislative reform in the sector.

The sector in Matrouh Governorate has seen numerous developments in areas such as marketing, ICT infrastructure and human resources. New tourism niche areas – sports tourism, health and therapeutic tourism, shopping and residential tourism– have evolved. Aviation infrastructure is being modernized through a program of improvements in facilities at major airports.

2.4. SWOT Analysis

Strengths

- Rich and diversified tourist resources in the three destinations,
- National Laws and Regulations provide good base for sustainable tourism development in the three destinations,
- Tourism in the three destinations has a reasonably diversified base for tourist demand (Egyptian, Arab, and European markets),
- The relatively remote and peripheral locations in Egypt of the three destinations delayed the tourist pressures on them.

Weaknesses

- Shorelines and beach resources in Matrouh City and Al Alamein are facing high pressures from tourists' activities and overbuilding,
- Tourist Demand acute problem of seasonality,
- Weak involvement of the three Destinations in national tourism and destination promotion,
- Weak control and use of the development from local Authorities and local communities.

Opportunities

- In line with the declared long-term plans and policies to diversify Egypt's tourism away from the Nile, sustainable tourism development remains strongest in Matrouh Governorate,
- Development is driven by the Egyptian Tourism Development Authority's strategy of clustering hotels in tourist centers,
- Planned growth in accommodation capacity and increasing hotel privatization offer significant opportunities for hotel management companies,
- Development of new tourism products and niche markets in Siwa, such as ecotourism, health tourism and conference tourism.

Threats

- Tourism resource base in the fragile desert environment of Matrouh and Siwa will be depleted due to the tourist activities pressures,
- Deterioration of the high quality facilities in Marina Al Alamein due to the expected changes in the profile of tourist demand and overdevelopment,
- Possible serious collapse in the real estate market in Egypt,
- Development of tourist enclave in the three destinations isolated from their local communities.

2.5. Evaluations of the three destinations

To provide a dynamic profile of the three destinations, not only a picture of current state but also some future dynamic perspectives, such as potential. The following are the factors that best illustrate the similarities and differences between the three destinations.

Definition

Variety of Socio-demographic segments served: Al Alamein is not as evolved or as strong in this area. Though in comparison with other two destinations, we see that all of them are relatively weak in this regard. This can be explained in part, by the concentration of Al Alamein developers on attracting the more wealthy segments of the Egyptians and Arabs tourism markets. In the long run however, having the amenities to

attract a full range of desirable socio-demographic segments is preferred because of the revenue and brand reputation maximization that such variety affords.

Variety of the tourist activities and experiences offered: Matrouh City does not compare well with other two destinations in this regard as for Al Alamein development was planned and included Yacht Marina and Spa and other activities while Siwa was considered to be a destination for desert adventure and eco- tourism and have all the needed facilities for these two types of tourism. Weakness in tourist activities and experiences offered harms destination revenue performance and the pace of brand reputation building. It also makes marketing more difficult and more costly than need be as a marketing push strategy is required. This low scoring is understandable even predictable as development was spontaneous in Matrouh city. So long as the near term Matrouh development plans include significant improvements in this area, it will sustain tourism growth.

Competitiveness of accommodation supply: Marina Al Alamein hotel room price point is not as attractive as the other two destinations. In comparison with other two destinations, Al Alamein 's property as it stands today, does not offer as good a value – in part because the available attractions and variety of options are not so developed.

Pulse of the Destination: Like —variety, in this dimension Matrouh city does not score well. Especially in the city area, the choice of restaurants, the retail experience and the vibrancy of the morning, noon and evening times are weak in comparison with Al Alamein destination. In order to build a strong brand (through a strong online customer commentary) this aspect of the destination needs to be worked on.

2.6. Recommendations for tourism demand and supply

Sustainable tourist movement to Matrouh Governorate destinations is both a product and cause of policies by government and industry. A comprehensive approach is therefore required to solve the problems associated with market-driven tourism. Tourism in the three destinations should be viewed as a major development issue that all stakeholders need to be actively engaged with. To develop effective partnerships, the imbalance of power between the different stakeholders needs to be addressed. From this perspective recommendations are related to the following:

- Legal measures (rules, regulations, sanctions);
- Market based instruments, such as taxes to influence market prices;
- Promotion of and (financial) support for best practice;
- Industry self-monitoring/codes of conduct;
- Information, education and research.

Recommendations For local Authorities in the three destinations will include:

- Establish an NGO tourism advisory group for each destination to provide technical support, analysis, and strategic advice for the tourism projects; and to create a 'best practices' information clearing-house in order to collect consumer information useful to understanding and positively influencing the tourist behaviour and to make documentation accessible on an equitable basis;
- Governments should, at local level harmonize laws on tourism including regulations, fee standards, licensing, etc. so that they will be more favourable to sustainable tourism in the region;
- With the help of both environmental (EEAA) and tourism (TDA) authorities, initiate a broad information and awareness campaign to highlight damaging forms of tourism and impacts, providing tools for informed decision-making.
- Regulate tourist access to ecologically fragile or stressed natural areas in destination;
- Promote environmentally friendly modes of transport and transport concepts, reduce tourism-related traffic, shift demand to less environmentally damaging modes of transport;

- Promote renewable sources of energy such as solar power, reduce the use of non-renewable energy, and reduce the use of limited local resources through more sustainable practices/consumption patterns;
- Develop information and education programs in co-operation with local stakeholders ensuring all stakeholders' involvement; provide information to tourists on appropriate behaviour (sensitivity, respect for/adaptation to local culture), by establishing information centers in each destination, provide information to the local population on the opportunities and risks from tourism and on how to influence tourist behaviour;
- Promote sustainable tourism products, using market related instruments and incentives, such as contests, awards, certification, model projects, culturally sensitive quality labels covering both environmental and social sustainability.

Recommendations for investors and local tour operators in the three destinations include:

- Reduce inappropriate consumption, reduce and recycle waste, ensure safe waste disposal, develop and implement sustainable transport policies and systems;
- Provide information in the hotels or tour operators buses on respecting the cultural and natural heritage of destination areas;
- Adopt, observe, implement and promote codes of conduct;
- Disseminate information to a wide public about the complexity of tourism and about the objectives and criteria of sustainable tourism;
- Educate your trips guides to change consumption patterns and promote appropriate, environmentally and socially acceptable behaviour in the destinations;
- Launch broad awareness campaigns on the worst impacts of tourism between your employees,
- Promote relevant research on tourism impacts, criteria for sustainable tourism and possibilities for implementation;
- Improve conditions for sustainable behaviour by providing/promoting sustainable tourism facilities;
- For coastal Destination like Matrouh city and Al Alamein attention should be paid to the preservation of coast line, and for Siwa Oasis the fragile ecosystems, in order to harmonize tourism and environmental policies;
- The local tour operators and local hotel owners in each destination should ensure that in tourist areas, particular attention be paid in relation to peak demand, to sewerage, solid waste disposal, noise pollution, building and traffic density control;
- All possible incentive actions should be taken in the and private sectors to spread tourism demand for each destination over time and hence reduce stresses on the environment; to this end the staggering of holidays and "flexible week-ends" should be encouraged;
- Matrouh city and Siwa Oasis must offer a diversified wide range of accommodation options in terms of physical, financial, and functional aspects;
- Matrouh city must be planned to accommodate integrated communities that provide various environments and appeal to various groups of users. This shall allow the flexibility to accommodate tourists with possible conflicting culture and habits. Yet Matrouh city will still offer the appeal of the diversity and mixing of the various cultures through the common areas that will contain such communities and that will connect them together.

3. Socio-economic and environmental policies

This part of the report highlights socio-economic and environmental Policies those results from performances of tourism activity.

3.1. Socio-economic policies

Tourism constitutes a major economic activity whether in Matrouh City, Al Alamein, or Siwa Oasis and that its further expansion will continue and is desirable both for the economy and for the social well-being of the community. Tourism can further the creation of employment and regional development as also environmental resources are a major element of tourism and that a good environment is an essential quality of tourist areas; but also unrestrained growth of tourism could reduce the quality of tourist areas and possibly their income earning capacity; Matrouh Governorate can be guided in the development of their tourism industry by the Guidelines concerning the International and Economic Aspects of sustainability Policies in Tourist Areas. This includes policies related to the investment regulations, Seasonality of employment, and supporting local economies.

3.1.1. Tourist investment regulations

The government of Egypt has taken steps to create a favourable legislative and regulatory environment and encourage investment in the tourism sector, as well as modernizing its supporting infrastructure. Investment in tourism in Matrouh Governorate has recently become an attractive investment option, due to the flexible policies adopted by the government and the improvement of the investment environment in general. New amendments to the Investment Laws granted more privileges and incentives to the private sector especially in tourist development activities. According to the Procedures and Stipulations of Contracting with Investors dealing with Tourism Development Authority (TDA), The Authority should undertake to assess the submitted project and allocate the site. The investor is given the approval of the market studies (which covers the demand analyses estimating the expected demand on the project), and the suggested financial plan for the project (with the direct and indirect expenses, items revenues, benefit and loss, and expected budget), and technical studies (with the needed plans and drawings. By the end of modifications and fulfilling the observations and the authorization of the final construction drawings, the construction license is issued. The investor undertakes to start implementing the project according to the time-schedule specified in the contract after the Authority authorizes the sketches of implementation, he undertakes as well to present quarterly to the Authority reports on the progress of the work. The Authority follows up the works of implementation according to the stipulations of the contract in the light of the time specified and authorized. The investor undertakes to facilitate the mission of those charged from the Authority to make the follow up the projects. In case the investor does not comply with the time schedule specified and authorized in the contract without the presence of the mandatory reasons accepted by the Authority, the TDA has this right to cancel the contract without refunding any money paid before.

3.1.2. Seasonality of employment

As previously indicated the tourist seasons in the tourist destinations of Matrouh Governorates are normally defined as a high, low, and shoulder season. The duration of the seasons has a direct effect upon the investor's decision to invest in the destination and to expect positive return for his investment. Obviously, extending the high season maximize the efficiency of tourism facilities and contribute to the increase of the return on investment. One of the investors' policies to deal with this situation is to employ seasonal hotels employees in the three destinations which do not help the destination to sustain the development.

3.1.3. Supporting local economies

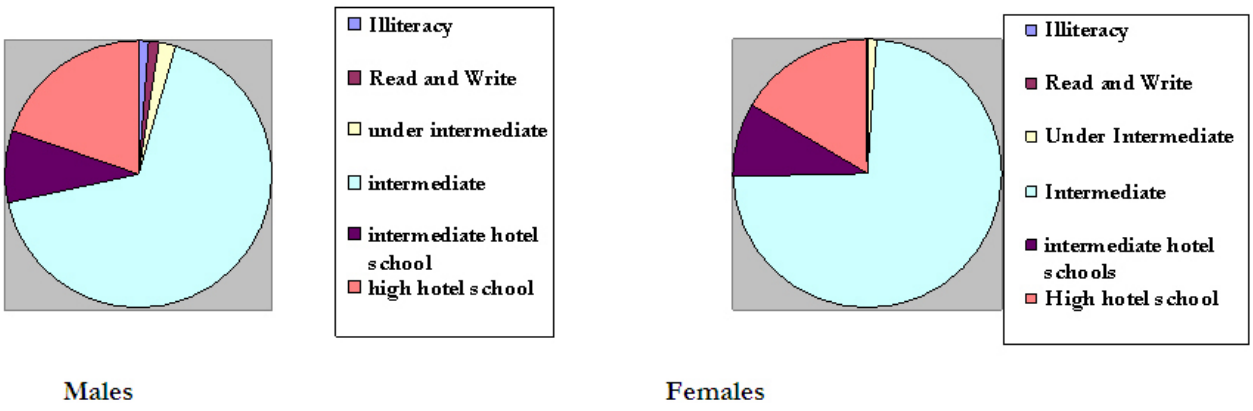
In the three destinations of Matrouh City, Al Alamein Town and Siwa Oasis, tourism has become in the last 20 years one of the most significant economic activities. Employment growth and income generation are the two key economic benefits gained from tourism. Tourism is a labor-intensive sector that has direct, indirect

and induced benefits on local incomes. On the other hand, tourism is an activity that may necessitate large amounts of investment, which usually are not available locally and have to be procured from abroad or other parts of the country. As a result, it is possible to have excessive expropriation of profits from the business interests that invested and gradual loss of control over local economic activities. Employment and income generation for local people, compared to similar indicators for other economic sectors, is one indicator for this principle. However, when the proportion attributed to tourism is unevenly high, this could indicate a non-sustainable pattern of development. It is common that large number of the businesses offering tourist services belong to non-locals. Also non-locals may take many of the jobs. Additionally, a large share of the expenditures made by tourists may never reach the host community. A very significant contribution of tourism to the local economy is the increased demand for the local products, agricultural, crafts, products of small artisans etc.

3.1.4. Training staff

Training and continuous education for tourism employees is important for the improvement of the tourism product offered. This later is important in its turn, for developed areas facing some stagnation or decline in their product. There is a need for continuous training in every type of job related to tourism, from cooks to higher managers. Better quality, greater productivity, increased effectiveness, introduction of new technologies and environmental extensions should be some of the subjects to be worked on. The training element is better reflected at the regional level or even more at a national level. Indicators, such as availability of vocational courses offered on tourism services, are more meaningful when measured regionally. It is not expected that each resort will organize courses while it is expected that in a broader area courses will be available for people from around the region. Therefore this principle is better examined in a regional scale. However, in order to have some kind of indication for the training element the indicator of a broader region could be used indicatively of the situation. Proposed indicators for this as % of Average employees that are graduates of tourist schools total number of tourist employee is 28%. This is low educational/professional standards with high percentages of illiteracy indicated in report number two which reached 45% of the total population in the whole of Matrouh Governorate, but for tourism sector the situation is totally different (Figure 45).

Figure 45 - Educational status of tourism sector employees by gender in Matrouh Governorate 2008



Source: Matrouh Governorate, Information and Decision Support Center (IDSC). Data collected in 2009

3.1.5. Socio-Economic SWOT

Strengths

- The Leakages of tourist expenditures from local economies in Siwa Oasis is minimal as the eco-tourism activities in the oasis are depending on local products;
- Relative local community stability and low wages in global terms are advantages for foreign investors in the three destinations;

- Regulations in the national and local levels encourage investment in sustainable tourism development project;
- The government consider Matrouh Governorate a desert remote area with all the incentives associated with these areas for investors and employees.

Weaknesses

- High leakages of tourists expenditures in Al Alamein due to the imported out of the region employees and materials whether from Cairo or from abroad;
- Seasonal employees are depending on seasonal tourist demand which prevent the sustainability of development in the three destinations;
- There are relatively high levels of bureaucracy in Matrouh governorate and local authorities;
- Some hotels in the three destinations uses desalination unit to desalinate brackish water to use it for irrigation of landscape plants with high costs.

Opportunities

- The Bedouin traditional handicrafts represent an opportunity to develop eco- tourism activities in local communities of the three destinations;
- Tax and tariff cuts can stimulate economic activity in such remote desert destinations;
- Financing local communities for small and medium scale projects in the three destinations.

Threats

- The widening fiscal deficit is adding to the costs of servicing debt, most of which is held domestically;
- High unemployment rates may lead to emigration of local employees to Alexandria or Cairo;
- Untrained local employees in the three destinations may prevent local communities benefiting from tourism;
- Scarcity of affordable employee's low-cost housing in the three destinations may prevent their settlement with their families in the destinations.

3.1.6. Recommendations

- "Matrouh Governorate, industry, local authorities in the three destinations, and tourism-related NGOs in Matrouh city, Al Alamein, Siwa Oasis should promote and participate in the creation of open networks for research information and transfer of appropriate knowledge on tourism and environmentally sustainable tourism socio economic indicators;
- In order for tourism to become a sustainable industry in Matrouh, the Governorate and individuals must work with participatory planning and implementation will be a part of Local development program processes. To ensure community involvement and to safeguard local cultures, sustainable tourism development should therefore involve all stakeholders in tourism development at all appropriate levels, facilitate the development of tourism services that are planned, managed and reviewed by the host community in local development program processes. This will also ensure that tourism revenue stays in the host communities to enhance livelihoods and generate a profitable source of income, empower and motivate local groups to direct cross-cultural exchange in the way they wish and adopt practices which conserve, protect and preserve the environment;
- Local and regional tourism boards should be created on Matrouh Governorate level, involving all stakeholders. These Boards should promote sustainable tourism concepts in co-operation with local governments;

- The Governorate should increase funding for local NGOs to enable them to engage in a dialogue on tourism, Support public education programs which encourage responsible consumption, natural resource use, environmental protection and local culture conservation; give priority to the following investment suggestions: create funds to help tour operators improve their technical capacity for sustainable tourism development; create funds to develop recreational facilities for the public;
- Encourage local banks and other lending institutions in Matrouh, Al Alamein, and Siwa to set up regional investment funding programs, including micro-credit programs.

3.2. Environmental policies

The environment pressure provoked by tourism distinguished in permanent (land use changes) and functional (consumption of natural resources as water and energy, production of wastes). Environmental policies in this regard affect Urbanization & Land-Use Changes.

3.2.1. Urbanization & land use changes

The TDA in coordination with the Governorate planning office allocates large portions of land to private sector investors, who operate under contract with the TDA and who are responsible for the establishment of infrastructure, construction and operation of hotels, and the provision of community utilities for staff. In the early years, the program of tourism development was driven by growth targets in terms of visitor numbers and accommodation capacity. However, the TDA has now rethought its approach to embrace concerns for the environment of the destination, its overall quality and long term future based on successful adoption of policy measures.

Environmental aspect of land uses

An environmental Impact Assessment of the actual land use status of the area is the most crucial prerequisite from local authorities in the three destinations for identification and final evaluation of the nature, degree and impacts of direct and indirect environmental problems. However statistics, data, existing and planned policies, are needed before any conclusion is made regarding level and degree of environmental awareness. What is actually obvious is the fact that the majority of tourist projects are almost undeveloped, while certain zones – mainly along the coast – are being very much exploited. Existing planning regulations are based on sustainability criteria that combine long-term ecological viability, long-term economic viability, ethical use of resources, and equity with local communities, and compliance with EEAA guidelines and Environmental Law 4/1994.

Environmental impact assessment (EIA)

The EIA system in Egypt uses a listing approach to screen projects according to the Possible severity of environmental impact, dividing them into those with a mandatory Requirement for EIA, those where further screening is needed, and those not Requiring EIA. Responsibility for reviewing and assessing EIAs for tourism projects is divided between the TDA and EEAA, with evaluation by both.

Land use recommendations

1) There are many weaknesses in the process of reviewing the EIA, including:
   - A lack of guidelines for assessing an EIA for tourism projects (emphasis had previously been on more Polluting industries);
   - Insufficient coordination between the developer, TDA and EEAA, leading to hold ups in approval and many projects going ahead without it;
   - Conflicting information between TDA and EEAA on EIA compliance;
   - No systematic review to ensure that mitigation measures and compliance required by the EIA are followed.

2) An important component of improvements is the need for preparation of a detailed plan for the three destinations of Matrouh City and Al Alamein Town, and Siwa oasis. To considered three development alternatives: high growth (conventional/existing type) tourism development; sustainable tourism development; and low growth/ecotourism development. The suggested planning process for the Land Use Management Plan that followed will be based on the fact that different resources have different abilities to accommodate various tourism activities. The following steps for assessing the resource sensitivity and identifying the land use zoning scheme is suggested to be followed:

   - Collection of data on the existing conditions for each resource as a separate Geographic Information System (GIS) layer;
   - Subdivision of the planning area into homogenous natural sub-zone/habitats by combining all natural resource layers;
   - Classification of the sub-zones/habitats based on ranges of weighted values. Sensitivity to tourism use was graded (based on the professional judgment of experts) as: low, medium, high, or very high;
   - Development of a land use zoning scheme for the different grades of natural sub-zones according to their environmental sensitivity;
   - Development of conservation, management and development regulations for the land use management zones. All shoreline vegetation is protected.

   A Sensitivity Map rates the most sensitive resources in terms of their resilience to the impacts of use. This illustrates an important issue: in general, the resources that the visitors want to see are often those that cannot withstand the impacts of use. The challenge for the zoning scheme is to accommodate use near or in the resources while minimizing or eliminating impacts. Each of the proposed management zones corresponded to the different grades of sensitivity within the natural sub-zones of the three tourist destinations of Matrouh City, Al Alamein Town and Siwa Oasis. The following zoning scheme for the planning of each destination is suggested: Ecotourism Zone; Low Intensity Development Zone (Coastal Eco-Resort Zone); and Moderate Intensity Development Zone. The Land Use Management plan would list general regulations for the management of zones identified in the zoning scheme to safeguard the each destination from urban expansion and ensure the best investment of environmental and cultural resources and the preservation of ecological balance. The result would lead to radical changes to the regulations applied previously by the TDA.

3) There is acute need to enhance the Governorate environmental monitoring capabilities, including establishment of an Environmental Monitoring Unit within it. Protocols, procedures and checklists needs to be established to facilitate monitoring. An operations manual provides guidelines for monitoring of natural resources and tourism facilities. The baseline data collection and recording process, using GIS, needs to be designed to enable assessment of the cumulative impacts of tourist projects and facilities over time. The TDA will encourage developers and operators to implement best practices in environmental management, while monitoring progress in order to adjust tourist investment promotional policies. By the production of best practice manuals for key issues such as solid waste management, landscape architecture, planting, water and sanitation, energy efficiency, and environmental management for resorts. These manuals highlight for developers and consultants the many issues to be considered at each phase of development (planning, design and construction) and operation. Environmental Management Systems (EMS) needs to be designed for integrated resorts. An EMS program is needed to be established for the three tourist destinations including stakeholder training courses and certification for hotel environmental officers, with number of hotels and resorts to be awarded the recognition through the Green Globe certification program or similar certification program.

4) Although regulations have been drawn up, the policy in dealing with developers is to encourage rather than discourage, provide incentives rather than penalize, and guide rather than command. To this end, a set of economic instruments for each destination needs to be developed applied including:

- Use of environmental criteria in the competitive land award process;
- Customs duty exemption and preferential financing for clean technologies;
- Promotion of environmental certification and awards of excellence;
- Criteria, standards and incentives for solid waste management.

5) There is considerable interest in ecotourism in Egypt, as a means of diversifying the tourism offer, attracting a growing market and satisfying conservation objectives. Siwa and Part of the coast area, was declared as a protected area. Bedouin populations and a host of rare and endangered plant and animal species represent ecotourism potential of the three destinations. Challenges to properly achieve this include creating appropriately designed facilities and delivering a safe recreational experience in harsh environmental conditions.

3.2.2. Water standards and regulations

According to the TDA regulations pure water in tourist destinations should never be less than 300liters/person/day. In case the water is provided from special sources the following conditions must be fulfilled as follows:

Chemical conditions

The hydrogen power 7.0 – 8.5, Colour (degree) not exceeding 5.0, Absorbed materials not exceeding 500 P.P.M, Hard water total100 P.P.M, Calcium not exceeding 75 P.P.M, Magnesium not exceeding 50 P.P.M, Chlorides not exceeding 200 P.P.M, Sulphates not exceeding, 200 P.P.M, Iron not exceeding 0.1 P.P.M, Magnetite not exceeding 0.05 P.P.M, Copper not exceeding 0.05 P.P.M, Zinc not exceeding, 5.0 P.P.M, Phenol not exceeding 0.001 P.P.M.

Biological conditions

- Water sterilization with CL: 95% of the samples taken in one year must not include any policies;
- Any sample must never include (E-COLI); any sample must never include more than 10 policies;
- There must not be policies in two successive samples.

None treated ground water

Policies in any sample must never exceed 5/100 ml in desalination systems for saline water, and remains of saline water must be dumped in a way not harm the environment.

3.2.3. Solid waste

Existing institutions for solid wastes suffer from a number of deficits and contribute to some problems in the Governorate. These include: concentration of projects on the coastal roads, mainly due to easy access and concentration of built areas. Not all tourist villages and hotels are within administrative boundaries and therefore there is of lack administrative council representation and boundaries of villages are inconsistent with the City's boundaries. There is too little coordination on the regional and local levels between plans for different sectors especially tourism requirements.

3.2.4. Sewage collection and treatment

According to the TDA regulations the treatment and dumping of sewage must be done without harming the public health or bothering visitors of the touristic structures or even harming the environment. It is also forbidden to dump sewage or the treated into the sea. In order to reuse this water in irrigation, the following conditions have to be followed: BOD5 must not exceed 20 P.P.M, S.S must not exceed 15 P.P.M, and the remaining CL must exceed 0.5 P.P.M. In order to fulfil that criteria sewage water must be treated primary and secondary and thirdly by the suitable methods afterwards with CL is a must. Dumping the sludge should be done in a way that does not harm the environment.

3.2.5. Energy consumption

According to the TDA regulations the proposed load in the tourist village must be consistent with the electric power activities because underestimation of the electric load shows its defects when the cable nets could not bear the charge during operation. This may cause problems concerning the continuity of the electric current and a drop in the security degree when using the electric machines.

In general, the estimations of the electric stress may be studied from the following points:

- 3-4 KVA the electric stress of an air-conditioned room (without kitchenette);
- 1-2 KVA the electric stress of non air-conditioned room (without kitchenette);
- 2 KVA for each 100m^2 of the service areas including light charge;
- 6 KVA for each 100 m^2 of the service areas including light charge and air-conditioning.

Electrical power stress of lifts, mechanical stress of the kitchen, boiler and laundry must be estimated according to the needs of each village. The above-mentioned loads are the electric loads are the electric loads after taking into account the disparity factor. The tourist village supplied with the electric charge by an electric public supply network for the area. In general all the machines of the electric power station are preferred to have the same characteristics to make a complete manoeuvre in their usage. The controlling and protecting buttons have to fulfil all the demands for the operation of machines in parallel, cooling water, lubricant oil, the electric power frequency, the voltage and the current. All these missions give a high degree of security when machines are operating thus we can avoid troubles and the electric current may continue for a longer time.

The generator is supplied with fuel by a daily reservoir attached to the generator and another covered in soil and taking all the necessary precautions according to the specifications of the Petroleum Authority. The electric networks have to follow the international specifications (European, German and British) to achieve a high security level during operation. In general, voltage loss must not exceed 5% in the network. It is important to use the artificial subterranean system in tourist villages to achieve security when using the various electric machines. Thus, each electric machine must have its own subterranean conductor to dump any charges that accumulate over the machine. The artificial subterranean nets must follow the international specifications. Light system must achieve suitable levels indoor or outdoor to suit the various activities of the tourists.

In general, open areas in tourist villages need from 5 to 10 lax to reach security in addition to the necessity of lighting the village corridors not less than 15-20 lax. Moreover, there must be external lighting systems to have light in open areas and roads whenever the natural light comes lower than 20 Lax. There must be an electric supply machine to supply the village with electricity 220/280-volt, 50 frequencies for each second whenever the electric power is cut. That is why it is recommended that the load of the electric supply machine be 10% to 25% of the total electric stress of the tourist village. In general, the following loads are to be supplied whenever the main current is cut: corridors, roads and a 40 watt lamp in each room, Lifts, Sewage stations and water pumps, Electric refrigerators in kitchens, Major communication machines, Central station of fire alarm and sound system.

Supplying these important charges gives a high degree of security when the current is cut.

In case of the absence of a main public electric supply network, the village is supplied with electric power by a similar supply station of the same capacity of the proposed electric load and by more than one machine, so that they may function whenever one of the machines is malfunctioning to make sure about providing a high degree of security even in case of emergencies in the station.

3.2.6. Degradation of invaluable ecosystems

In Matrouh Governorate and especially in the three destinations of Matrouh City, Al Alamein town the Marine Ecosystems is rich in many living organisms. But it is obvious that, despite the richness in species composition, the numbers are somewhat limited. The other characteristics recorded are that these species are endangered because of pollution and urbanization activities. The oxygen content of the surface seawater in Matrouh showed a high value during winter and decreased during spring and summer through autumn. However, the highest population densities of the bottom fauna were recorded during spring and summer in both the inshore and offshore of Matrouh, during winter and summer in the inshore of Matrouh, and during spring in the offshore of Matrouh. Law No. 4 of protecting the Environment stated that in all cases, discharge into the marine environment is not permitted except at a minimum distance of 500 meters from the shoreline and may not be effected in fishing zones, bathing zones or nature reserves in order to preserve the economic or aesthetic value of the area.

3.2.7. General environmental recommendations

- Diversity is urgently needed for the three destinations, a multifaceted diversity that includes biodiversity, socio-cultural diversity as well as, diversity of products and recreations offered to the tourists. The indicators of Biodiversity could be used on a local scale. Moreover, when the scale of application is not limited in the tourist area itself but on the broader area where local activity is taking place, is a wishing component that diversity indicators are included. Proposed indicators for the regional level:
  - Number of special interest sites (natural, cultural) under protection Vs to those without any protection;
  - Number of endangered/threatened species on the region;
  - Monitoring of the number (e.g. ratio of species disappearance and/or Vs to the present numbers) and the patterns of species;
  - Monitoring of the mobility patterns of the fauna.
- Effective planning should focus on diversification needed and can be used to rejuvenate and give a more sustainable future on the tourism product offered, the environment and the development in general. Indicators for the needed effective planning include the existence of:
  - Master plan for the development of the three destination;
  - Established procedures to monitor continuously the progress of tourism development;
  - EIA procedures for analyzing the impact of new developments.
- For the planning and monitoring teams in the local authorities, (TDA), and (EEAA) to identify respective carrying capacity of tourist sites in each destination, a planning statement should be prepared defining strategy for locations to be developed on the one hand, and environmental improvement on the other, and integrating tourist development with the economic regional development, including social concerns and land use planning.
- The competent authorities should ensure that decisions on tourist development plans are based on the fullest available information concerning their environmental implications; when such information is not adequate it should be sought. Environmental impact assessments should be used for major tourist developments to evaluate the potential damage to the environment in the light of forecasted tourism growth and peak demand. Alternative sites for development should be considered, taking into account local constraints and the limits of environment carrying capacity. This capacity includes physical, ecological, social, cultural and psychological factors.
- Bearing in mind that the carrying capacity will vary from site to site, statutory powers should be used to limit developments in particularly sensitive areas requiring special protection, which may entail limiting access to these areas with ultimate protection being provided by public ownership.

4. Policies related to the socio-economic and environmental sustainability state of the destination

4.1. Economic sustainability state of the destination

Socio-Economic sustainability from development standpoint implies the concentration and diversity/variety of the various branches of the tourism industry. This concept provides generally increased multiplier and synergy effects. Specifically it contributes to average per capita annual income in Matrouh Governorate which is estimated to be $3400 (2008 est.) and per capita income in the Governorate increased by about 85% in 8 years (from 2000 to 2008). Tourism sector was a major contributor to this increase. The average annual growth rate in the years between 2001 and 2008 of the average per capita income according was estimated at 2.5%. The average inflation rate in 2001 was 2.3% so the net growth rate of the real income was about 0.2%. From the other side with a population of 337399 inhabitants which was estimated for Matrouh governorate in 2008 the total income generated in Matrouh governorate in 2008 was estimated to be 1.2 billion $.

4.1.1. Income distribution

The income distribution index is one of the major indicators of sustainability in the development, it measures the degree of inequality in the distribution of family income in a country. The more unequal a tourist destination's income distribution is the more unsustainable development occurs. The Ministry of planning reports that in 2001 per capita household consumption in Matrouh Governorate (in constant 1995 US dollars) was $1013. It was estimated that for the same period private consumption grew at an annual rate of 13%. Approximately 44% of household consumption was spent on food, 7% on fuel, 3% on health care, and 17% on education. The richest 10% of the population accounted for approximately 25.0% of household consumption and the poorest 10% approximately 4.4%. It was estimated that in 1996 about 23% of the population had incomes below the poverty line.

4.1.2. Economic Multiplier of Tourism

Total effect (direct + secondary) of tourists' spending is to be US$ 142 million dollars, the equivalent of 11.6% of GDP. Using the share of value-added/output in the Matrouh Governorate economy, which is around 65%, the net contribution of tourists' expenditures to total value-added in the economy is estimated to be around 7.5% of GDP. This indicates the strong linkages of tourism to the rest of Matrouh economy to a degree that add a sizable additional contribution to the direct effects of this activity. The Economic Impact of Tourist Spending = The number of tourists * average spending per tourist * the multiplier or The number of tourist nights * Average spending per tourist per night * the multiplier Direct and Secondary Impact of Visitor Expenditure to Total output, employment, taxation and income generation of tourists' expenditures to total employment cannot at all be comparable to the percent share in total employment in the hotels sector over the past few years. The impact of this spending is comparable to that of exporting Matrouh Governorate goods and services to be consumed in other regions. The general economic policy on the national level encourages such trends in the tourist destinations of Matrouh Governorate.

4.2. Social sustainability state of the destination

This section includes the study of Social justice/equity as a result of analyzing the existing situation of the three tourist destinations in Matrouh Governorate. Population structure and development from one side and Social cohesion from the other side will affect the social sustainability of the tourist destinations.

4.2.1. Social groups

There are two different social groups in Matrouh Governorates population the Bedouin and the immigrants who have migrated from the Nile Valley. The Bedouin tend to settle in the desert, whereas the immigrants settle in towns and tourist destinations, with separate patterns of life, at different levels of organization. The Bedouins in Siwa Oasis are employed as tourist guides for safari trips and took their tribal sheiks as leader. The immigrants are employed in hotels, tourism, and construction and took to the national Government in Cairo for leadership. The immigrants are willing to settle in the tourist destinations but they cannot bring their families from Cairo without having suitable houses and education and health services facilities, a situation that has negative impact on the sustainability of the tourist destinations.

4.2.2. Education

Illiteracy among children and young men was high in 1990's (70% between 6 and 30 years of age). There was no vocational training available in the region. The illiteracy was notably higher among women. few schools existed in the region Two schools for technical education provide training in the city of Matrouh in the fields of industry, commerce, agriculture, teaching and nursing (but not for tourism!!). Faculty of Education, affiliated with the University of Alexandria, was established in Matrouh city to supply the region with school teachers. But still in 2006 neither the number of the population, nor the educational or training conditions, can offer satisfactory economic base considering the vast acreage of the region, a matter that leads to possible in-migration to the region. This situation prevents tourism development from sustaining the potential growth of the tourist destinations in Matrouh Governorate.

4.2.3. Gender and active population

Females working in the Government represent in Matrouh city and in Al Alamein about 24-30% of the total governmental employees and about 0.07% in Siwa Oasis the reason for Siwa low percent is the culture of Bedouins which does not encourage woman working in services sector in general. While the females employees' percentage in the Private investment projects is not exceeding 0.04% in both Siwa Oasis and Matrouh City, and reaches to 23% in Al Alamein. Female work in the three destinations is faced by different obstacles and needs some support of the legislatives and administrative bodies of the government to be sustainable as setting more legislation to assure women's right to return to their jobs after career, and interruptions (childcare leave and special leave). Also encouraging husbands to assist their working wives on household and childcare responsibilities by all means, relaxing - as much as possible - the anti-social work conditions to enable working women to co-ordinate between work responsibilities and familial obligations, encouraging the slow relaxation of the traditions, customs and social mores related to women's work, combating the still existing gender stereotypes and their strong impact on staffing decisions in favour of men, optimising occupational segregation to allow maximum career opportunities for women, confirming the right of veiled women to equally compete for jobs and preventing by all possible means – depriving them employment opportunities for just being veiled, and Supporting family-friendly arrangements such as flexible work hours, part-time jobs and job-sharing to relax the stresses of work/family conflicts on working women, and encouraging women to accept upward career mobility and get rid of the fears of more demands on their time through the different approaches to improve family-friendly arrangements and decrease work/family conflicts.

4.2.4. Unemployment

With regard to existing and potential labor and employment capacity one should consider the range of constraints and potentialities pertaining to tourism sector in the three tourist destinations in Matrouh as most of the unemployed females are house wives or students, most of the unemployed males are students or retired and old, which is a good sign for sustainable development.

4.3. Environmental sustainability state of the destination

Tourism influences the production of environmental goods, and services. This section will cover policies that cover water quality, soil quality, air quality, potable water quality, biodiversity, preventing degradation of valuable eco-systems, land uses, and landscape.

4.3.1. Land / Soil

- Law 4/1994 for the Protection of the Environment (Amended by Law 9/2009) stated that:
- It is prohibited to dump, treat or burn garbage and solid waste - other than infectious waste left over from medical care in hospitals and health centers - except in special sites, designated for such purpose, far from inhabited, industrial or agricultural areas as well as from waterways, in accordance with the specifications, conditions and minimum permissible distances from such areas. Municipal authorities shall, in agreement with the EEAA, allocate sites where solid garbage shall be dumped, treated or incinerated according to the provisions of this article;
- Collectors of garbage and solid waste shall be held to maintain the cleanliness of garbage bins and vehicles, the continual cleanliness of which shall be one of the conditions set to ensure the safety and solidity of garbage transport means. Garbage collection bins shall be tightly covered to prevent them from giving off offensive odours or from becoming a source for the proliferation of flies and other insects or a focus of attraction for stray animals. The garbage they contain shall be collected and transported at suitable intervals in keeping with the conditions of each area, provided the quantity of garbage at any one time in any of these bins shall not exceed its capacity. The competent municipal department shall control the implementation of the provisions of this article.

4.3.2. Air Quality

Law 4/1994 for the Protection of the Environment (Amended by Law 9/2009) has stated to guarantee the air quality that tourist establishments have to ensure three major things:

- In carrying out their activities, establishments subject to the provisions of the law are held to ensure that emissions or leakages of air pollutants do not exceed the maximum limits permitted and that no changes are introduced to the properties and specifications of natural air that can result in endangering human health and the environment;
- It is prohibited to use machines, engines or vehicles which emit exhaust whose contents exceed the maximum limits in the detailed annexes of the law;
- All organizations and individuals shall be held, when carrying out exploration, excavation, construction or demolition works, or when transporting the resultant waste or debris, to take necessary precautions to secure the safe storage or transportation thereof. Waste liable to dispersal shall be covered to avoid air pollution. That waste or debris resulting from excavation, demolition and construction works be transported in special containers or receptacles on trucks equipped and licensed for this purpose.

4.3.3. Potable water quality

The main elements of water balance of the area are rainfall as input and evaporation, runoff recharge to groundwater and change to soil moisture storage as output. All this surface water is used by the local Bedouins and dwellers of the rural villages. In Matrouh city region, there is a trapped groundwater aquifer from which water is extracted through hand dug or drilled wells. A minimum safe yield from this aquifer is estimated to be 5,000 m^3/day. Salinity is low and ranges from 2000 to 3000 ppm. The groundwater suitable as a source for brackish water for touristic villages and hotels desalination units, agriculture and domestic uses occurs in relatively shallow non-artesian aquifers or in small shallow semi-perched aquifers with slight artesian pressure. The aquifers in the coastal plain are recharged directly by rainfall and the infiltration of surface runoff. The quality of the water in the several aquifers in the area varies widely according to seasons. The best quality is

found in winter and the worst in autumn. Also the water contains about 20,000 ppm of solid matters, which reduces water quality but can be desalinated by the reverse osmosis desalination. Treated water is pumped from the Alexandria distribution network into two pipelines running parallel through Matrouh Governorate. The average capacity of those pipelines is about 10000 m^3 in autumn to 11000 m^3 in summer. Water is served to customers along the pipeline from Alexandria to Matrouh city. Most tourism facilities, oil companies, and construction activities that do not have a dependable connection to the pipeline, use the private trucks for water supply. Currently, an estimated 434,700 m^3 per month of water in winter and 453,300 m^3 per month in summer is supplied to the Governorate via the pipeline system, train and desalination plants for areas west of and including Al Alamein. While the rural population relies mainly on cisterns for drinking and on galleries for washing, the water resources for the main population centers come from outside. To guarantee sustainability for the potable water in the tourist destinations of Matrouh Gov. a plan for using and managing the water resources is urgently needed. Systematic investment in utilities infrastructure dramatically reduces future destinations risk profiles.

4.3.4. Biodiversity

The population of flora and fauna in Matrouh city increase towards offshore of Matrouh and vice-versa occurred in. While the least population density of population was recorded during winter season in both and Matrouh, autumn and summer were the flourishing season respectively. Spring and summer were the flourishing seasons of benthic flora. However, the highest population densities of the bottom fauna were recorded during spring and summer in both the inshore and offshore of, during winter and summer in the inshore of Matrouh, and during spring in the offshore of Matrouh. But nevertheless none of the above mentioned natural flora and fauna was threatened or endangered by tourists' activities. It was the artificial landscape that was introduced in the sea-side hotels and resorts that caused harmful effects to the natural land forms and sea side dunes as will be explained below.

4.3.5. Preventing degradation of invaluable ecosystems

As mentioned above no clear affects threatened or endangered in a serious way the biodiversity of the flora and fauna in the tourist destination, but still the changes in the landscape represent a major threat from tourist activities, and to prevent this degradation of invaluable ecosystems an approach of Environmental Auditing (EA) is suggested by the Egyptian Environmental Affairs Agency (EEAA) for Matrouh region. EA aims at controlling overcrowding over-development and pollution and at ensuring the areas ability to cope with visitors. Various types of EA applied equally well by both private and public agents can reduce or prevent environmental damage and enhance quality for both tourist firms and destination authorities. EA is a major component of an environmental management system for tourism enterprises acting to reduce negative environmental impacts of their activities. It must be undertaken regularly (to check the firm's compliance with the endorsed objectives) and it can result in commercial benefits, like cost reduction from waste minimization, and safety/protection for both employees and visitors. Policy measures for tourism's sustainable development are inseparable from the development of other economic and social activities (public or private) in the entire Governorate area. Obviously, tourism and environmental quality of the tourist destinations are strongly affected by the size/amount, intensity and the type or quality of certain other activities taking place, such as agricultural, industrial/commercial, construction and building, cultural and entertainment, health and educational. Due to the multifaceted nature of tourism an integral tourism development program should relate to and materialize in parallel and in conjunction with programs and policy measures of other sectors.

4.3.6. Legal aspects of land use planning

Looking at the legal aspects of the land use, we have to mention here the 1981 Law No.143 which organizes the utilization's of dessert lands, defines the procedures and conditions for administration, exploitation and disposal, the 1982 Law No.203, the Prime Minister's Decree, which relates to the definitions of dessert governorates, such as Matrouh Governorate, and the 1991 Law No.7 relating to some pending provisions concerning the state properties in relation to certain procedures. In the Law No.7 there are provisions for Tourist Land Uses, since it stipulates that the General Authority for Tourism Development has the duty to

undertake the management, exploitation and disposal of lands allocated for tourist purposes in the same way that the General Authority of Habitation and Agricultural Development undertakes its duty on lands allocated for reclamation and cultivation, as well as the new Urban Communities Authority, which also undertakes the duty for the land allocated for new communities. However all the above mentioned actions, laws, authorities and their own local units have to be co-ordinate with the Ministry of Defence under conditions and rules which are prerequisite for the state defence? This of course complicates the problems of sufficient and Sustainable use of land resources of the area. Similarly, the Law No.59 of 1997 concerning the designates these communities as those which contain an integrated society, and aiming of creating new civilized centers which result in social settlement and economic prosperity, industrial, agricultural, commercial and other, with the object of redistributing the population through preparing new attractive areas, outside the areas of established towns and villages.

According to this Law the only governmental agency responsible for the establishment of new communities is that of the New Urban Communities Authority (NUCA), while the law prohibits the establishment of these new communities on agricultural lands. Regarding the policies for local government construction it would be essential to mention Here the Law No.3 of 1982 which is concerned with the organization and reconstruction Guidelines for local government units by using the Law and its executive regulations for Reconstruction planning, while the Urban Planning Policy is the responsibility of the Urban Authority Agency, which prepares all reconstruction development plans and programs at the state level, while the Local Units prepare general planning projects of towns and villages (through special consideration regarding long-term needs, military-defense requirements, etc.). The main duty is to determine the various utilization's of the Land (land Use planning), including residential, commercial, industrial, tourist and entertainment areas, And other uses which conform to the nature of a town or village, its circumstances and the Needs of its inhabitants. Local Units are also responsible to define the kinds of utilization of towns, or village lands, and to get temporary rules and conditions. These local units organize the reconstruction and the preparation of detailed planning projects for the areas included in the general planning, and which are issued as a decree by the concerned governor. The above Law organizes the actions concerning permissible utilization's of lands and buildings occupancies in the centre area and in the industrial area, and the allocation of town quarters, as well as the determination of public interests, the exploration of real estate properties, and all other objectives of urban planning.

According to the Law No.4 of 1994 (the first integral law on the environment in Egypt) a new governmental agency was established, with a body for environmental protection and development under the name "Environmental Affairs Agency". This agency has branches in various governorates, and its goal is to design the general plan and the necessary special plans for the environment conservation and development, and also some experimental projects providing standards and guidelines (averages and rates, permissible pollution limits, etc.). The Law also gives to the responsible agency the duty to prepare an emergency environmental plan, participation in the integrated National Plan for the administration of the Coastal Areas in the Mediterranean Sea and Red Sea. Matrouh Governorate has also the duty to study the local environmental problems (through its environmental department), to define them, and to report to the local and national agencies for designing suitable solutions. On the other hand, additional governmental authorities (Ministries of Health, Marine Transportation, Housing and Utilities, Reconstruction and New Communities, Irrigation, etc.), with their local departments, are also responsible to apply the existing environmental legislation, each in its field of competence. Land Use Conflicts (Coastal and Inland), and Trends Examining in brief the existing situation of land uses and activities in the area of Matrouh, a great many inland and coastal conflicts have been identified dropping within the following main issues:

1) Uncoordinated land uses and activities, and potential conflicts among existing and future land use patterns;
2) Deterioration of natural resources, coastal and inland;
3) Intensive unplanned tourist and holiday development on the water frond producing land use conflicts;
4) Unplanned international land use activities close to the coastal line;
5) Cultural and recreational conflicts;

6) Uncoordinated, problematic, or totally absent provision of access to technical infrastructure and social services, and access to the shoreline; and

7) Organizational conflicts.

4.3.7. Landscape

Tourism activities in both Matrouh and Al Alamein leads to the deterioration of the landscape with large numbers of tourists visiting the beach, or other attractive site it should be expected that there would be loss of attractiveness, and disturbance of natural habitat because of the congestion and overuse. The planned large scale of infrastructure development also can limit the open space and dramatically alter the character of the area, the traditional ecosystems, the quality of life for the residents and of the experience for the visitors.

4.4. SWOT Analysis

Strengths

- New tourist projects are depending on their own power, and water Treatment plants;
- Employment of Egyptians and locals in the tourist projects;
- The new BOT system airport, in Al Alamein;
- Biodiversity in the tourist destinations was not severely affected.

Weaknesses

- Apparent absence of a Comprehensive Destination environmentally sensitive land-use plan;
- Low connection between tourist activities and local communities in the three destinations;
- Inappropriate landscaping of plants and vegetation;
- Inadequate system of social services. It should also be highlighted that there is a poor level of education and health services, a fact which is crucial for developing international tourism.

Opportunities

- Positioned for maximum benefit from national investment and international donor funding for Matrouh Governorate Sub-national Tourism Brands;
- It is likely that members of a single family would be willing to co-operate in tourism development.

Threats

- Pressures upon the coastal ecosystems due to tourist and summer holiday development projects; and by heavy coastal land utilization mainly due to urban and leisure activities, port and marina developments;
- Conflict between land ownership and infrastructure development, uncertainty of individual land ownership;
- Instability of the coastline due to natural processes, such as coastal erosion and sedimentation, creating an unstable coast;
- Conflict legislation and available planning and management instruments concerning not only the horizontal relations between sectors of activity, but also the intermeshing of the policies and actions carried out at various levels of territorial authority.

4.5. Recommendations

- There is great need for involving local communities and Consulting stakeholders and the public Involvement of local communities, as they are actually expressions of the need for communication, information and experience exchange. Community involvement in tourism can reinforce positive impacts while mitigating negative ones;
- Renewable resources, recycling and/or regeneration rates are strongly recommended as a source of energy in the three tourist destinations of Matrouh Governorate since they can be utilized to demonstrate some effort to manage consumption, as well as, emissions and
- Littering;
- There is a need to measure key resource consumption;
- It is recommended to deal with overexploitation of Landscape;
- It is recommended that local authorities in Matrouh city and Al Alamein destination to establish procedures for continuous monitoring of the swimming water;
- The local authorities and hotel owners in the three destinations should work on reducing over-consumption and waste;
- It is recommended from EEAA that the pressure on the environment resulting from the waste treatment and disposal be lessened;
- It is recommended for the hotel owners and local Authorities in the three destinations to adopt the low consumption patterns (increased efficiency, new technologies, responsible behavior), as well as, recycling techniques for wastes.

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