TRANSPORT PLANNING AUTHORITY
MINISTRY OF TRANSPORT
THE ARAB REPUBLIC OF EGYPT

MiNTS – MISR NATIONAL TRANSPORT STUDY

THE COMPREHENSIVE STUDY ON THE MASTER PLAN FOR NATIONWIDE TRANSPORT SYSTEM IN THE ARAB REPUBLIC OF EGYPT

FINAL REPORT

TECHNICAL REPORT 5

CIVIL AVIATION AND PIPELINE SECTOR

March 2012

JAPAN INTERNATIONAL COOPERATION AGENCY

ORIENTAL CONSULTANTS CO., LTD.
ALMEC CORPORATION
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CHAPTER 1: INTRODUCTION

1.1. BACKGROUND

The Japan International Cooperation Agency (JICA) and the Transport Planning Authority of the Ministry of Transport are cooperating in the conduct of the *Comprehensive Study on The Master Plan for Nationwide Transport System in the Arab Republic of Egypt* (MiNTS – Misr National Transport Study), based upon agreements finalized during July, 2009[1]. Oriental Consultants Company Limited, headquartered in Tokyo, Japan, is the designated lead consultant for the study. Associated firms are Almec Corporation, Japan and Katahira & Engineers International, Japan. Technical efforts in Egypt were initiated during December, 2009.

1.2. THE MiNTS FRAMEWORK

1.2.1. Study Scope and Objectives

MiNTS is comprehensive in nature, that is, approaches have been designed to mitigate transport problems and contribute to the sustainable development of the nation. Investigative efforts extend over the entirety of the Republic (Figure 1.2.1), with a particular focus being major corridors of movement for both persons and cargo. All major modes of transport are addressed including road, rail, maritime, inland waterway, civil aviation and pipeline. However, the practical master planning focus falls upon those modes falling under the jurisdiction of the Ministry of Transport; that is, the road, rail, maritime and inland waterway sectors.

Five key milestones form the foundation upon which planning efforts are based:

- Establish a nationwide, multi-modal database whose validity rests on a series of focused transport survey and data collection exercises;
- Formulate overall strategies and policies for development of the nationwide transport fabric;
- Develop an integrated, multi-modal transport master plan with years 2017, 2022 and 2027 being short, medium and ultimate planning horizons, respectively;
- Identification, within the master plan framework, of high-priority projects; and,
- Implementation of an effective and productive technology transfer program with Egyptian counterparts.

[1] *Scope of Work - Comprehensive Study on The Master Plan for Nationwide Transport System in the Arab Republic of Egypt*, as mutually agreed upon between the Japan International Cooperation Agency and the Ministry of Transport, Government of Egypt, July 16, 2009.

Source: JICA Study Team

Figure 1.2.1 MiNTS Study Area

The transport strategy embedded within MiNTS must concurrently contribute to an efficient economic structure, strengthen linkages within Egypt as well as with neighboring countries, and provide a base for market-oriented transport activity. Economic expansion and social transformations within Egypt are well underway; continuing improvements in productivity and well-being are expected. As economic growth continues, changes in transport activities and behavior will follow suit. Thus, the foci of transport planning must gradually shift from alleviation of present deficiencies to realization of a transport system founded upon sustainable evolution and integrated, mutually supportive transport solutions. This strategy is particularly valid given the almost 20-year planning horizon adopted by MiNTS.

1.2.2. A Consultative Planning Process

The final structure of MiNTS, and the successful reception thereof, can only be achieved as a direct result of cooperative efforts and close liaison between the Study Team and local experts. Considerable efforts have been expended in gathering information, reviewing previous studies and holding numerous discussions to enhance knowledge of, and sensitivity to, local transport conditions, norms and practices.

The Study Team, housed in the offices of the Transport Planning Authority, Ministry of Transport, is being strongly assisted by its designated counterpart Special Working Group, Coordination Committee and Steering Committee. Thus, continuous and productive technical liaison is being maintained with a number of organizations including the Ministry of Transport and various entities thereof (Office of the Minister, Transport Planning Authority, Egypt National Railways, General Authority for Roads, Bridges and Land Transport, General Authority for River Transport, Maritime Transport Sector); the Ministry of Housing,

Utilities and Urban Communities; Ministry of Civil Aviation; Ministry of Agriculture and Land Reclamation; Ministry of Trade and Industry; Ministry of Industrial Development; Ministry of Interior; Ministry of Local Development; Ministry of Finance; State Ministry of Foreign Affairs, Sector of International Cooperation; Ministry of the Environment; CAPMAS (Central Agency for Public Mobilization and Statistics); as well as various Governorates and entities thereof. Close coordination has also been effected with Universities and various departments within those learned institutions.

Likewise, effective consultations are programmed with various international agencies, funding institutions, donors, and consultant groups in order to obtain an overview of previous, current, and likely future activities and/or involvement in Egypt.

1.2.3. Sustainability and Human Resources Development

The components of the Master Plan diversify beyond the traditional "hardware" concepts associated with infrastructure provision. Additional key elements of the process consist of "software" aspects, that is, available technology, international standards, and modal integration needs (cargo/passenger terminals, logistics chains, transfer points) as well as "humanware" needs. In the latter case, this represents the cultivation of human resources via the designation of training and education programs as well as other requirements for developing expertise. In other words, "sustainability", or the notion that the planning process must allow Egyptian stakeholders to participate in visualizing and shaping their own future. This is of substantial importance in terms of ownership building if MiNTS is to be adopted and used by the people and their elected officials both during, and following, the conduct of MiNTS.

1.3. REPORTING STRUCTURE

The *Final Report* consists of three elements: *The Master Plan* report, *Technical Reports* and *Appendix Reports*.

- *The Master Plan* report is seen as the main document whose intent is to present, in a synoptic sense, main findings of the MiNTS investigations;
- *Technical Reports* represent a series of sector-specific reports which document the technical underpinning of *The Master Plan* document (Table 1.3.1), and,
- *Appendix Reports* represent task-specific or activity-specific documents and other data summaries, some of which have been developed in response to client group requests.

Table 1.3.1 Technical Reporting Structure

Report Number	Subject
1	Road Sector
2	Rail Sector
3	Inland Waterway Transport Sector
4	Maritime Sector
5	Civil Aviation and Pipeline Sectors
6	Demand Simulation and Scenario Testing
7	Organizational and Functional Aspects of the Transport Sector
8	Private Sector Participation
9	Environmental Considerations
10	The MiNTS Vision, Policies and Strategies
11	Transport Survey Findings
12	Project Prioritization
13	Counterpart Training Program

Source: JICA Study Team

CHAPTER 2: CIVIL AVIATION

This Chapter provides the transport of civil aviation together with pipeline. Although these sectors are not covered under the Ministry of Transport, these transport modes are also included in MiNTS master planning. Therefore this chapter has two parts; beginning with the existing conditions of civil aviation transport sector, the organization structure, transport networks, development vision and key issues, and next pipeline transport is shown as same contents of civil aviation. The analysis of these sectors is based on the interview and filed surveys carried from February 2010 to August 2010.

2.1. OVERVIEW OF CIVIL AVIATION

Despite of having worldwide economic crisis and terrorism activities, air transportation sector in Egypt seems no influence and even shows strong growth that hit the record of 35 million passengers in 2009. Since its establishment in 2002, Ministry of Civil Aviation Authority has been conducting practical policies into aviation sector to improve and optimize the airport operation with two enterprises Egyptian Holding Company of Airports and Air Navigation (EHCAAN) and EgyptAir Holding Company (EAHC).

EHCAAN, in charge of airport operation and management, has aggressively implemented a series of airport developments to cope with the high passenger increases and to provide passenger's comfort with high security and safety with four subsidiaries, Cairo Airport Company (CAC), Egyptian Airports Compnay (EAC), National Air Navigation Services Company and Aviation Information Technology. EAHC, responsible for airline operation, has been expanding airline network by joining star alliance networks to provide more convenient connectivity to the customers. In addition, EAHC added a new company, EgyptAir Express, to face the worldwide low airfare competition in 2006. EAHC is keen to buy new aircrafts and tends to reach 75 aircrafts in operation by 2013.

24 civil use airports are located in nationwide. CAC manages Cairo International Airport (CIA) and EAC manages other 19 airports. Other private companies and air force operate remaining 4 airports, Al Alamain, Almaza Airfirce Base, El Gouna and Marsa Alam. Since Egypt adapted Open Sky Policy, it has raised a large number of non-scheduled flights coming directly to major international airports, especially for Sharm El Sheikh, Hurgada and Luxor. With this policy, passenger demand in Egypt has been increasing with average annual growth rate (AAGR) at 10%, i.e. annually increasing 2 to 3 million every year. This means Egypt has a great potential in air transport sector. Five international airports, CIA, Sharm El-Shiekh, Hurghadah, Luxor and Alexandria, drive air transportation in terms of number of handling passengers. These airports handled more than 90% of all passenger movements in Egypt.

Accordingly, air transport sector is successfully expanding its operation. To handle this high increasing passenger demand in future, capacity up-grading projects at in Cairo and Hurghadah international airports are ongoing. Sharm El-Shiekh international airport is also planned to be developed. After the developments, next major object would be focusing on how to optimize airport operation with commercial base. That is, privatization of airport operation.

2.2. ADMINISTRATIVE FRAMEWORK IN EGYPTIAN AIR TRANSPORT SECTOR

The Egyptian civil aviation authority, called as Egyptian Civil Aviation Supervisory Authority (ECAA), had been addressed under Ministry of Transport (MOT) until year 2002. For accelerating airport developments to cope with high increases of passenger demand and achieving all reforms in aviation sector, the Government of Egypt (GOE) decided to detach aviation divisions from MOT and transformed to new ministry, Ministry of Civil Aviation Authority (MCAA) and two enterprises, Egyptian Holding Company of Airports and Air Navigation (EHCAAN) and EgyptAir Holding Company (EAHC) by a set of the presidential decrees. Since then these three bodies employ important roles in aviation sector. EHCAAN is responsible for airport operation and air navigation services, EHCA is in charge of airline operation and related services, and MCAA is supervising these two holding companies as administrative and regularly body.

2.2.1. Ministry of Civil Aviation (MCAA)

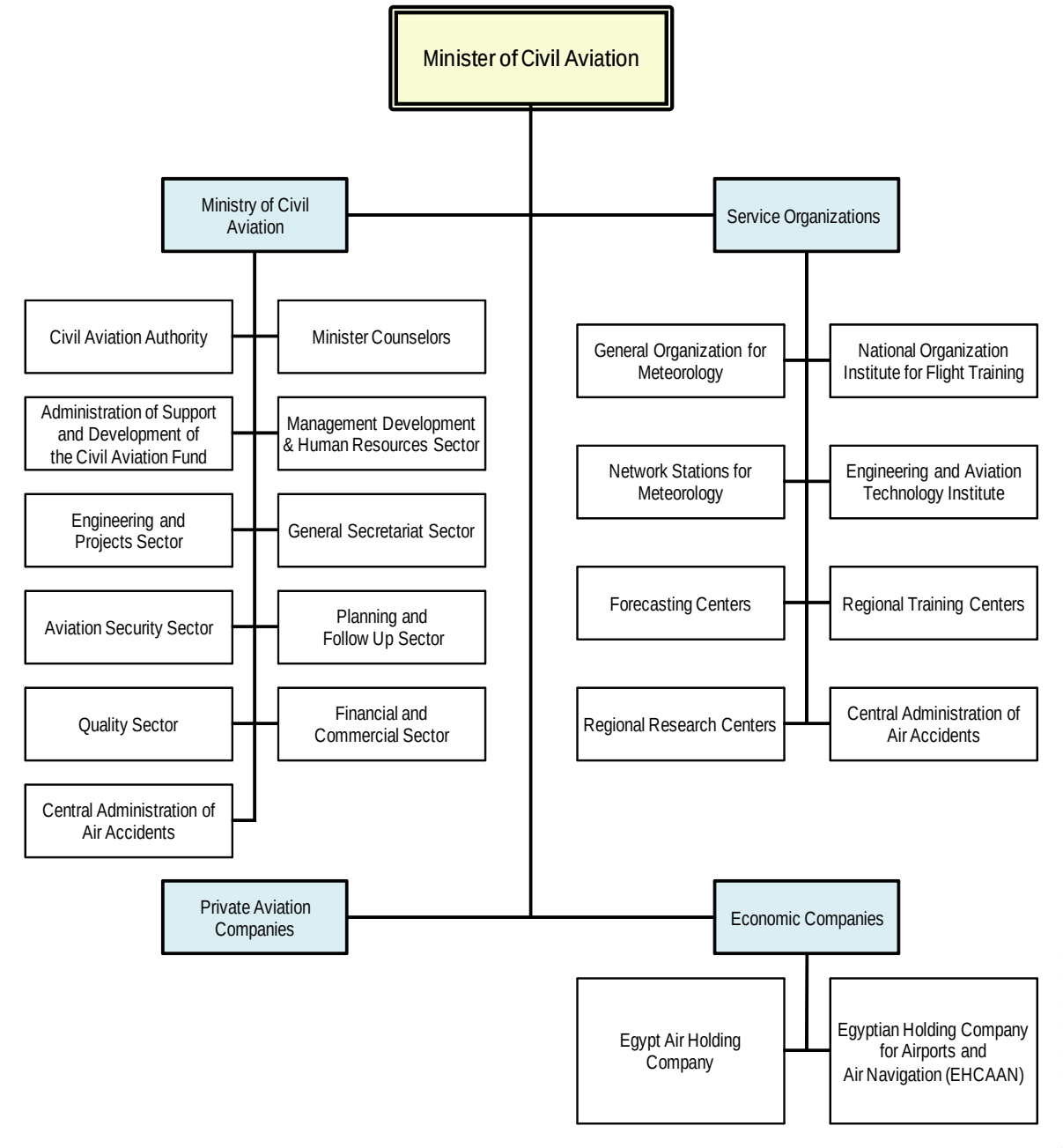
MCAA was established by the Presidential Decree No.154 in 2002. MCAA has tasks to implement practical policies into aviation sector to improve and optimize the airport operation. That is to support strengthen growth of economy in Egypt. MCAA has following responsible:

- Developing civil aviation sector in accordance with international best practices:
- Ensuring air transport safety and security to serve local, regional and international stakeholders and passengers:
- Maintaining training and educational facilities to keep Egypt's skilled aviation personnel up-to-date with the latest industry developments and technologies: and,
- Achieving the specific Egyptian environmental target in accordance with internationally-agreed priorities and objectives.

The organization chart of MCAA is shown in Figure 2.2.1. There are four entitles as following:

1) Ministry of Civil Aviation (General Division):
2) Service Organizations:
3) Economic Companies:
4) Private Aviation Companies.

100% government owned enterprises, EHCAAN and EAHC are addressed under MCAA in the economic companies division.



Source: Ministry of Civil Aviation Authority (MCAA)

Figure 2.2.1 Organization Chart of Ministry of Civil Aviation Authority (MCAA)

2.2.2. Egyptian Holding Company for Airports and Air Navigation (EHCAAN)

1) General

EHCAAN was incorporated in 2001 as a state holding company in charge of public airports by the Presidential Decree 72. It made as an independent company, and is operated as self-financial support with a commercial basis. EHCAAN has aggressively implemented a series of airport developments, e.g. a new passenger terminal 3 at CIA, new airport facilities construction project at Borg El Arab, new terminal construction projects at Sharm El Sheikh, Hurghada, Luxor, etc. The vision, mission and objectives of EHCAAN are stated as following:

Egyptian Holding Company for Airports and Air Navigation (EHCAAN)	
Vision	"*To be a leading company in Africa & Middle East providing high standards of services and to provide the passenger's comfort, safety, security in the field of civil aviation with commitment to the preservation of environment.*"
Mission	• Implementing projects to develop, modernize, and upgrade Egyptian international airports to meet the increase in air traffic, • Providing a higher quality of services in both airports & air navigation complying with ICAO standards and recommended practices and, • Ensuring safety, security and safeguarding the air traffic within our airports and Egyptian airspace.
Objectives	• Developing, modernizing, and upgrading airports and air navigation services to raise the levels of providing civil aviation Services. • Applying liberalization policies in airports & air navigation activities to increase air traffic and its revenues by encouraging competition in a frame of transparency, equality and stable operating environment. • Encouraging private sectors to operate, manage Egyptian airports, and to share in developing the infrastructure of airports. • Implementing the HUB concept for passengers and cargo at Cairo international airport. • Improving human resources in order to operate airports and air navigation services on economical and commercial basis. • Applying safety, security and safeguarding the air traffic within our airports and Egyptian airspace.

EHCAAN's subsidiaries are shown in Figure 2.2.2. There are currently four subsidiaries, Cairo Airport Company (CAC), Egyptian Airports Company (EAC), National Air Navigation Services Company (NANSC) and Aviation Information Technology (AIT). EAC and NANSE were the first established bodies by Presidential Decree 72 in 2001. Subsequently, CAC was established by Presidential Decree 156 in 2002. AIT was then established in July 2004. EAC operates 19 airports, NANSC provides en-route and airport traffic services, AIT manages all the information related to the aviation sector, and CAC dedicatedly operates Cairo International Airport (CIA).

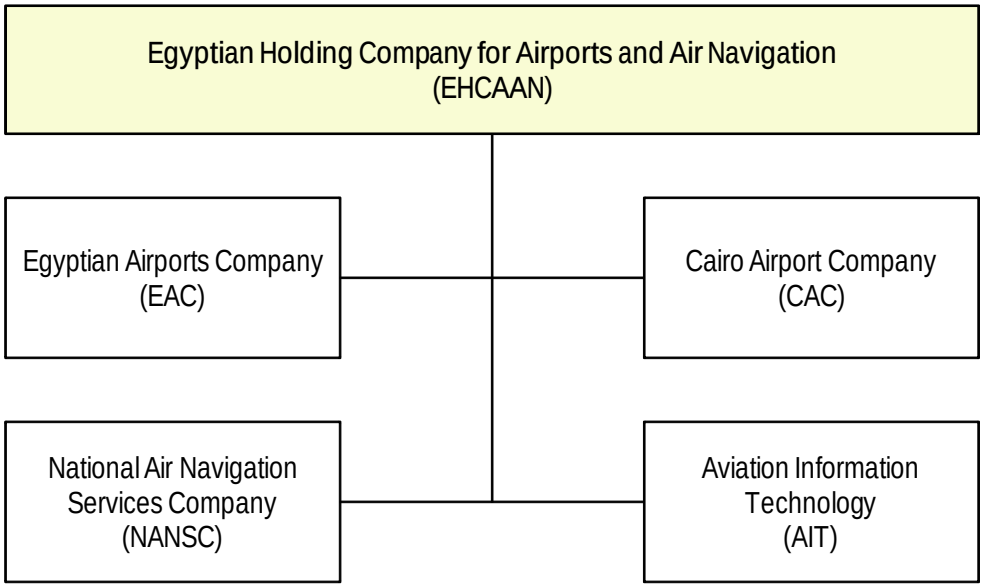


Figure 2.2.2 EHCAAN and Subsidiaries

2) Key Divisions of EHCAAN

The organizational structure of EHCAAN groups the company into 14 specialist departments. Many of these departments could be described as corporate 'service' departments such as the Company Secretary, Public Relations, Human Resources and Administration, while in terms of relevance to this study, the following departments have direct responsibility for the projects control:

- Planning
- Finance
- Economics
- Commerce, and
- Legal Affairs.

Planning

The General Department of Planning is responsible to ensure the capacity of the air transport system, as it relates to the EAHC and the NANSC, meets the expected demand generated by air carriers, other users of the air transport system and stakeholders located at airports. The department is required to prepare traffic forecasts, consult and verify forecasts with various aviation organizations including airlines, tourism bodies, and governorate planning authorities.

The department is also responsible for consolidating project proposals from its affiliated companies into the project plan for EHCAAN, for monitoring project implementation and reporting the status of projects to the executive of EHCAAN. In addition, it includes for implementing decision of the chairman and the assembly of the company in relation to planning.

Finance

The General Department of Financial Affairs is responsible for the overall financial management of EHCAAN and the financial supervision and control of subsidiaries. The department is required to formally report the financial performance of the organizations on a routine basis including monthly reports to the board of management, quarterly financial reports and statements and annual financial reports required by Egyptian accounting standards.

The group provides an evaluation of the companies' financial statements and provides financial coordination between EHCAAN and subsidiaries. The department also provides supervisory control over the structure of the companies' financial reports, accounting procedures and performance and is responsible to ensure EHCAAN and subsidiaries complying with the requirements of the central authority of accounting (Egyptian accounting standards).

Economics

The General Department of Economic Affairs conducts studies and evaluates world trends and developments, particularly in regards to airports and their management, to assess the implications for aviation within Egypt and to identify the implications for future changes and the economic strength of the company. Specifically, the department is required to undertake project feasibility studies, identify projects or investments that provide the best return to the EHCAAN and to identify preferred arrangements for funding the EHCAAN's investments.

Commerce

From an overview perspective, the activities and responsibilities of the General Department of Commercial Affairs involve assessing the commercial implications of new company ventures. This may involve the merger or further separation of subsidiaries, undertaking research for new commercial initiatives, achieving improved returns on existing assets, and are responsible for analyzing contracts, in terms of their commercial content which EHCAAN expects to execute.

It also has corporate responsibility for procurement, purchasing, purchasing contracts, and ensuring compliance to corporate procedures for issuing tender documentation, assessing tender proposals and awarding contracts.

Legal Affairs

The Department of Legal Affairs protects the interests of EHCAAN and provides direction on legal matters to other departments with EHCAAN and its subsidiaries. Specifically the Legal Department is responsible for 1) revising all agreements and contracts proposed for executing by EHCAAN or its subsidiaries, 2) supervising of the legal issues involving subsidiaries, and 3) providing legal advice and direction with regards to disputed matters or legal matters under judicial review.

In relation to airport projects, the legal department would oversee contract and negotiations for the establishment of a loan or other financial sources, supervise the contracts under which project staff or organizations are employed and provide legal advice in terms of dispute resolution, contract variations, indemnities, and other matters such as liability.

2.2.3. EgyptAir Holding Company (EAHC)

1) General

The first flight in Egyptian history was between Almaza (Cairo) and Alexandria by EgyptAir Airlines in 1933. EgyptAir Airlines, originally named Misr Airwork, was funded on May 7th 1932 as the seventh airline in the word joining International Air Transport Association (IATA). After several changes of owner shipments, the GOE finally put EgyptAir Airlines into the Government organization. EgyptAir Airlines was the first IOSA (IATA Operational Safety Audit) certified airline in the Middle East and Africa, and recipient of the TUV (Technischer Uberwachungs-Verein/Technical Inspection Association) certificate award. In order to realize providing customers better services and to survive the world wide airline competitions, EgyptAir Airlines changed its structure and became "EgyptAir Holding Company" (EAHC) with several subsidiaries in 2002 by Presidential Decree. EAHC is addressed under MCAA and has been operated as self-financial support with a commercial basis. The vision, mission and objectives of EAHC are stated as following:

EgyptAir Holding Company (EAHC)	
Vision	*"To deliver competitive customer service with true Egyptian spirit"*
Mission	• Create value for our customers, employees, owners and stakeholders
Objectives	• Providing strategic direction to all subsidiaries • Managing the business portfolio to maximize synergies • Aircraft acquisition, replacement and selling • Aircraft leasing • Providing the subsidiaries with a variety of services • Investing in aviation and tourism – related projects

EAHC's all subsidiaries are shown in Figure 2.2.3.

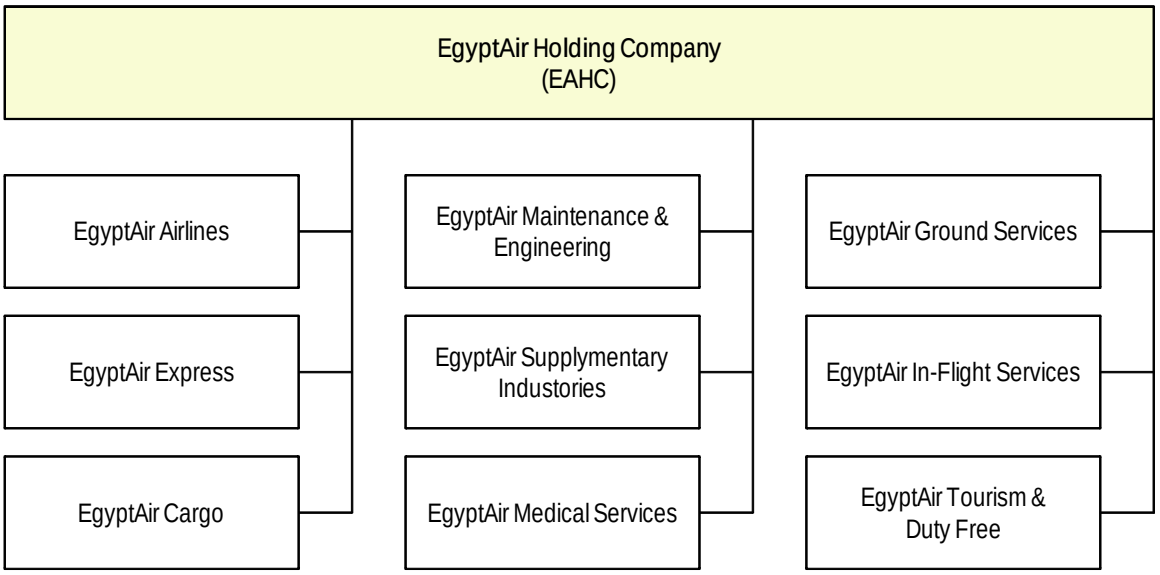


Figure 2.2.3 EAHC and Subsidiaries

2) Key Companies for EAHC

EGYPTAIR Airlines

EgyptAir Airlines is a national flag carrier and the core of EAHC. EgyptAir Airlines was established on May 7th 1932 and provides services more than 75 years. It was the seventh airline in the world to join IATA. The first IOSA and recipient of the TUV certificate award. In July 2008, EgyptAir Airlines become an active member of Star Alliance and since then, EgyptAir Airlines customers are able to reach destinations in 162 countries and 975 destinations all over the world. EgyptAir Airlines earned 9.2 billion EGP from July 2007 to June 2008. The net profit was 231 million EGP.

EGYPTAIR Cargo

EgyptAir Cargo was founded in 2002. Since its foundation, EgyptAir Cargo has been on the forefront of transporting and handling general and special cargo. The fleet is composed of four medium range wide body aircrafts, two Airbus-380s with a capacity of 42 tons, and two Airbus 300/600 with a capacity of 45 tons. Egyptair Cargo maintains highest-standard cargo tracking systems and serves a network of more than 67 key international airports. It operates several major Cargo Hubs at Cairo International Airport, Ostende-Belgium, Manston-U.K., Hahn-Germany, Chateauroux-France, and Sharjah-U.A.E. offering direct access from and to the most important trading centers in Europe and the Middle East. EgyptAir Cargo earned 851 million EGP from July 2007 to June 2008. The net profit was 73 million EGP.

EGYPTAIR Express

EgyptAir Express was established in May 2006 and services domestic and regional routes with convenient scheduling at affordable prices. It tends to be dominant in the domestic market and serve international markets suitable for regional jets not served by EgyptAir Airlines or mutually agreed upon. EgyptAir Express tends to buy a same type of aircraft, 12 fleets of Embraer-170 aircraft. To do so, benefits such as maintain consistency of product across markets, wide flexibility in aircraft operation, cost savings of pilots training and training equipments etc., would make company capable to compete with LLCs. The operation needs to maximize fleet utilization based on commercial viability and to minimize unnecessary costs. EgyptAir Express earned 334 million EGP from July 2007 to June 2008. The net profit was 4.3 million EGP.

EGYPTAIR Maintenance & Engineering

EgyptAir Maintenance & Engineering is the only full maintenance, repair and overhaul (MRO) service provider in Egypt. Awarded with the European Aviation Safety Agency (EASA) Part 145 certificate, EgyptAir M&E provides full technical support (Flight Hour Agreement), line maintenance and base maintenance technical support for more than 75 customers in Europe, Africa and the Middle East, specifically regarding the maintenance activities of most Boeing and Airbus aircraft. EgyptAir M&E checked up and dispatched over 75,000 aircrafts in 2008. EgyptAir M&E earned 813 million EGP from July 2007 to June 2008. The net profit was 111 million EGP.

EGYPTAIR Ground Services Company

EgyptAir Ground Services Company started its operation in 1938 as the first handling company in Egypt and Middle East. EgyptAir Ground Services Company is recently awarded IATA's Safety Audit for Ground Operations (ISAGO) Certificate, and offers services to over 140 international carriers covering more than 71.5 percent of international flights at all major Egyptian airports.

2.3. EXISTING AIR TRANSPORT SYSTEMS

2.3.1. Classification of Airports

There are 24 civil use airports, 9 petroleum aerodromes, 8 petroleum heliports, 31 unattended landing grounds in Egypt as appears in Aeronautical Information Publication (AIP), AD2 Section. A newly constructed airport, Sohug airport, is principally operate as air force base and not yet opened as civil use airport. MCAA is now in the process to have a certification from International Civil Aviation Organization (ICAO). After this process, Sohug will be operational as civil use airport.

As shown in Table 2.3.1, the airports are classified into three categories in AIP, 1) Primary/Major International Aerodrome, 2) Secondary/ Other International Aerodrome and 3) National Aerodrome. Airport operator and runway dimensions are also shown in Table 2.3.2. 19-airports are under the management of EAC, 1-airport under CAC, 3-airports under private companies and 1-airport under Egyptian Air Force. Most airports are very well constructed having a 3,000 m length runway which is capable to accommodate small and medium jets at maximum takeoff weight. CIA has opened new additional runway (05R/23L) so as to meet future growth. Location map of civil use airports is shown in the Figure 2.3.1.

Scheduled traffic is not permitted at Almaza Air Force Base, El Gora, El Tor, and October airports. Hurghada airport is designated as an alternate airport for CIA.

Table 2.3.1 Airport Categories in Egypt

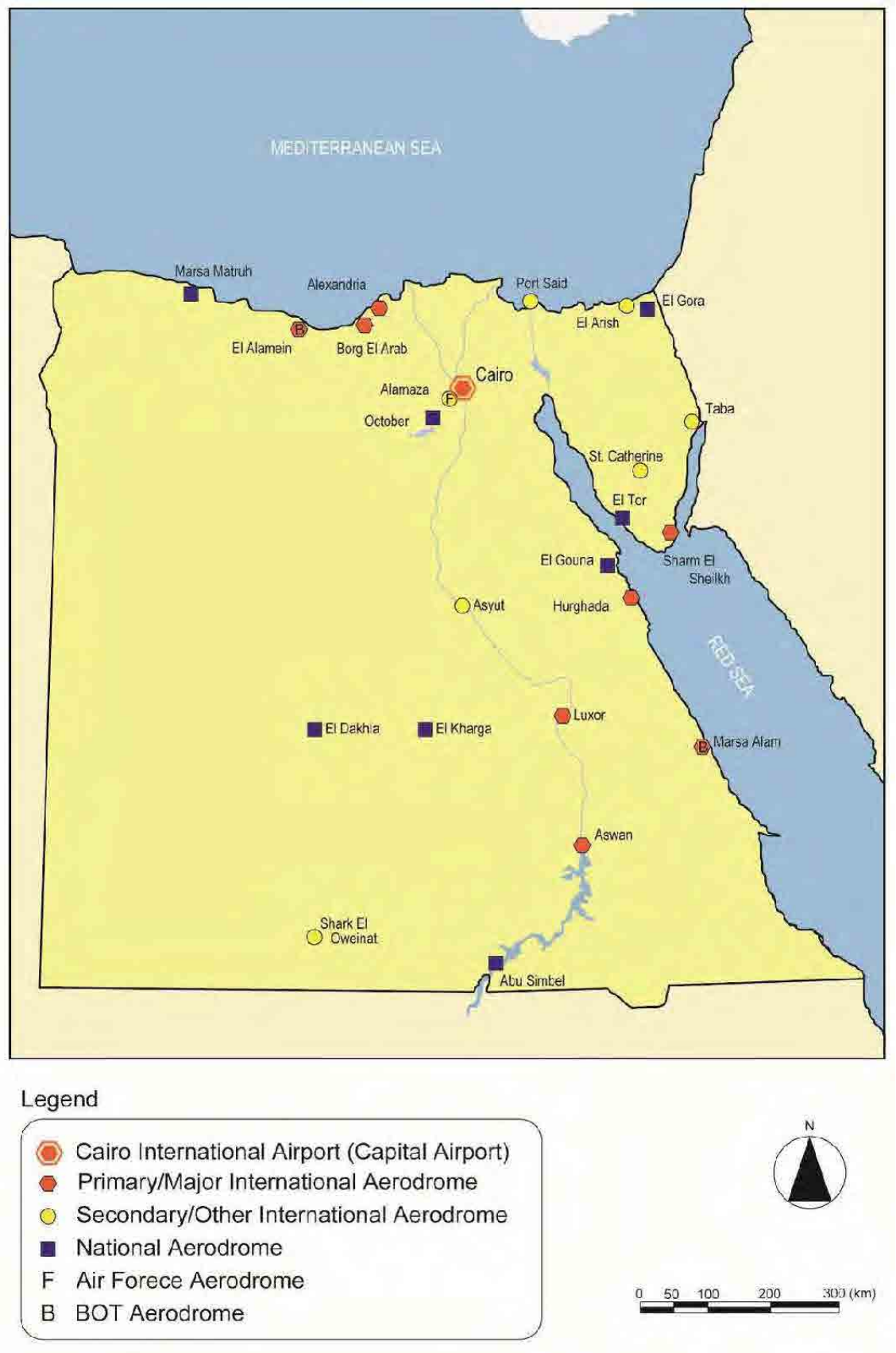
Categories (Number)	Description	Airport Name
Primary/Major International Aerodrome: (9)	The aerodrome of entry and departure for international air traffic, where all formalities concerning customs, immigration, health, animal and plant quarantine and similar procedures are carried out and where air traffic services are available on a regular basis.	Cairo Alexandria (Al Nozha) Hurghada Luxor Aswan Sharm El Sheikh Borg El Arab Marsa Alam Al Alamain
Secondary/Other International Aerodrome: (7)	Another aerodrome available for the entry or departure of international air traffic, where the formalities concerning customs, immigration, health and similar procedures and air traffic services are made available, on a restricted basis, to flights with prior approval only.	Asyut Taba El Arish Port Said Shark El Oweinat St. Catherine Almaza Air force Base
National Aerodrome: (8)	An aerodrome available only for domestic air traffic, including those military aerodromes/heliports where civil air traffic is allowed under certain conditions.	El Gora Abu Simbel El Kharga El Tor Mersa Matruh Dakhla October El Gouna

Source: AIP Egypt AD 1.3-1, 07 JUNE 2007

Table 2.3.2 List of Civil Airports in Egypt

Name	ICAO Code	Coordinates	AIP Classification	Operator	Runway Designation	Runway Dimensions [length x width] [m]
Abu Simbel	HEBL	22.37583 N 31.61167 E	National	EAC	15/33	3,000x45
Al Alamain	HEAL	30.92444 N 28.46139 E	Primary	INTL Airports Company	13/31	3,500x45
Alexandria Int'l (Al Nozha)	HEAX	31.18167 N 29.94639 E	Primary	EAC	04/22 18/36	2,201x45 1,801x30
Almaza Airfirce Base	HEAZ	30.09194 N 31.35972 E	Secondary	Egyptian Air force	18/36 05/23	2,050x45 1,240x50
Aswan International	HESN	23.96444 N 32.82000 E	Primary	EAC	17/35	3,402x45
Asyut International	HEAT	27.04639 N 31.01194 E	Secondary	EAC	13/31	3,019x45
Borg El Arab International	HEBA	30.91806 N 29.69583 E	Primary	EAC	14/32	3,400x45
Cairo International	HECA	30.10111 N 31.41389 E	Primary	CAC	05R/23L 05C/23C 05L/23R 16/34	4,000x60 3,999x60 3,301x60 3,178x60
Dakhla	HEDK	25.41167 N 29.00167 E	National	EAC	15/33	2,489x45
El Arish International	HEAR	31.07333 N 33.83583 E	Secondary	EAC	16/34	3,019x45
El Gora	HEGR	31.07333 N 34.14944 E	National	EAC	08/26 17/35	2,400x30 2,400x45
El Gouna	HEGO	27.36687 N 33.66816 E	National	DG of Airport, El Gouna Resort	16/34	1,600 x 30
El Kharga	HEKG	25.47361 N 30.59083 E	National	EAC	18/36	3,500x45
El Tor	HETR	28.21222 N 33.63056 E	National	EAC	10/28	3,000x45
Hurghada International	HEGN	27.17861 N 33.80083 E	Primary	EAC	16/34	4,000x45
Luxor International	HELX	25.67083 N 32.70639 E	Primary	EAC	02/20	3,000x45
Marsa Alam International	HEMA	25.55722 N 34.58361 E	Primary	EMAK Marsa Alam Company	15/33	3,000x45
Mersa Matruh	HEMM	31.32528 N 27.22167 E	National	EAC	06/24 15/33	3,000x45 3,000x45
October	HEOC	29.81222 N 30.82333 E	National	EAC	01/19	2,000x35
Port Said	HEPS	31.27944 N 32.24000 E	Secondary	EAC	10/28	2,349x45
Shark El Oweinat International	HEOW	22.58333 N 28.71611 E	Secondary	EAC	01/19	3,500x45
Sharm El Sheikh International	HESH	27.97861 N 34.39333 E	Primary	EAC	04R/22L 04L/22R	3,081x45 3,081x45
St Catherine International	HESC	28.68528 N 34.06250 E	Secondary	EAC	17/35	2,115x36
Taba International	HETB	29.58778 N 34.77806 E	Secondary	EAC	04/22	4,000x45

Source: AIP Egypt AD 1.3-1, 11 MARCH 2010



Source: AIP Egypt AD 1.3-1, 07 JUNE 2007

Figure 2.3.1 Airport Locations in Egypt: 2009

2.3.2. International Air Routes

Egyptian international air routes are very unique, that is, many international flights arrive to Egypt as non-scheduled flights which directly linked from foreign countries to specific international airport in Egypt. Table 2.3.3 shows numbers of county (city) connected between Egyptian airports and regions in 2008.

Even some airports did not have any scheduled flight, there were non-schedule flights coming from several foreign countries. This was because Egypt had adapted completely free open sky policy into air transport sector. According to interviews with MCAA, any airlines could approach to all international airports but CIA in Egypt. CIA was not capable to accept non-scheduled flights in most of time otherwise it would soon be saturated. The policy would continue so that more international visitors could come to Egypt at their convenient time.

The airports receiving this biggest appreciation were Sharm El Sheikh, Hurgada and Luxor international airports. Visitors by non scheduled flights came from nearly 70 to 80 cities through European, Middle East, and African regions. It was also meant that there were such numbers of direct international air routes from the countries.

For international air routes by scheduled flights, CIA was a core as the international gateway of Egypt. Only CIA had direct links to North America, e.g. New York, USA and Montreal, Canada. Even Asian region, there were several countries linking to CIA such as China, India, Japan, Malaysia, Korea, Singapore and Thailand.

Table 2.3.3 Numbers of County (City) Connected to Egyptian Airports: 2008

Airport		Number of Country (No. of City)				
		European Region	Middle East Region	African Region	Asian Region	North America Region
Cairo	Scheduled	20 (27)	12 (24)	12 (16)	7 (9)	2 (2)
	Non-Scheduled	13 (40)	8 (15)	6 (6)	-	-
Sharm El Sheikh	Scheduled	8 (19)	5 (7)	-	-	-
	Non-Scheduled	38 (64)	6 (9)	2 (2)	-	-
Hurghada	Scheduled	9 (18)	1 (1)	-	-	-
	Non-Scheduled	33 (53)	7 (7)	2 (2)	-	-
Luxor	Scheduled	8 (14)	5 (5)	-	1 (1)	-
	Non-Scheduled	23 (59)	5 (6)	5 (8)	-	-
Aswan	Scheduled	-	-	-	-	-
	Non-Scheduled	6 (9)	2 (2)	-	-	-
Marsa Alam	Scheduled	-	-	-	-	-
	Non-Scheduled	14 (14)*1	-	-	-	-
Alexandria	Scheduled	1 (1)	7 (11)	1 (2)	-	-
	Non-Scheduled	5 (12)	3 (7)	-	-	-
Taba	Scheduled	-	-	-	-	-
	Non-Scheduled	16 (16)*1	-	-	-	-
Al Alamein	Scheduled	-	-	-	-	-
	Non-Scheduled	3 (11)	-	-	-	-
Borg El-Arab	Scheduled	1 (1)	2 (5)	1 (2)	-	-
	Non-Scheduled	10 (12)	3 (7)	1 (2)	-	-

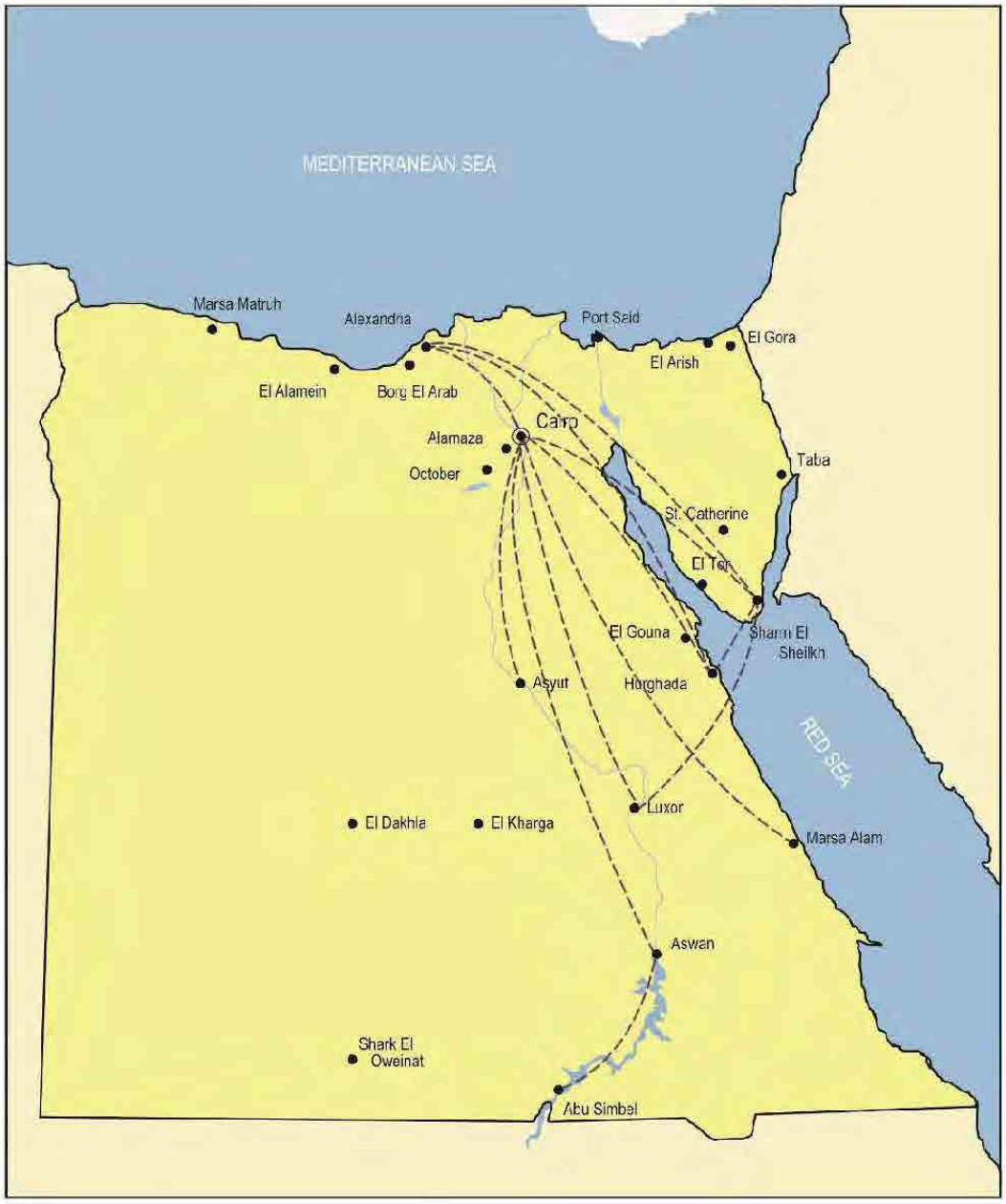
Source: Annual Statistical Report 2008, Ministry of Civil Aviation Authority (MCAA)

Note: *1 no details were stated in the report.

2.3.3. Domestic Air Routes

1) Domestic Air Routes

Since CIA is acting as the core of air network system for passengers and cargo, the air network system for domestic air route is adapted a hub and spoke system. Domestic scheduled flights are operated based on this concept. At the time of field survey, EgyptAir Airlines and EgyptAir Express are the dominant airlines for domestic scheduled flights. Based on the EgyptAir Airlines' time table in April 2010, the scheduled flights were provided to the airports located at the coast of Red Sea and ruins along the River Nile. (See Figure 2.3.2) No scheduled fights were served at the airports located west side of Egypt. Other local airports were linked by non-scheduled flights in terms of chatter flights.



Source: EgyptAir Airlines' Timetable in April, 2010

Figure 2.3.2 Domestic Flight Routes in Egypt: 2010 (EgyptAir Airlines)

According to AIP, non-schedule flights are able to fly and link to all airports except October. October airport is dedicatedly used for flight training. In addition to October, Almaza air force base was practically not available, and El Gora, El Tor, Shark El Oweinat did not have non-scheduled flight in 2009.

2) Domestic Flight Schedule (EgyptAir Airlines)

Aircraft types and number of flights per week by route is summarized as shown in Table 2.3.4. Aircrafts for domestic air routes were basically operated by small jets such as A320 and B737 and regional jet, ERJ-170. A330, medium jet, was only introduced to the route between Cairo and Luxor once in a week.

No larger aircraft tends to be introduced into domestic air routes. Considering with recent world trend, Low Cost Carries (LCCs), frequent flight service by small aircrafts at affordable price seems more preferable to the customers (passengers) now are days. EgyptAir Airlines and EgyptAir Express understood the situation and intend to do so.

Table 2.3.4 Aircraft Types and Number of Weekly Flights by Route: 2010 (EgyptAir Airlines)

From	To	Distance	Duration (min)	Aircraft Type	No. of Flights per Week
Abu Simbel	Aswan	216km	45	A320	21
				B737	7
				EMJ	18
Alexandria	Cairo	183km	45	A320	3
				EMJ	5
	Hurghada	581km	80	EMJ	3
	Sharm El Sheilh	558km	90	EMJ	4
Asyut	Cairo	344km	55	A320	3
Aswan	Abu Simbel	216km	45	A320	21
				B737	7
				EMJ	18
	Cairo	699km	90	A320	16
				B737	10
				EMJ	49
Cairo	Alexandria	183km	50	A320	1
				EMJ	5
	Assiut	344km	55	A320	3
	Aswan	699km	90	A320	16
				B737	10
				EMJ	49
	Hurghada	402km	65	A320	15
				EMJ	35
	Luxor	510km	70	A320	26
				A330	1
				B737	16
				EMJ	58
	Marsa Alam	596km	85	EMJ	5
	Sharm El Sheilh	376km	60	A320	16
				EMJ	56
Hurghada	Alexandria	581km	80	EMJ	3
	Cairo	402km	65	A320	15
				EMJ	35
	Sharm El Sheilh	107km	40	EMJ	7
Luxor	Cairo	510km	70	A320	27
				A330	1
				B737	15
				EMJ	55
	Sharm El Sheilh	306km	50	B737	1
				EMJ	9
Marsa Alam	Cairo	596km	85	EMJ	5
Sharm El Sheilkh	Alexandria	558km	90	EMJ	4
	Cairo	376km	60	A320	16
				B737	1
				EMJ	60
	Hurghada	107km	40	EMJ	7
	Luxor	306km	50	EMJ	5

Source: EgyptAir Airlines Timetables in April, 2010.

Legend: B737: Boeing 737-300, EMJ: Embraer ERJ-170, A320: Airbus 320, A330: Airbus330

2.4. AIR NAVIGATION

National Air Navigation Services Company (NANSC) is in charge of operating and maintaining navigation facilities in Egypt. Their mission of NANSC is to achieve aviation safety by providing safe, orderly, expeditious flow and efficient air traffic associated with air navigational services.

Air traffic control sector has well managed Cairo Flight Information Region (FIR) through 1 area control center in Cairo air navigation center, and 8 approach control centers located in Cairo, Luxor, Aswan, Hurghada, Sharm El Shikh, Taba, El Arish, Borg El Arab, and 21 control towers at the airports.

The achievements made by NANSC are the followings:

- NANSC has established a modern air navigation system to serve over flying and the landing traffic at Egyptian airports.
- Achieving the commercial operation and cost recovery bases in the field of air navigation.
- Airspace redesign to meet the airlines economic operation and increase the safety level & orderly flow of air traffic.
- Modernization of Cairo Approach and Area Control Center
- Establishing and installation of Cairo RADAR station
- Approach and Terminal RADAR Stations for 7 Egyptian Airports
- Establishing 19 Satellite stations in Cairo and Other Areas
- Covering the Remaining parts of the Egyptian Airspace with RADAR

2.4.1. Existing Navigation System

Available existing radio navigational aids/systems at airports are summarized in Table 2.4.1. VFR (Visual Flight Rules) and IFR (Instrument Flight Rules) are available at most of the airports, except El Gora, El Tor and October airports allowed only VFR. VHF Omnidirectional Range/Distance Measuring Equipment (VOR/DME)s are installed at most of primary airports.

ILS (Instrument Landing System) is also available at 6 airports out of 9 primary airports while PAPI (Precision Approach Path Indicator) is available at all primary airports. ILS is currently not available at BOT (Build-Operation-Transfer) airports, Al Alamain and Marsa Alam, and Alexandria international airport where it will be co-operated after the completion of Borg El Arab international airport construction project.

There are 5 en-route radar stations at Cairo, Hurghada, Marsa Alam, Aswan and Asyut and there are 8 terminal radars at Cairo, Hurghada, Luxor, Sharm El Sheikh, Taba, El Arish, Aswan and Borg El Arab.

Table 2.4.1 List of Radio Navigation Aids/Systems at Airports

Airport	IFR	VFR	PAPI	VOR	DME	NDB	ILS
Primary Airport							
Al Alamain	○	○	○	○	○		
Alexandria (Al Nozha)	○	○	○	○	○		
Aswan	○	○	○	○	○		○
Borg El Arab	○	○	○		○	○	○
Cairo	○	○	○	○	○		○
Hurghada	○	○	○	○	○		○
Luxor	○	○	○	○	○		○
Marsa Alam	○	○	○	○	○		
Sharm El Sheikh	○	○	○	○	○		○
Secondary Airport							
Almaza Airfirce Base	○	○	○		○	○	○
Asyut	○	○	○	○	○		○
El Arish	○	○	○	○	○		
Port Said	○	○	○	○	○		
Shark El Oweinat	○	○				○	
St Catherine	○	○				○	
Taba	○	○	○	○	○		○
National Airport							
Abu Simbel	○	○	○	○	○		○
Dakhla	○	○				○	
El Gora		○					
El Gouna	○	○	○	○	○		
El Kharga	○	○	○	○	○		
El Tor		○	○				
Mersa Matruh	○	○	○	○	○		
October		○	○			○	

Source: AIP Egypt A.R.E. Each Airport Data

2.4.2. New CAN/ATM Systems in Egypt

1) Background

In early 1980s, recognizing the rapid growth of air transport industry rather than other industries, ICAO understood the need to improve the overall efficiency of airspace utilization use by increasing the numbers of air routes and reducing aircraft separations without sacrificing safety levels. This meant using new technologies to meet the future requirements for the international civil aviation community.

ICAO established the special committee on Future Air Navigation Systems (FANS) in 1983. The FANS committee made an extensive study of existing systems and the availability of new technologies. And then it was concluded that the exploitation of satellite technology was the only viable solution to overcome the limitation of the present terrestrial systems and to meet future needs on a cost-effective global basis. This concept was endorsed by the ICAO's 10th Air Navigation Conference in 1991, and the FANS Committee completed this plan in 1993.

Since that conclusion, ICAO has been implementing a globally coordinated plan for introducing a new air traffic control system i.e. using new satellite based-technology called new Communications, Navigation, Surveillance and Air Traffic Management systems (new CNS/ATM systems). Current air traffic control (ATC) methodology provided by existing terrestrial facilities will be innovated by the new CNS/ATM systems

2) Current Status of New CNS/ATM Systems in Middle East and Africa Region

Worldwide airspace is divided into 5 regions with correspondent new CNS/ATM systems, e.g. NEXTGEN (North American Region), SGB (South American Region), IRIS-SESAR (European Region), MTSAT (Asian Region) and NAVISAT(Middle East and Africa Region). An international organization, NAVISAT Middle East and Africa (NAVISAT), was established in November 2006, to facilitate the new CNS/ATM system in Middle East and African airspace and to provide operation services in accordance to ICAO CNS/ATM requirements. Its head quarter is located in Cairo, Egypt.

The vision, mission and objectives of NAVISAT are:

NAVISAT Middle East and Africa (NAVISAT)	
Vision	*" to become the dominant and preferred Africa and Middle Eastern regional supplier of satellite-supplied services for air traffic management"*
Mission	• NAVISAT is an international organization that fills the regional gap in worldwide satellite-based air traffic management services for the Africa and Middle East region with a safe, dependable and economically viable satellite system, and which provides value maximizing services to adjacent markets.
Objectives	• To allow major improvements in CNS/ATM services and to contribute to improving safety and efficiency of air transport. • As a secondary mission the system shall support other Aviation, Maritime and Land Based Complimentary Services • To be the Preferred Provider in terms of quality of services & Cost effectiveness from both the system operator and the user's viewpoints. • To use existing infrastructure to the extent reasonable and possible • To cover a large region (AFI/MID), while being interoperable with systems from other regions. • To setup a Governance Structure that reflects the international nature of the project. • To have an operational system in place by 2012

The NAVISAT has plan to offer the following services in the Middle East and Africa regions at competitive price.

- Aeronautical services (it is the main mission): The ICAO CNS/ATM requirements will be completely fulfilled.
- Mobile Communications services for civil aviations and airlines (data services and voice services) other services like telemedicine and security may be offered.
- Fixed Communications services for civil aviations and airlines (data links with different bit rates can be offered though VSAT systems)
- Navigation services (broadcasting of the augmented navigation signals over the region).
- Complementary services

- Other communications requirements for the passengers will be available (e.g. GSM, internet …..)

2.5. INTERNATIONAL AIRLINES

1) Airlines for Scheduled Flights

There were74 international airlines operating scheduled flights to 6 international airports in Egypt 2008. Numbers of airlines at each airport indicated in the annual statistical report 2008 are summarized in Table 2.5.1. CIA had the largest and handled 48 airlines including Egyptian companies. These airlines conveyed around 11 million passengers from 53 countries in 2008.

Table 2.5.1 Number of International Scheduled Airlines

Airport	Number of International Scheduled Airlines
Cairo	48
Sharm El Shaeikh	22
Hurghada	17
Luxor	13
El-Alamain	13
Borg El Arab	5

Source: Annual Statistical Report 2008, Ministry of Civil Aviation Authority (MCAA)

2) Airlines for Non-Scheduled Flights

On contrary, there were 273 international airlines came to Egypt as non-scheduled flights at 10 international airports in 2008. Non-scheduled international air services are very active especially at the airports located at the coast of the Red Sea, Hurghada and Marsa Alam, Southern edge of Sinai Peninsula, Sharm El Sheikh, and ruins along the River Nile, Luxor and Aswan. Hurghada and Sharm El Sheikh were dominant airports in terms of number of handling non-scheduled international airlines. Numbers of non-scheduled airlines in those airports are 165 and 133, respectively. The table below summarizes the number of non-scheduled airlines of the 10 airports.

Table 2.5.2 Number of International Non-Scheduled Airlines

Airport	Number of International Non-Scheduled Airlines
Cairo	6
Sharm El Shaeikh	165
Hurghada	133
Luxor	69
Aswan	18
Alexandria (Al Nozha)	16
Al Alamain	8
Borg El Arab	20
Marsa Alam	35
Taba	35

Source: Annual Statistical Report 2008, Ministry of Civil Aviation Authority (MCAA)

2.5.1. Domestic Airlines

Domestic airlines in Egypt are classified into 9 categories. Number of companies and registered number of fleet are shown in Table 2.5.3.

EAHC's airlines (See following Section 2.5.2) and other major domestic airline companies are classified under "Organized and Charter Companies". EAHC's airlines are the largest having 64 fleets and the second is Petroleum Services listed under "Air Taxi Companies" registered 43 fleets (10 aircrafts, 33 helicopters). Petroleum Services is an airline based in Cairo, Egypt. It provides oil industry support services and has extensive helicopter operations. The airline also operates commercial passenger services within Egypt and to regional cities.

Other domestic air companies have only few aircrafts maximum at 5 aircrafts. There are several balloon companies at major tourist spots, like Luxor.

Table 2.5.3 List of Domestic Airlines: 2010

List of Domestic Companies	No. of Companies	No. of Fleet
1: Organized and Charter Companies	17	99
2: Air Taxi Companies	12	58
3: Private	2	2
4: Balloon Companies	9	44
5: EgyptAir Institute	1	40
6: Aerial Photography	1	2
7: Air force	1	78
8: Agriculture Spraying Aircrafts	1	13
9: Air Sports Activities	3	9
Total	47	345

Source: Ministry of Civil Aviation Authority (MCAA)

2.5.2. Fleets and Load Factors of EgyptAir Airlines/ EgyptAir Cargo / EgyptAir Express

1) Fleets

EAHC's operational airline companies are EgyptAir Airlines, EgyptAir Cargo and EgyptAir Express. A list of their aircrafts is shown in Table 2.5.4.

EAHC's airlines are willing to expand their flight opportunities. They tend to buy more new aircrafts and expand their international network for welcoming more tourists to one of the most fascinating countries in the world. Indeed, EAHC purchased 14 aircrafts (8- B737/800, 6-ERJ170) in 2008, and 5 aircrafts (5- B737/800) in 2009. In addition, another 19 aircrafts (6- B777/300, 5- A330/200, 8- B737/800) are being ordered this year. EAHC has a target to reach 75 aircrafts in operation by the end of year 2013.

Each company is briefly described in Section 2.2.3, Paragraph 2) Key Companies of EAHC.

Table 2.5.4 List of EAHC's Fleets

Aircraft Type	Number of Fleets	Seat Capacity	On Firm Order (Expected Delivery in 2010)
EgyptAir Airlines			
Boeing 777/200	5	319 seats	
Boeing 777/300	0	365 seats	6
Airbus 340/200	3	260 seats	
Airbus 330/200	7	268 seats	5
Airbus 320/200	13	144 seats	
Boeing 737/500	4	104 seats	
Airbus 321/200	4	185 seats	
Boeing 737/800	12	104 seats	8
EgyptAir Express Fleet			
Embraer 170	12	76 seats	
EgyptAir Cargo Fleet			
Airbus 300/600F	2	45 tons	
Airbus 300/B4	2	42 tons	
Total	64		19

Source: EgyptAir Annual Report 2008/2009, Ministry of Civil Aviation Authority (MCAA)

2) Load Factors

Average load factor is available in EAHC's annual reports. EgyptAir Express has a bit higher load factor than the one of EgyptAir Airlines for domestic operation. That is because EgyptAir Express uses a smaller aircraft, a regional jet with seat capacity of 76, while EgyptAir Airlines uses larger aircrafts, small jets, seat capacity of 100 to 150 seats for domestic air routes. So the load factor of EgyptAir Express generally keeps higher even it has same number of passengers. For airlines, "high load factor", it says over 65 to 70%, indicates commercially viable and just about the right capacity of operation. If it is less than that percentage, size down of aircrafts shall be considered.

Table 2.5.5 Passenger Load Factors: 2007/2008

	EguptAir Airlines	EguptAir Express
Domestic	66%	81%
International	67%	-

Source: EGYPTAIR Annual Report 2008-2009

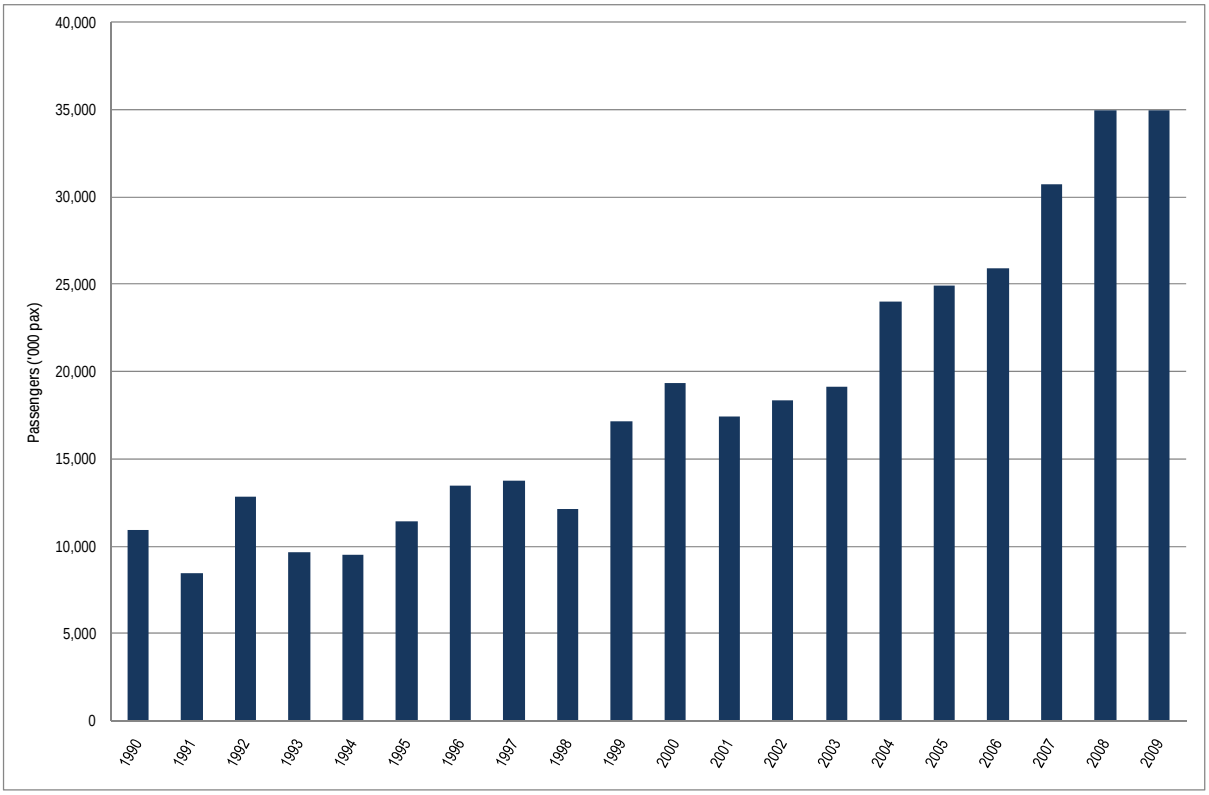
2.6. AIR TRAFFIC MOVEMENT

2.6.1. Overview of Air Passenger Traffic in Egypt

1) Passenger Growth

A historical air passenger traffic movement for past 20 years is shown in Figure 2.6.1. Total air passengers increased from 10.9 million (1990) to 34.9 million (2009) with AAGR 6.3%. In comparison between before and after the privatization, i.e. establishment of EHCAAN in 2002, AAGR between 1990 and 2002 is 4.4% while AAGR between 2003 and 2009 is 10.5%. AAGR after the privatization shows more than double growth than before. Privatization of air transport sector stimulates the passenger demands. Accordingly,

Egyptian air transport sector has a great potential having 2 to 3 million increasing passengers per annum, even though the passengers between 2008 and 2009 did not increase so much. It is also higher than the IATA's prediction, average growth rate 6.4%[2].



Source: JICA Study Team based on Ministory of Civil Aviation and Egyptian Airport Company data

Figure 2.6.1 Historical Air Passenger Traffic Movement for Past 20 Years: 1990-2009

2) Top 5 Airports in Number of Handling Passengers

There were 5 international airports which handled more than one million passengers in 2009. CIA was dominant as the international gateway of Egypt and it accommodated more than 14 million passengers in 2009. It was 41.2% of total air traffic passengers in Egypt. Sharm El-Shiekh and Hurghadah were next busiest international airports, accounting for 7.4 and 6.7 million passengers, respectively in 2009. The shares of these airports are 21.2% for Sharm El-Shiekh and 19.3% for Hurghadah. Other airports handled more than one million passengers per annum were Luxor and Alexandria. It is remarkable that total share of these mentioned 5 airports was over 90% of total passenger movements as shown in Table 2.6.1 and Figure 2.6.2. Remaining airports handled only 9.9% of total passenger movements.

Moreover, total share of Cairo, Sharm El-Shiekh and Hurghadah was more than 80% of total passenger movements. These three airports are outstanding international airports.

[2] Passenger and Freight Forecast Publications (2005 – 2009), International Air Transport Association (IATA), 2005

Table 2.6.1 Air Passengers at Top 5 Airports: 2009

Airport	Passengers ('000)	Share (%)
Cairo	14,379	41.2%
Sharm El-Shiekh	7,419	21.2%
Hurghadah	6,728	19.3%
Luxor	1,847	5.3%
Alexandria	1,098	3.1%
Other Airports	3,465	9.9%
Total	34,937	100%

Source: Egyptian Holding Company for Airports and Air Navigation (EHCAAN)

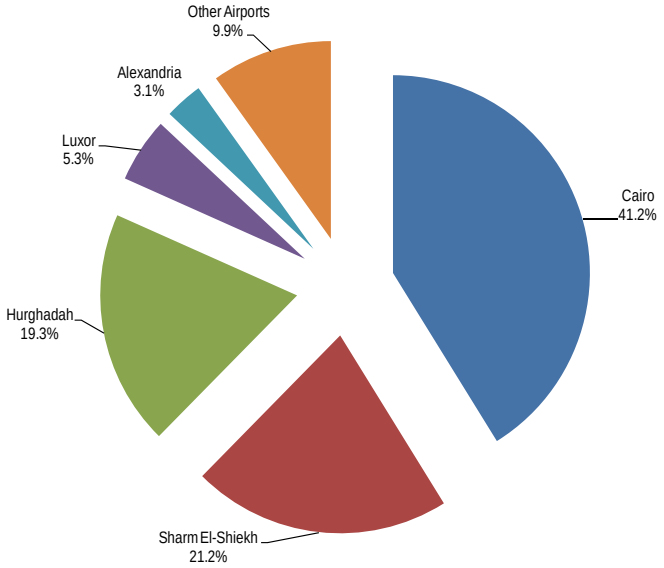


Figure 2.6.2 Air Passenger Share at Egyptian Airports: 2009

3) Shares of International and Domestic Passengers

Other significant point of air traffic movements in Egypt is that international passenger share is quite high. As shown in Table 2.6.2, a share for international was 81% while for domestic was 19%. Focusing on top 3 airports, the international passenger shares are more than the average, CIA (11million, 81%) , Sharm El Shiekh (6.4 million, 87%) and Hurghadah (6.2 million, 93%). It could be said that these airports ware major destination of foreigners and Egyptian from/to overseas.

About the domestic, the number of passengers at CIA, 2.6 million is nearly equal to total numbers of domestic passengers at all other airports, 3.8 million. It was the one of the symptoms that CIA is a core of hub and spoke system, i.e. a number of departing passengers at CIA equal to a number of arriving passengers in total of all regional airports.

Table 2.6.2 Comparison between International and Domestic Passengers: 2009

Airport	International		Domestic		Total
	Passengers ('000)	Share	Passengers ('000)	Share	Passengers ('000)
Cairo	11,715	81%	2,664	19%	14,379
Sharm El Shiekh	6,467	87%	952	13%	7,419
Hurghadah	6,245	93%	484	7%	6,728
Luxor	971	53%	876	47%	1,847
Alexandria	1,033	94%	65	6%	1,098
Other Airports	1,950	58%	1,413	42%	3,363
Total in Egypt	28,381	81%	6,454	19%	34,937

Source: Egyptian Holding Company for Airports and Air Navigation (EHCAAN)

2.6.2. International Air Passenger Traffic

1) Historical Trend of International Air Passenger Traffic

Focusing on the air passenger traffic increases of past 5 years, AAGR for international air passengers is 10.4% which is higher than the AAGR for the past 20 years average, 6.3%.

Table 2.6.3 International Air Passengers and its AAGRs at top 10 Airports: 2005 – 2009

	Airport	2005	2006	2007	2008	2009	AAGR
1	Cairo	8,019	8,849	10,174	11,562	11,715	9.9%
2	Sharm El Shiekh	4,198	4,439	5,564	6,709	6,467	11.4%
3	Hurghadah	4,131	4,521	5,514	6,235	6,245	10.9%
4	Alexandria	458	545	689	1,044	1,033	22.6%
5	Luxor	1,450	1,278	1,077	1,130	971	-9.5%
6	Marsa Alam	149	492	635	793	898	56.7%
7	Borg El-Arab	118	229	233	187	370	33.0%
8	Taba	428	206	302	430	336	-5.9%
9	Asyut	60	74	112	306	232	40.4%
10	Marsa Matruh	23	19	31	23	53	23.0%
Total Pax ('000)		19,103	20,741	24,415	28,503	28,381	10.4%

Source: Egyptian Holding Company for Airports and Air Navigation (EHCAAN)

Alexandria and Marsa Alam are booming in demand for past 5 years. A number of handling international passengers becomes double from 2005 at Alexandria with 22.6% annual growth rate. Marsa Alam airport has marked the highest annual growth rate 56.7% in all airports. The international passengers at Marsa Alam became close to one million which is almost 6 times bigger than the demand in 2005.

International passengers at Luxor is dropped from 1.45 million to 0.97 million. It declined 9.5% per year.

Top 3 airports, Cairo, Sharm El-Shiekh and Hurghadah, are handling more than 80% of total international passengers in Egypt. As a result, total of international passenger demand at these 3 airports increased to 24.4 million which is 1.5 times bigger than the demand in 2005, 16.3 million. (See Figure 2.6.3)

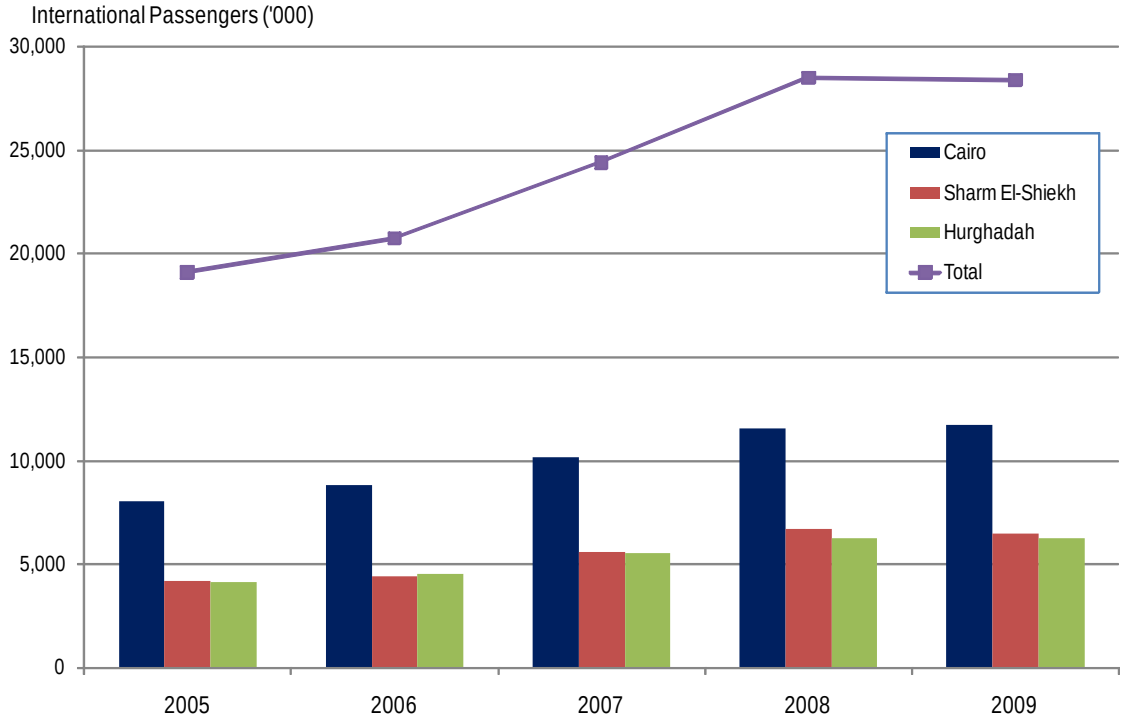


Figure 2.6.3 International Passenger Trend with Top 3 International Airports: 2005 – 2009

2) International Scheduled and Non-Scheduled Passengers

International scheduled flights were operated at 8 airports and international non-scheduled flights were operated at 11 airports in 2009 as shown in Table 2.6.4.

Table 2.6.4 International Schedule and Non-Schedule Flights in Airports: 2009

Airport	International Scheduled Flights	International Scheduled Annual Passengers in 2009	International Non-Scheduled Flights	International Non-Scheduled Annual Passengers in 2009
Cairo	✓	11,312,958	✓	401,987
Sharm El Shiekh	✓	303,924	✓	6,163,361
Hurghadah	✓	777,530	✓	5,467,121
Luxor	✓	328,966	✓	642,221
Aswan	✓	18,357	✓	7,256
Alexandria	✓	1,031,197	✓	2,089
Borg El-Arab	✓	333,876	✓	35,755
Asyut	✓	230,018	✓	1,495
Marsa Alam			✓	898,404
Taba			✓	335,637
Abu Simbel			✓	607
El Arish			✓	4,691*1
Marsa Matruh			✓	53,090*1
Total		14,336,826 (50.5%)		14,043,988 (49.5%)

Note: *1 brake down of traffic at Al-Areish and Marsa Matrooh is not available

Source: Egyptian Holding Company for Airports and Air Navigation (EHCAAN)

Sharm El-Shiekh and Hurghadah showed unique figure that handled more non-scheduled passengers. Shares of the non-scheduled passengers are 86.2% for Sharm El-Shiekh and 88.4% for Hurghadah. Total non-scheduled passengers of two airports are 11.5 million and that is almost the same the number of scheduled passengers at CIA.

On contrary, the airports handled more scheduled passengers than non-scheduled one were CIA and Alexandria. CIA announced the restriction of accepting non-scheduled flights so as to avoid saturation of the capacity at terminal and runways. More non-scheduled passengers could be expected to come if CIA had opened for non-scheduled flights.

3) International Passenger Share by Region

According to the latest available data, Annual Statistical Report 2008, there were many international routes between Egypt and countries in Europe and Middle East.

International air passenger share by regions is shown in Table 2.6.5 and Figure 2.6.4. Totally 66.03% of international passengers came from European region and 25.53% came from Middle East region. Only a few percentages, 1.79% and 0.97% ware from Asian and North American regions. It shows a strong connection between Egypt and European region. Passengers by airports versus regions will be explained following paragraph.

Table 2.6.5 International Air Passenger Share by Regions: 2008

Region	Schedule	Non-Schedule	Total
European Region	18.18%	47.85%	66.03%
Middle East Region	24.77%	0.76%	25.53%
African Region	5.57%	0.11%	5.68%
Asian Region	1.79%	0.00%	1.79%
North American Region	0.97%	0.00%	0.97%
Total	51.28%	48.72%	100.0%

Source: Annual Statistical Report 2008, Ministry of Civil Aviation Authority (MCAA)

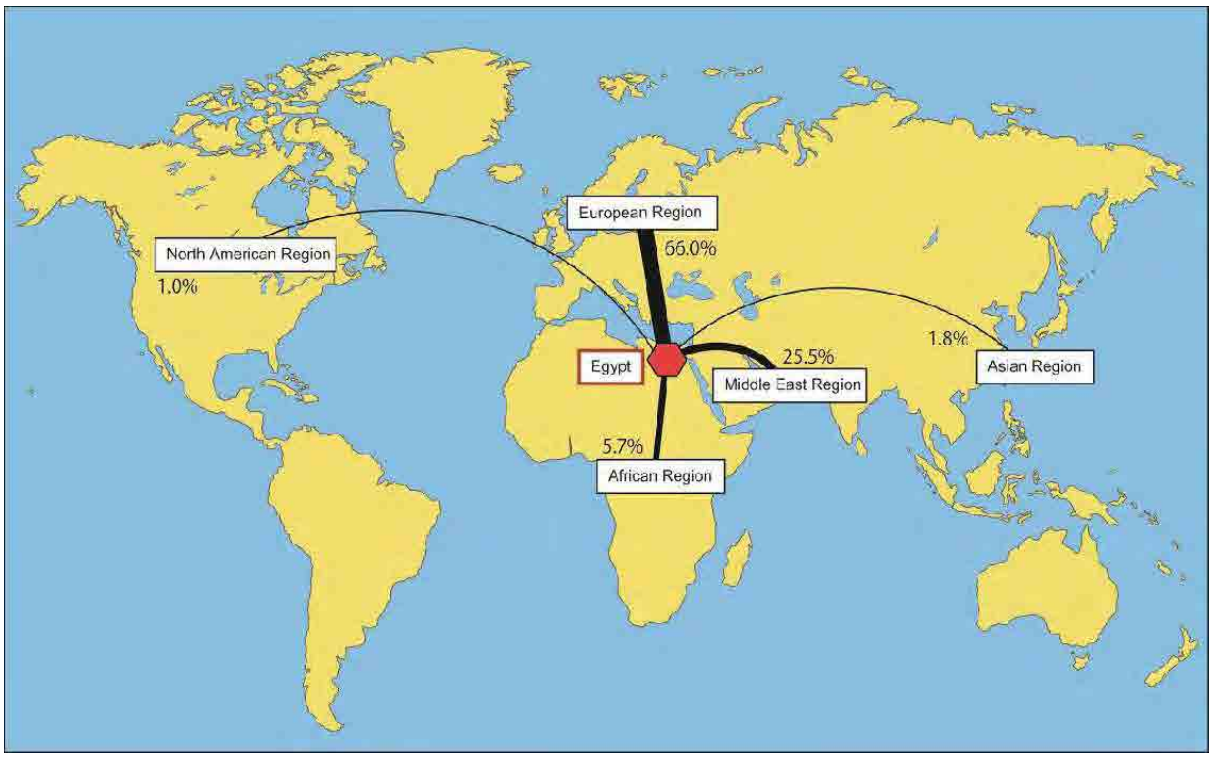


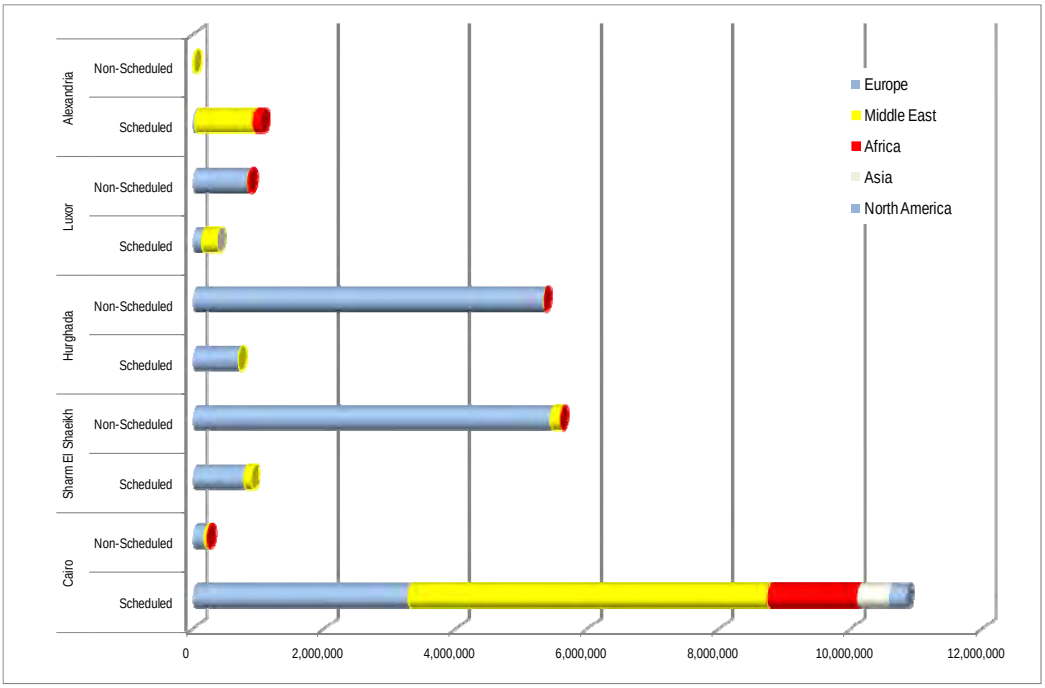
Figure 2.6.4 International Air Passenger Share by Regions: 2008

In conclusion, Figure 2.6.5 describes the characteristic of international passengers.

CIA had around 11 million passenger demands as scheduled in 2008, and these were come from all over the world. Most of the passengers were however from Middle East, Europe and Africa regions. CIA had small number of non-scheduled passengers. CIA was major destination for visitors by scheduled flights.

Sharm El-Shiekh and Hurghadah had many comers from European region as non-scheduled, and even passengers by scheduled flights were come from European region. These two airports showed really similar characteristics. Spending fabulous time at beach resorts of Red sea area became famous in European regions. This made so many passengers coming from their courtiers by charter flights at their vacation time. This trend still continues and seems increasing steadily.

International passengers at Luxor were also come mainly by non-schedule flights from Europe. Luxor is major tourist spots. On the other hand, most passengers came by scheduled was Middle East region. This may be related to the airline activities. Airlines in Europe region were more active than the one in Middle East. As contrast with other 4 airports, most of the people coming to Alexandria by scheduled flights were from Middle East.



Source: Annual Statistical Report 2008, Ministry of Civil Aviation Authority (MCAA)

Figure 2.6.5 International Air Passenger Characteristics: 2008

2.6.3. Domestic Air Passenger Traffic

1) Domestic Air Passenger Traffic in Egypt

Table 2.6.6 shows domestic passenger traffic for past 5 years. The AAGR of total domestic air passenger for the past 5 years is 3.7%. Domestic passenger movements in Egypt increased 1.7 million from 2005 to 2008. Although it was slightly down from 7.2 million in 2008 to 6.4 million in 2009, it is noted that the domestic air passenger traffic is still growing up in relation to the increases of international passenger at CIA. Especially CIA and Sharm El Shiekh had higher growth rates than the average.

Figure 2.6.6 shows a trend of passenger movements at top 3 airports and total. CIA and Sharm El Shiekh were gradually increased in relation to total passenger movements. Passenger movements at Luxor and Aswan were almost same between 2005 and 2009. Hurghadah was dropped by 484,000 (2009) from 619,000 (2005).

Table 2.6.6 Domestic Air Passengers and AAGRs at top 5 Airports: 2005 – 2009

	Airport	2005	2006	2007	2008	2009	AAGR
1	Cairo	2,070	1,929	2,404	2,798	2,664	6.5%
2	Sharm El-Shiekh	326	614	851	1,039	952	30.7%
3	Luxor	806	755	899	1,030	876	2.1%
4	Aswan	963	818	928	1,062	838	-3.4%
5	Hurghadah	619	312	431	506	484	-6.0%
	Total Pax ('000)	5,579	5,061	6,195	7,266	6,454	3.7%

Source: JICA Study Team based on Ministory of Civil Aviation and Egyptian Airport Company data

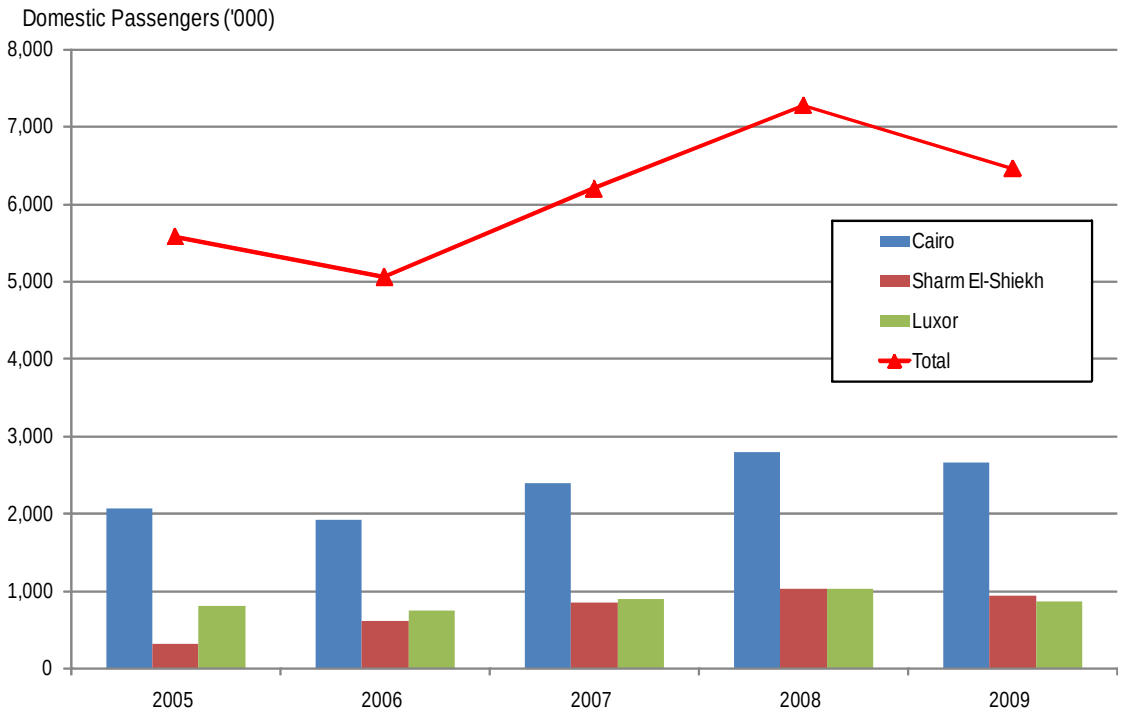


Figure 2.6.6 Domestic Passengers Trend with Top 3 Domestic Airports: 2005 - 2009

2) Domestic Scheduled and Non-Scheduled flights

As it is mentioned in Section 2.3.3, EgyptAir Airlines and EgyptAir Express provide scheduled domestic air services in Egypt. Other domestic airlines operate mainly non-scheduled flight services. Domestic scheduled flights were operated at 12 airports and non-scheduled flights were operated at all operational 20 airports in 2009.

The share of domestic passengers by scheduled flights is 75.5% in total domestic passenger movements. And passengers remaining 24.5% used non-scheduled flights.

Table 2.6.7 Domestic Schedule and Non-Schedule Flights in Airports: 2009

Airport	Domestic Scheduled Annual Passengers in 2009	Domestic Non-Scheduled Annual Passengers in 2009
Total	4,873,930 75.5%	1,580,002 24.5%

Source: Egyptian Holding Company for Airports and Air Navigation (EHCAAN)

3) Domestic Air Passenger Share by Routes

Table 2.6.8 is made from the domestic passenger movement in 2009 which is given by EgyptAir Airlines. Several air routes did not exist in accordance to the EgyptAir Airlines time table, April 2010. (See Figure 2.3.2) Some routes are occasionally or seasonally operated. Shares of these air routes are quite small.

There were three air routes having more than 20% shares. The highest share was between Cairo and Luxor (27.75%), the second was between Cairo and Sharm El Sheikh (24.50%), and the third was Cairo and Aswan (20.11%). Above three shares plus the shares between Cairo and Hurghada (15.97%) and between

Aswan and Abu Simbel (6.29%) were representative domestic air routes in Egypt accounting for 94.66% in total. Other air movements were quite small. Accordingly, these 5 routes are the major air routes in domestic air routes.

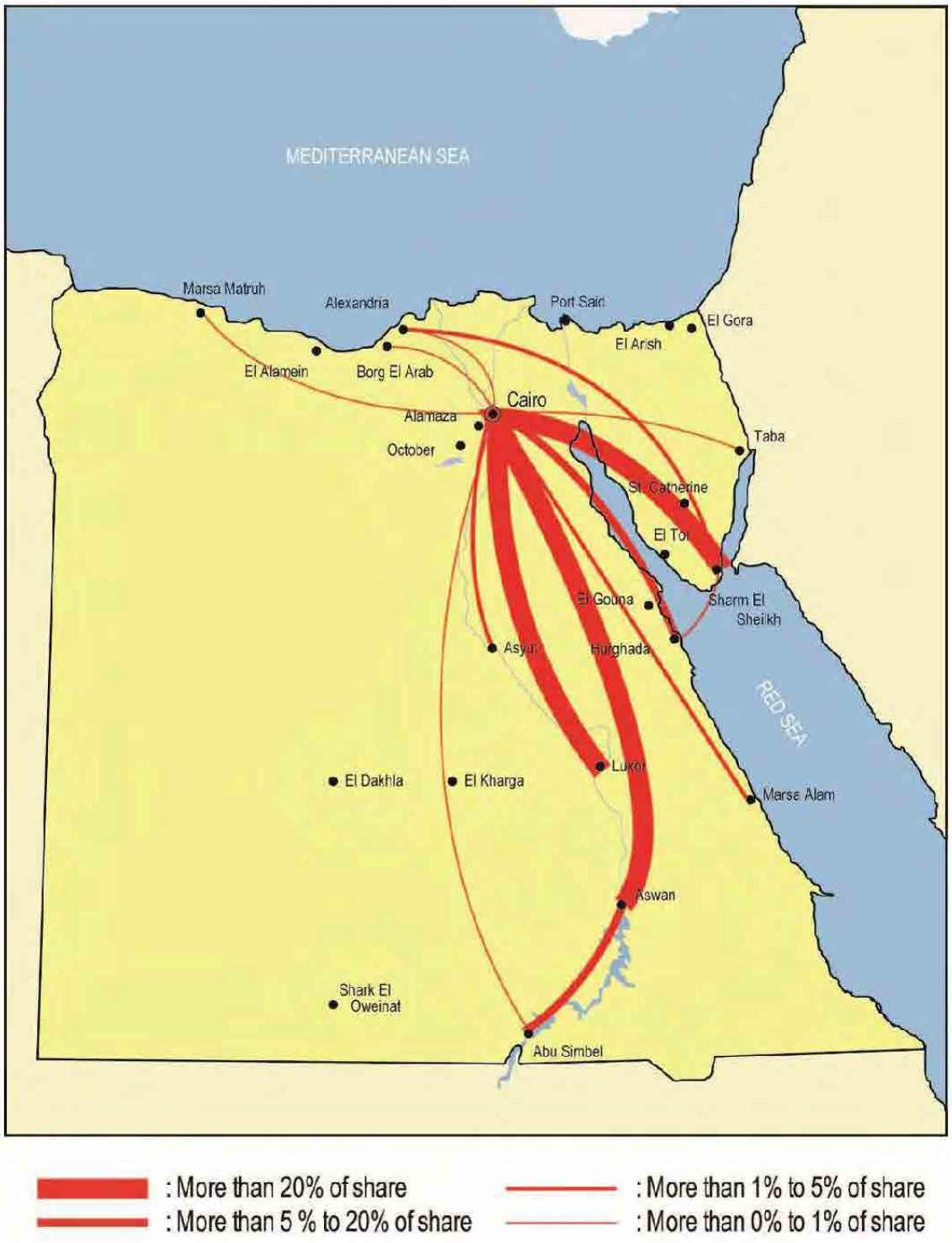
Air route between Aswan and Abu Simbel was 6.29%. Abu Simbel is one of the famous destinations for tourists, i.e. Abu Simbel Temple, but only about one forth of passengers between Aswan and Cairo (20.11%) used flights connecting Aswan and Abu Simbel. It should be noted there was bus transportation providing a round trip between Abu Simbel (Temple) and Aswan.

Table 2.6.8 Domestic Air Passenger Share by Routes: 2009

No	Air Routes (Scheduled Flgihts)		Share
1	Aswan	Abu Simbel	6.29%
2	Cairo	Abu Simbel	0.02%
3	Cairo	Alexandria	0.87%
4	Cairo	Asyut	1.02%
5	Cairo	Aswan	20.11%
6	Cairo	Borg El Arab	0.01%
7	Cairo	Hurghada	15.97%

No	Air Routes (Scheduled Flgihts)		Share
8	Cairo	Luxor	27.75%
9	Cairo	Marsa Alam	1.27%
10	Cairo	Mersa Matruh	0.12%
11	Cairo	Sharm El Sheikh	24.50%
12	Cairo	Taba	0.01%
13	Sharm El Sheikh	Alexandria	1.34%
14	Sharm El Sheikh	Hurghada	0.73%

Source: EgyptAir Airlines, 2009



Source: EgyptAir Airlines, 2009

Figure 2.6.7 Domestic Air Passenger Share by Routes: 2009

2.6.4. Air Cargo Traffic

1) General

Cargo activity at Egyptian airports is modest, having reached 291,276 tons (export 188,931, import 102,345) during year 2009. This is dwarfed by cargo moving via alternative land modes. However, the modest role of the air sector within the national cargo system is not surprising; indeed, very indicative of international aviation norms: that is, cargo traveling by air tends to be smaller, of higher unit value or urgent in nature.

CIA is dominant accounting for 285,839 tons during 2009, which represents almost 1.5 times of activity over the last decade. In addition, some 8,000 tons transited at CIA. Alexandria and Luxor airports accommodated roughly 4,400 and 1,000 tons, respectively. Cargo activity at remaining airports is scattered and of modest proportions. International cargo is mainly handled by shipments. It is considerable that air transport only contributed less 1 % of total freight movement in Egypt.

It is thus reasonable to conclude that air cargo volume is basically few and could be almost totally focused international cargo traffic at Cairo International Airport.

2) Cargo Traffic at Cairo International Airport

Historical cargo traffic by import and export at CIA is summarized in Table 2.6.9 and Figure 2.6.8. Exporting activity is continuously increased with AAGR 6.5% for past 10 years. The cargo volume for exporting becomes near 1.5 bigger than that in 2000. On the other hand, imported cargo traffic shows no increases for past decade. Moreover it shows large reduction of 61,000 tons in 2003.

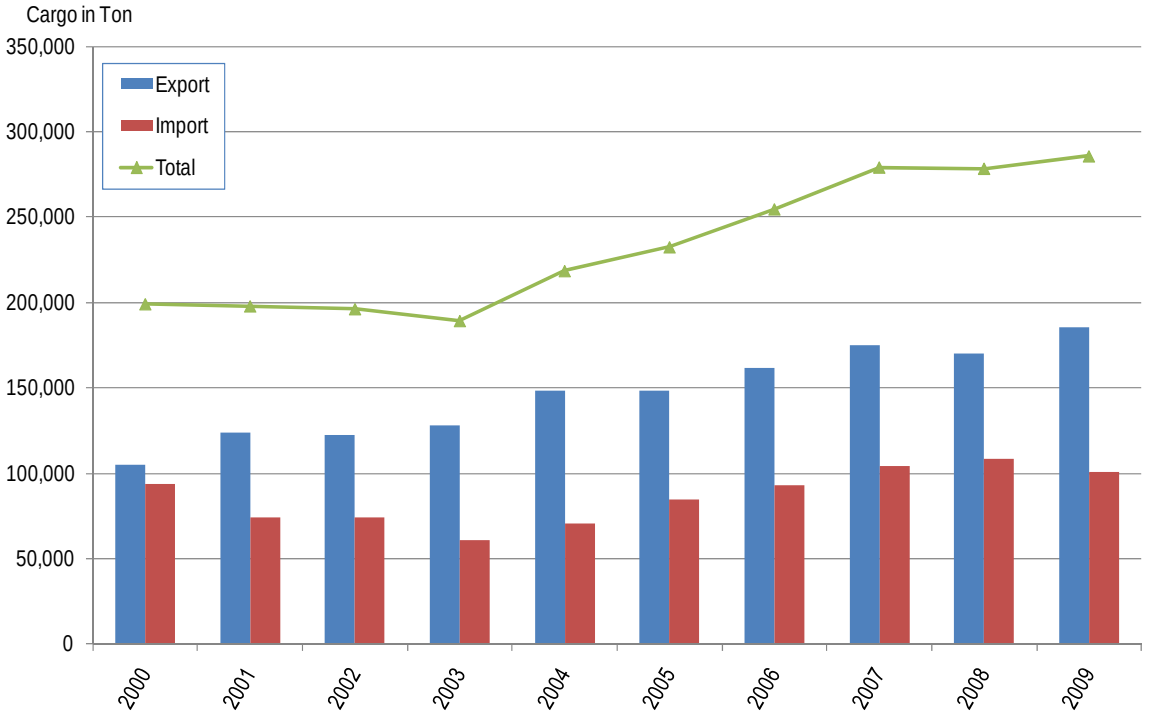


Figure 2.6.8 International Cargo Traffic at Cairo International Airport: 2000- 2009

Table 2.6.9 International Cargo Traffic at Cairo International Airport: 2000 - 2009

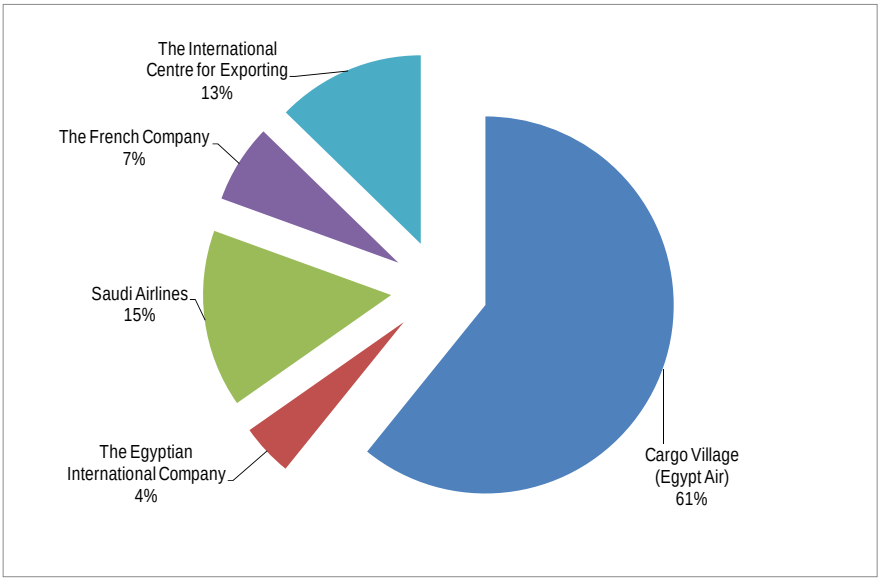
Year	Cargo Traffic (in ton)			Shares		AAGR (past 10 years)			AAGR (5 years)		
	Export	Import	Total	Export	Import	Export	Import	Total	Export	Import	Total
2000	105,231	93,949	199,180	52.8%	47.2%						
2001	123,865	74,072	197,937	62.6%	37.4%						
2002	122,416	73,892	196,308	62.4%	37.6%				8.9%	-6.9%	2.4%
2003	128,385	60,958	189,343	67.8%	32.2%						
2004	148,039	70,567	218,606	67.7%	32.3%						
2005	148,119	84,429	232,548	63.7%	36.3%	6.5%	0.8%	4.1%			
2006	161,538	93,244	254,782	63.4%	36.6%						
2007	175,018	104,301	279,319	62.7%	37.3%				5.8%	4.5%	5.3%
2008	169,825	108,753	278,578	61.0%	39.0%						
2009	185,325	100,514	285,839	64.8%	35.2%						

Source: Egyptian Holding Company for Airports and Air Navigation (EHCAAN)

Exporting activities are more aggressive than importing. Over 60% of cargo has been exported to worldwide and less 40% of cargo has been imported from overseas. The volume of importing keeps more less 100,000 tons for past 3 years, while the volume for exporting shows continuous increases and it reached 185,325 tons in 2009.

3) Air Freighters

There are five cargo terminals at CIA. As shown in Figure 2.6.9, EgyptAir Cargo is the dominant carrier, handling 61 % of throughput. The second is Saudi Airlines and the third is the International Centre for Exporting.



Source: Egyptian Holding Company for Airports and Air Navigation (EHCAAN)

Figure 2.6.9 International Cargo Traffic at Cairo International Airport: 2009

4) Qualitative Cargo Traffic by EgyptAir Cargo

Table 2.6.10 shows a list of qualitative cargo traffic at CIA by EgyptAir Cargo in 2009. There were many varieties of exporting goods. Among these, major items were vegetables and fruits and general goods while major importing good was the general goods. Vegetables and fruits were needed to deliver as fast as possible, but the amount is only around 45,000 tons, it is still not so much volume compared to shipping.

Table 2.6.10 List of Qualitative Cargo Traffic at Cairo Int'l Airport by EgyptAir Cargo in 2009

Item	Exporting		Importing	
Vegetables and Fruits	45,521	71.4%	-	-
General Goods	14,951	23.4%	20,868	91.1%
Magazines and Newspapers	1,055	1.7%	-	-
Textile	802	1.3%	-	-
Courier	116	0.2%	442	1.9%
Civil mail	1,347	2.1%	924	4.0%
Total (tons)	63,794		22,899	
Transit (tons)	13,728		13,498	
Total of Cargo (tons)	77,523		36,398	

Source: EgyptAir Cargo, 2009, Ministry of Civil Aviation Authority (MCAA)

5) International Cargo Traffic by Region

Table 2.6.11 shows the exporting and importing shares by regions in 2008. "Belly Cargo" means the cargo brought by passenger aircrafts. Direction of exporting goods sent by belly cargo was mainly Middle East (55%). On the other hands, major direction of exporting goods and importing sent by freighters were Europe region. The cargo traffic shares were almost similar to passenger traffic shares. Egypt has really strong connection with European and Middle East regions.

Table 2.6.11 The Exporting and Importing Shares by Regions in 2008

	By Passenger Flights (Belly Cargo)		By Freighter	
	Export	Import	Export	Import
Europe	26%	40%	69%	70%
Middle East	55%	19%	27%	11%
Africa	15%	8%	4%	19%
Asia	1%	29%	-	-
North America	3%	4%	-	-

Source: EgyptAir Cargo Annual Report 2009

2.7. THE ROLE OF TOURISM

Tourism, as detailed in the following section, represents a vital component of the national economy and an important source of hard currency. It is, obviously, also closely related to air transport activity.

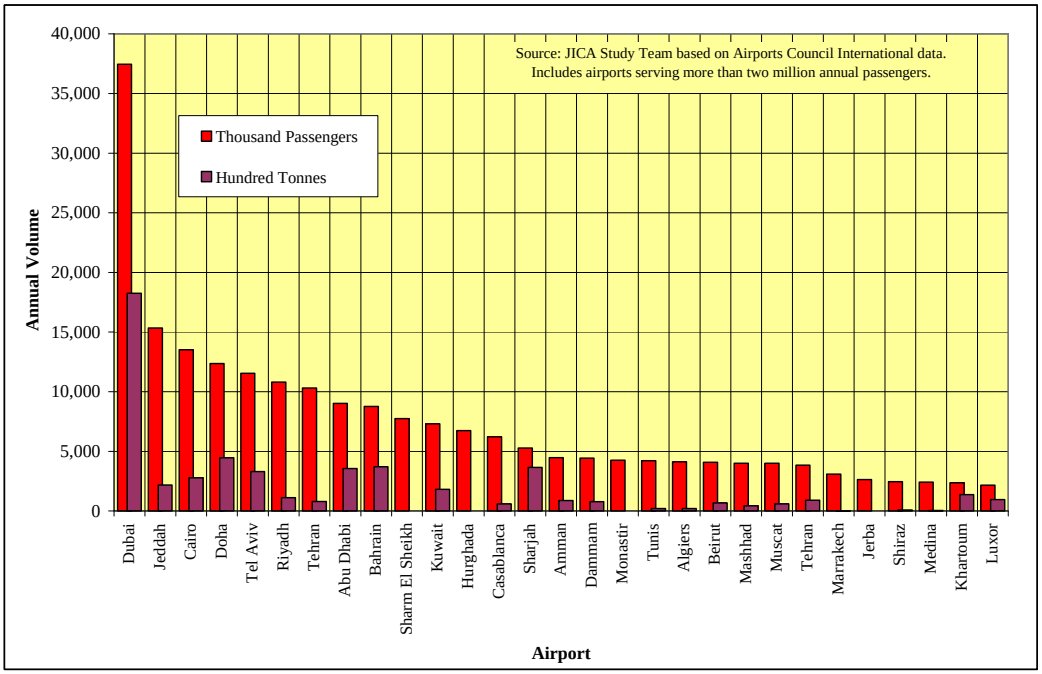


Figure 2.7.1 Year 2008 Passenger and Cargo Activity at Leading MENA Airports

Information provided by the Ministry of Tourism confirms that, between 1990 and 2008, the annual number of international tourists has increased from some 2.6 million to 12.8 million. As expected, year-to-year growth has been variable. Nevertheless, the overall growth ratio relative to year 1990 has increased by almost a factor of five (Figure 2.7.2).

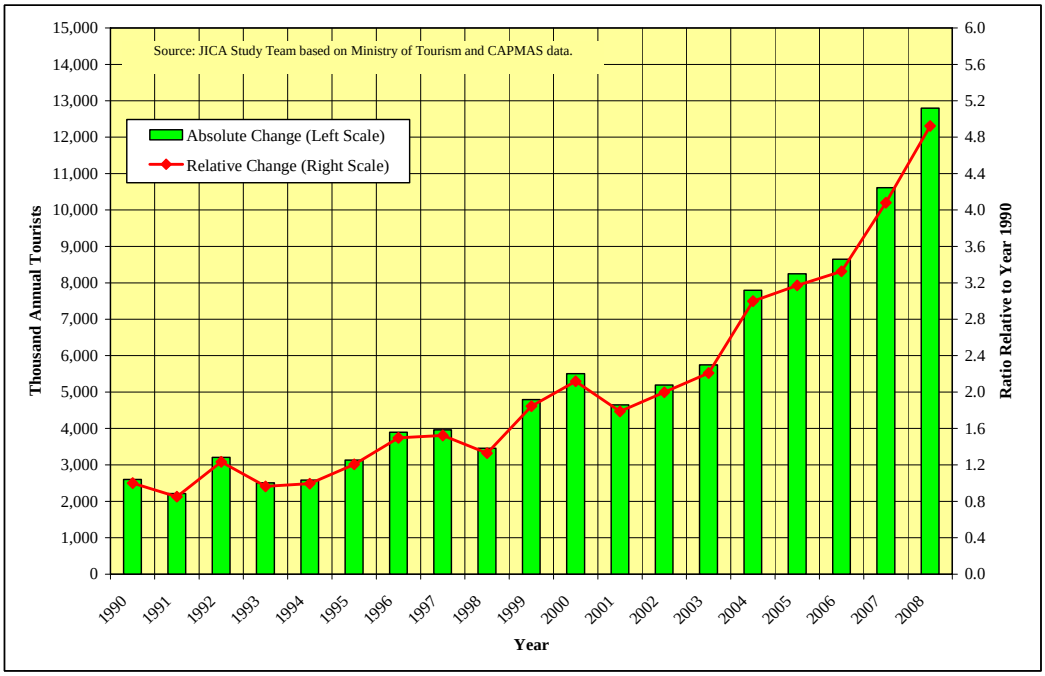


Figure 2.7.2 Evolution of Egypt Tourism: 1990-2008

During 2008, some three-fourths of international tourists were classified as "Europeans" and a further 16 percent as "Arabs". The air mode, always a traditionally preferred mode of access to Egypt by tourists, has recently assumed a dominant position. Approximately 88 percent of tourists arrived by air, two percent by sea and eight percent by land (the remainder being day visitors). This underscores the important linkage between the air and tourism sectors.

Records pertaining to hotel guests by region indicate that considerable changes have taken place in recent years in terms of internal visitation patterns. Cairo, the historical focus of Egyptian visits (expressed in terms of "hotel guests in towns receiving tourists"), has seen its dominant position eroded as the popularity of Red Sea and South Sinai tourist resorts has dramatically increased. Alexandria has remained, in comparison relatively stable, while decreases to Upper Egypt are noted in some years, although upswings are apparent as of late.

2.7.1. Travel Patterns

Tourism activities, and the role of the air sector, were also addressed by the recent National Tourism Study[3] Based on then-observed travel patterns, as well as interviews with travel agents, a series of typical travel patterns were defined for short haul (south-central Europe), medium haul (north-central Europe) and long haul (Japan, USA) tourists.

Short haul travel preferences were described to include (Figure 2.7.3):

- Principal entry points to Egypt were Cairo, Luxor, Aswan, Hurghada and Sharm El Sheikh Airports.
- Marine resorts in South Sinai and the Red Sea sub-regions were seen as booming in popularity.
- The Mediterranean sub-region has not emerged as a tourist destination for short-haul visitors.
- Movements between sub-regions are limited with exception of those between Cairo and Alexandria, and between Cairo and Upper Egypt.

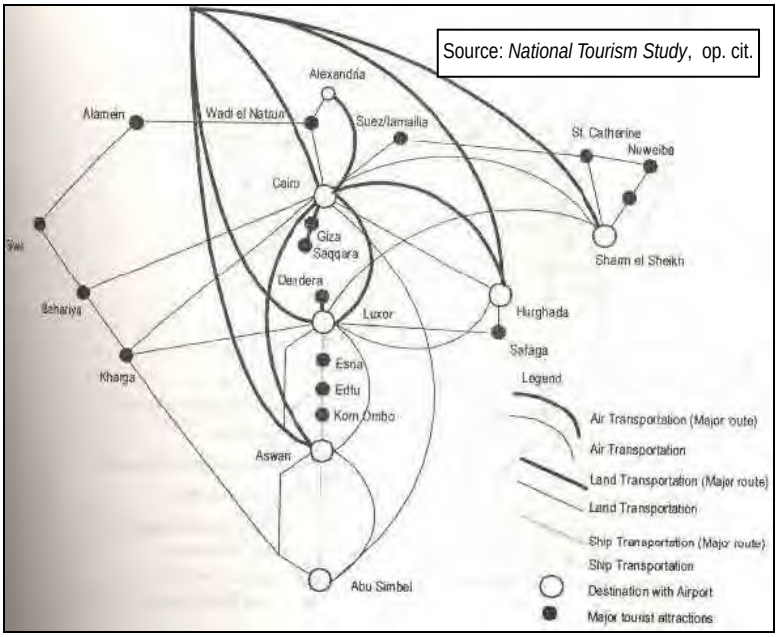


Figure 2.7.3 Trip Preferences: Short-haul Tourist

[3]The Study on Tourism Development Projects in the Arab Republic of Egypt, for Tourism Development Authority, Ministry of Tourism, sponsored by the Japan International Cooperation Agency, executed by Pacific Consultants International and Yachiyo Engineering Co, July 2000.

Medium haul travel preferences were described to include (Figure 2.7.4):

- Cairo and Luxor airports emerge as principal entry points.
- Travel programs are, in general, less diverse than those of short haul visitors.
- Visits to the South Sinai and Red Sea sub-regions are not a core item of the medium haul tourist itinerary.
- Activities tend to focus along the Cairo-Upper Egypt axis.

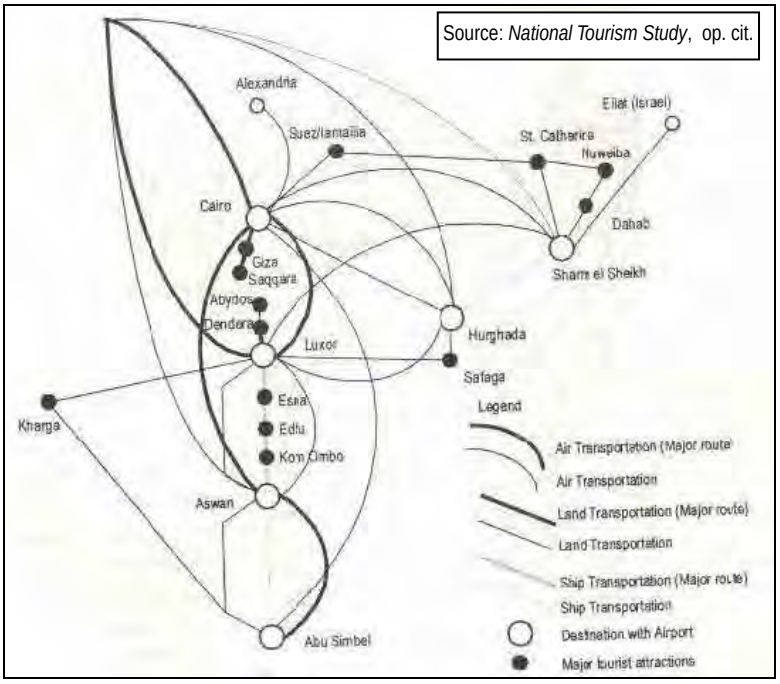


Figure 2.7.4 Trip Preferences: Medium-haul Tourist

Long haul travel preferences were described to include (Figure 2.7.6):

- Cairo Airport is the dominant gateway to Egypt.
- Travel patterns tend to focus along a north-south axis between Cairo and Upper Egypt.
- The majority of in-country movements are via the air mode.

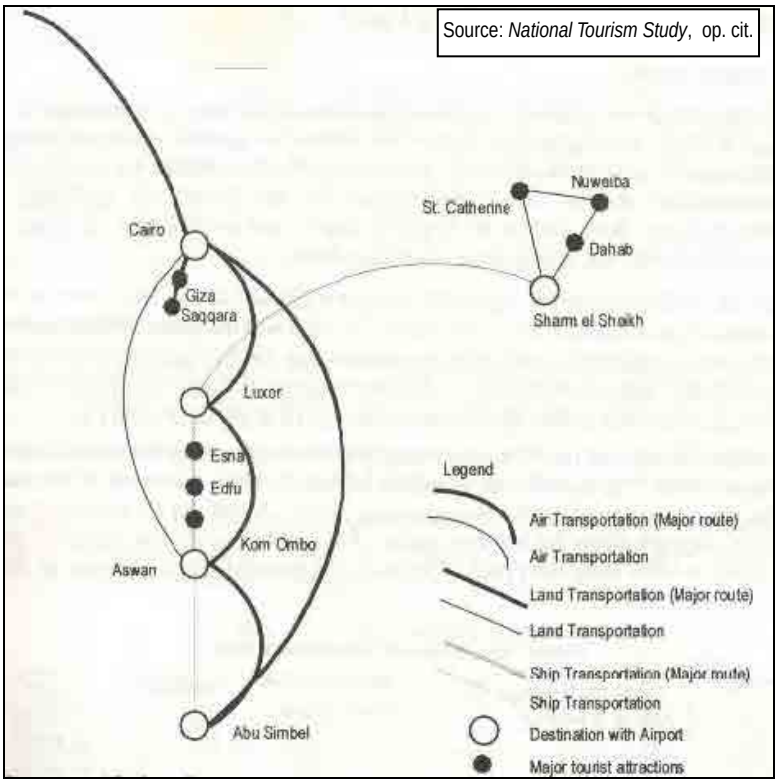


Figure 2.7.5 Trip Preferences: Long-haul Tourists

2.7.2. MENA Comparison

Tourism is strongly linked to the economic well being of some MENA nations. As such, it is of interest to examine the role of tourism vis-à-vis the Egyptian economy.

Saudi Arabia experienced highest absolute number of annual international arriving tourists based on the highest annual volume for any year between 1995 and 2007: some 11.5 million arrivals. It may surmise most of these travelers journey to the Kingdom for religious purposes. Egypt has established itself as a clear

leader in terms of more traditional tourism definitions, having achieved some 10.6 million annual arrivals during a comparative year 2007; a total only exceeded by KSA. The next echelon, encompassing more than 4 million annual arrivals, includes the UAE, Morocco, Tunisia, Syria and Bahrain (Figure 2.7.6). Again, the purposes of tourism between these nations are likely to vary. Among these MENA leader, Egypt has achieved the highest year-on-year growth, with KSA, while exceeding higher absolute totals, following a more consistent arrivals pattern (Figure 2.7.7).

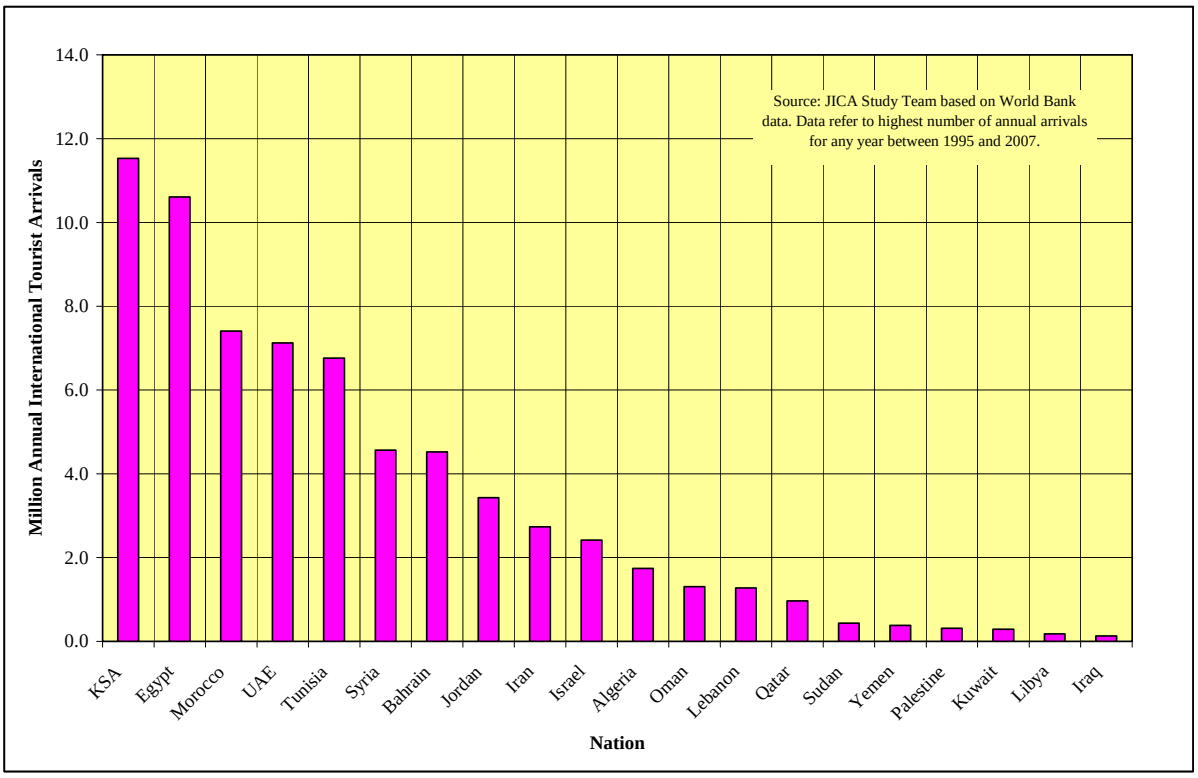


Figure 2.7.6 MENA International Tourist Arrivals Distribution

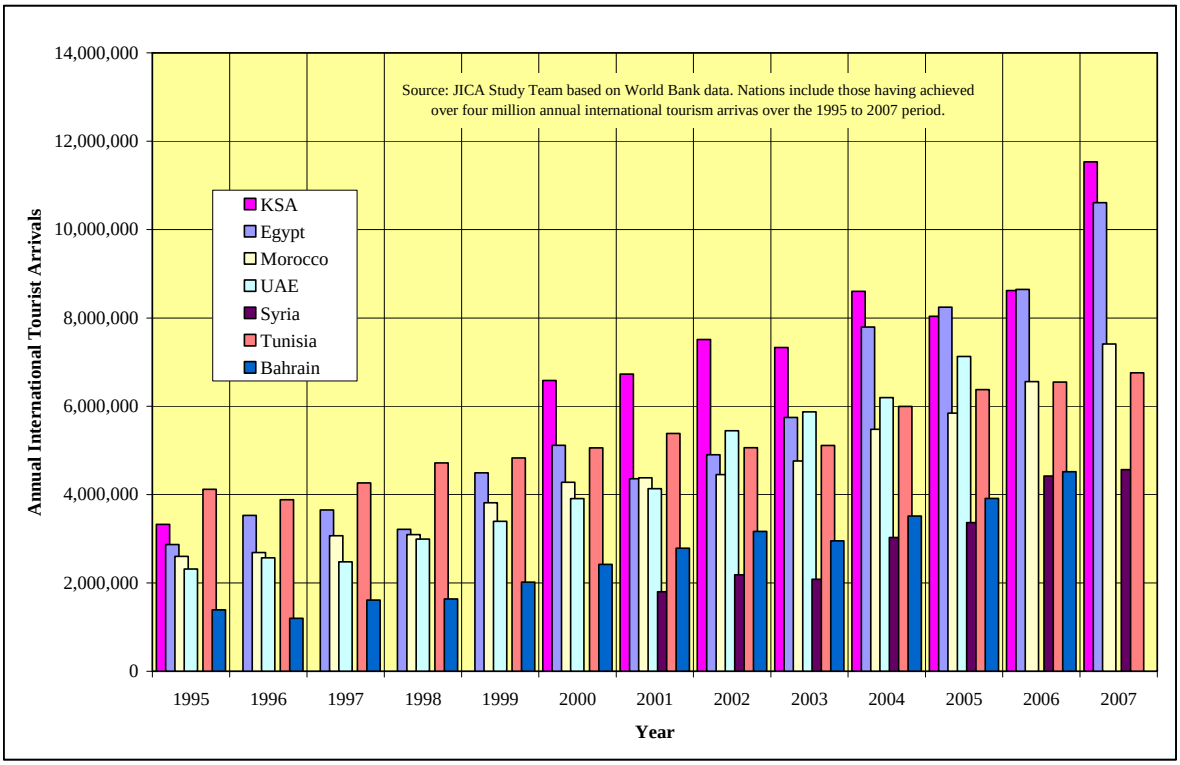


Figure 2.7.7 Trend in International Tourist Arrivals: Select MENA Countries

The impact of tourism can play a decisive role in national economic performance. Tourist receipts, expressed as a percent of national exports, can be substantial. Over the 1995 to 2007 period, tourism receipts have reached as high as 73 percent of exports in case of Lebanon. For MENA nations falling within a more classic tourist definition (Egypt, Morocco, Jordan), tourism receipts have traditionally fallen within a substantial 20 to 30 percent range of national exports (Figure 2.7.8).

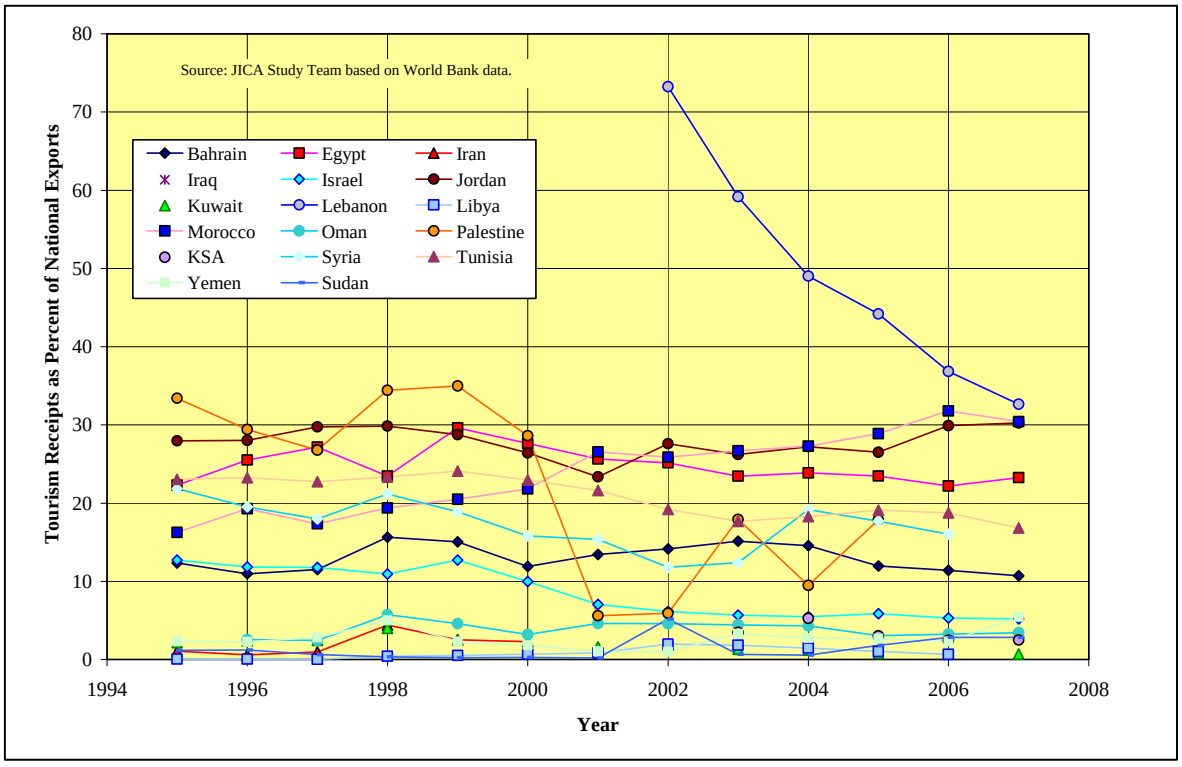


Figure 2.7.8 MENA Tourism Receipts and National Exports Relationship

The strength of the Egyptian tourism industry has propelled the Republic as the leader in MENA in both relative and absolute terms. The role of MENA tourism, and impacts upon national economic performance, has historically been strongly influenced by externalities such as political events as well as conflicts within the Middle East and beyond. In case of Egypt, for example, some 85 percent of tourist arrivals are via air, with remainder being split between lands and maritime. Thus, the noted tourism receipts, air passenger activity and economic performance are closely linked. In case of Egypt, the change in national air passenger activity correlates with changes in the national economy and, as expected, tourism. The trend is consistent during both positive and negative cycles (Figure 2.7.9).

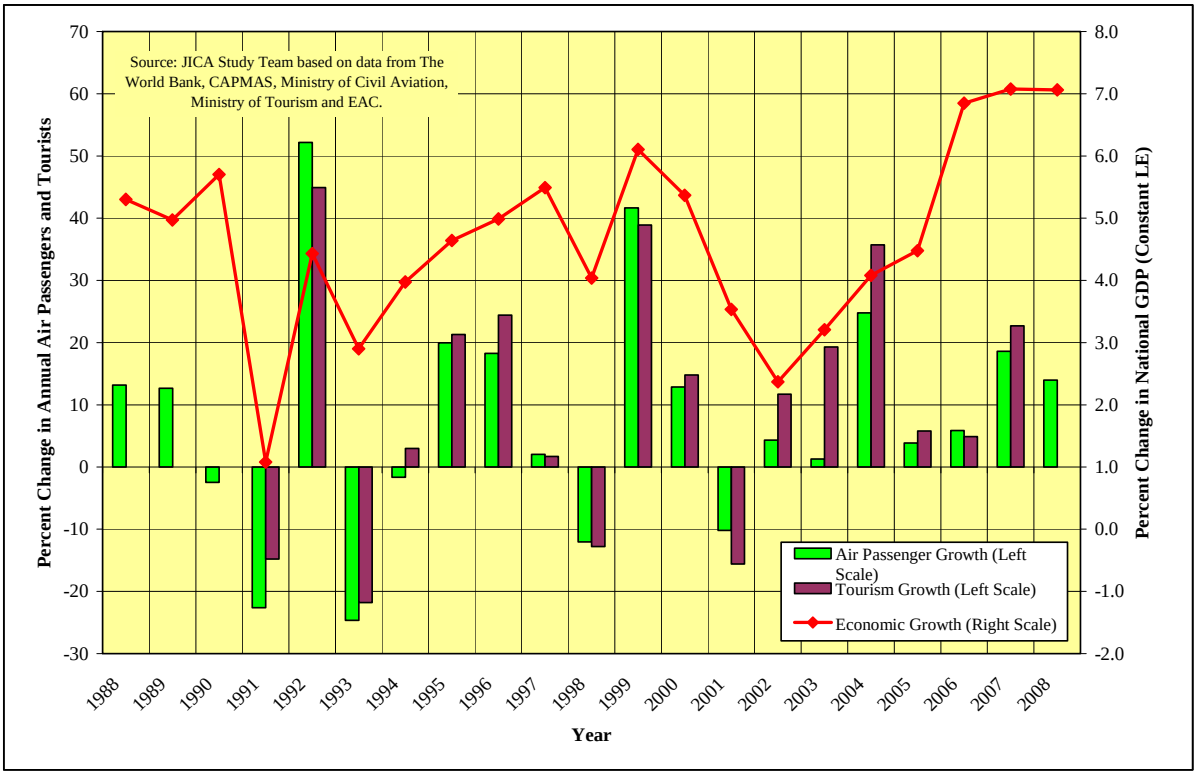


Figure 2.7.9 Linkage of Egyptian Air Passengers, International Tourists and National GDP

2.8. FINANCIAL ASPECT

2.8.1. Financial Figure of EHCAAN

Since its establishment, EHCAAN has become to yield 5 times bigger revenues than the amount at the starting year in 2002. Financial growth figure of EHCAAN and subseries are shown in Table 2.8.1. EHCAAN's income is from the airport operation and stock investments. Incomes from airlines and passengers are landing charges, parking fees, aero navigational charges, passenger charges, etc. Profit was increased with 68.9% per annum in average.

Table 2.8.1 Financial Figure of EHCAAN and Subsidiaries (Million L.E.)

Financial Year	Revenues	Expenditures	Profit
2002/2003	508	443	65
2003/2004	961	801	160
2004/2005	1,256	989	267
2005/2006	1,399	1,057	342
2006/2007	1,767	1,280	487
2007/2008	2,781	1,887	894
Annual Growth Rate (2002 – 2008)	40.5%	33.6%	68.9%

Source: European Commission, Presentation Materials, 2009

According to the latest MCAA's development report *"Financial Figure and Investment Projects of EHCAAN and subsidiaries (2003/2009)"*, the revenues in 2009 was roughly estimated 2,600 million E.L. As passengers in 2009 did not grow so much from 2008, the revenues were similar to the one in 2008. But the effort made net profit of EHCAAN increasing from 326.9 million L.E. (2007/2008) to 241.6 million L.E.(2008/2009).

In addition, EHCAAN also hired new employees and 11,307 workers were on duty at EHCAAN grope in 2009. As shown in Table 2.8.2, the wages of workers were increased as well. The average of annual income per employee was a bit down by 40,000 L.E. per year, but it became 2.5 times bigger than 2002.

Table 2.8.2 Increases of Employees and Annual Income ('000 L.E.)

Year	No.of Employees (A)	Total Wages (B)	Profit Share (C)	Total Weage (D)= (B+C)	Average of Annual Income Per Employees (D)/(A)
2002/2003	7,715	107,000	17,000	124,000	16
2003/2204	7,809	146,000	24,000	170,000	22
2004/2005	8,098	184,000	27,000	211,000	26
2005/2006	8,148	234,000	29,000	263,000	23
2006/2007	8,730	291,000	30,000	321,000	37
2007/2008	9,108	358,000	32,000	390,000	43
2008/2009	11,307	414,000	46,000	460,000	40

Source: Financial Figure and Investment Projects of EHCAAN and subsidiaries (2003/2009)

2.8.2. Financial Figure of EAHC

According to the financial report, EAHC also showed the steady growth in airline operation. EAHC totally yielded 695 million L.E. in 2007/2008. EgyptAir Airlines is top seller among subsidiaries, 9,265 million L.E. But EgyptAir Ground Services has more profitable structure against EgyptAir Airlines'. Necessary costs on airline operation such as raw materials, requisite, fuel & spare parts went up almost double from previous year 2006/2007, and this made deep impacts on the net profit of EgyptAir Airlines.

Table 2.8.3 Financial Figure of EAHC and Subsidiaries (Million L.E.)

	Subsidiaries	2006/2007			2007/2008		
		Revenues	Expenditures	Profit	Revenues	Expenditures	Profit
	EgyptAir Holding Company	8,959	8,380	578	12,161	11,466	695
1	EgyptAir Airlines	6,946	6,785	161	9,265	9,033	231
2	EgyptAir Cargo	836	788	48	961	888	73
3	EgyptAir Maintenance & Engineering	660	587	72	813	702	111
4	EgyptAir Ground Services	337	233	104	482	278	203
5	EgyptAir In-Flight Services	268	210	58	386	295	90
6	EgyptAir Tourism & Duty Free	605	505	100	825	724	100
7	EgyptAir Medical Services	136	132	4	159	153	6
8	EgyptAir Supplementary Industries	52	50	2	73	62	11
9	EgyptAir Express	-	-	-	334	330	4

Source: EgyptAir Holding Company Annual Report 2007/2008

2.8.3. Fees and Charges at Airports

Landing, parking and air navigation facility charges are chargeable fees in Dollar or the equivalent hard currencies according to the announced rate of exchange by the Egyptian Central Bank on the day of payment. Landing charges, parking charges and passenger service charges are collected by EAC and CAC respectively, and navigation charges are collected by NANSC.

Charges here are determined on the basis of the aircraft maximum takeoff weight according to the certificate of airworthiness of the aircraft. All charges written by aircraft Landing, parking and housing charges are reduced by 50% for light aircraft with maximum takeoff weight not more than 5,700kg.

- Night time is determined as follow:
- April to October : from 17:00 to 03:00 UTC
- November to March: from 16:00 to 04:00 UTC

1) Aerobridges Service Charges

Table 2.8.4 Aerobridges Service Charges

Aircraft weight (ton)	Aerobridges Service Charges set for first 2 hours (USD)
More than 20 to 40	144.90
More than 40 to 80	229.43
More than 80 to 140	313.95
More than 140 to 180	404.51
More than 180 to 240	579.60
More than 240	796.95

Source: GEN 4.1-2 AIP A.R.E. 02 SEP 2007

- A surcharge of 50% is to be charged for aircraft exceeding 2 hours till 6 hours.
- A surcharge of 100% is to be charged for aircraft exceeding 6 hours.

2) Aircraft Landing Fees

Table 2.8.5 Landing Fees

Aircraft weight (ton)	Charge per ton (USD) (Cairo International Airport)		Charge per ton (USD) (Airports under EAC)	
	Day time	Night time	Day time	Night time
Up to 25	1.820	2.275	1.580	1.975
Over 25 to 100	2.780	3.475	2.42	3.025
Over 100 to 200	3.760	4.700	3.270	4.087
Over 200 tones	4.170	5.210	3.620	4.525
Minimum Charge	34.71	41.66	28.75	34.50

Source: GEN 4.1-2 AIP A.R.E. 02 SEP 2007

3) Aircraft Parking Charges

Aircraft parking are payable for parking of aircraft of each hour or part thereof. Such charges are due after the first two hours with maximum ten hours of landing at CIA and three hours at the airports under EAC.

Table 2.8.6 Parking Fee

Aircraft weight (ton)	Charge per ton (USD) (Cairo International Airport)		Charge per ton (USD) (Airports under EAC)	
	Day time	Night time	Day time	Night time
Up to 25	0.34	0.425	0.30	0.375
Over 25 to 100	0.22	0.275	0.20	0.250
Over 100 to 200	0.19	0.237	0.17	0.213
Over 200 tones	0.17	0.213	0.15	0.188
Minimum Charge	20.83		17.25	

Source: GEN 4.1-2 AIP A.R.E. 02 SEP 2007

4) Housing Charges

Housing charges are payable for the housing of aircraft in specified areas ,if parking hours are more than 12 hours at CIA and more than 5 hours up to 24 hours at the airports under EAC.

Table 2.8.7 Housing Charges

Aircraft weight (ton)	Charge per ton (USD) (Cairo International Airport)	Charge per ton (USD) (Airports under EAC)
Up to 25	4.65	4.04
Over 25 to 100	2.50	2.17
Over 100 to 200	1.87	1.63
Over 200 tones	1.39	1.21
Minimum Charge	41.66	34.50

Source: GEN 4.1-2 AIP A.R.E. 02 SEP 2007

5) Passenger Service Charges

Each passenger leaving the Egyptian territory by air is chargeable as follow:

Table 2.8.8 Passenger Charges

Passenger Type	Scheduled Flight	Non-Scheduled Flight
International	US$ 15	US$ 11 (May to Oct.) US$ 15 (Nov. to Apr.)
Domestic	US$ 3	US$ 3

Source: GEN 4.1-2 AIP A.R.E. 02 SEP 2007

6) Fire fighting (fire Vehicle) for aircraft refueling.

Table 2.8.9 Housing Charges

Maximum take-off weights of aircraft (ton)	Housing Charges per ton (USD)
Heavy Aircraft	US$ 20.00
Medium and Light Aircraft	US$ 10.00
Follow me on Request	US$ 21.00

Source: GEN 4.1-2 AIP A.R.E. 01 SEP 2007

2.8.4. Air Fare

1) International Airfare

In general, international airfares are conformity set with the international treaties in terms of bilateral air transport agreements, which is the basis on the transportation fares announced by international airlines. Under this agreement, the numbers of flights, specified air routes, linking cities were usually determined between two countries. However, the Egyptian air transportation sector does not follow this normal manner. Open Sky Policy has been adapted to the sector. And so free flights at free pricing on the commercial basis have been introduced. As an example, deference of airfares on scheduled flights is shown in Table 2.8.10.

Table 2.8.10 Comparison of Airfares between Airlines

	Distance (km)	Duration (min)	Airfare (EGP)		Price by km (EGP/km)		Price by Minute (EGP/min)		Airlines
			Class Y	Class C	Class Y	Class C	Class Y	Class C	
From Cairo To Dubai	2,411	240	2,231	3,274	0.9	1.4	9.3	13.6	EgyptAir
			3,022	7,022	1.3	2.9	12.6	29.3	Emirate
From Cairo To Paris	3,212	270	3,032	3,957	0.9	1.2	11.2	14.7	EgyptAir
			4,497	8,891	1.4	2.8	16.7	32.9	Air France
From Cairo To Berlin	2,873	250	3,090	3,791	1.1	1.3	12.4	15.2	EgyptAir
			4,666	9,384	1.6	3.3	18.7	37.5	Lufthansa

Source: JICA study team and each airline internet site in April 2010, Exchange rate used for this table was 7.36 Euro/Egyptian Ponds

Note: "Class Y" means "Economy" and "Class C" means "Business Class"

2) Domestic Airfare

Domestic airfares of EgyptAir Airlines are shown in Table 2.8.11. EgyptAir Airlines is selling air tickets with the flexible pricing base. There are four kinds of selection, Best Offer (discount economy class), Good Deal (discount economy class), Fully Flex (full charge economy class) and Platinum (full charge business class).

Numbers of available sheets for Best Offer and Good Deal are limited and it is depend on number of ticket sold (or remaining ticket). In addition to that, there are several restrictions on discount tickets such as cancelation charges or flight changes. It is, therefore quite indefinite to compare the price range. Accordingly, full charge airfares of economy and business classes are adapted in the calculation of Table 2.8.11.

Table 2.8.11 Domestic Airfare: 2009

From	To	Distance (km)	Duration (min)	Airfare (EGP)		Price by km (EGP/km)	
				Class Y	Class C	Class Y	Class C
Abu Simbel	Aswan	216	45	500	605	11.1	13.4
Alexandria	Hurghada	581	80	756	908	9.5	11.4
	Sharm El Sheilh	558	90	605	800	6.7	8.9
Cairo	Alexandria	183	50	272	320	5.4	6.4
	Assiut	344	55	390	463	7.1	8.4
	Aswan	699	90	787	932	8.7	10.4
	Hurghada	402	65	510	614	7.8	9.4
	Luxor	510	70	619	794	8.8	11.3
	Marsa Alam	596	85	587	700	6.9	8.2
	Sharm El Sheilh	376	60	500	600	8.3	10.0
Hurghada	Sharm El Sheilh	107	40	305	374	7.6	9.4
Sharm El Sheilh	Luxor	306	50	614	782	12.3	15.6

Sourse: EgyptAir Airlines Internet site

2.9. REGULATIONS

The regal and regulatory framework controlling civil aviation sector in Egypt is well established. The current legislation governing the work of the air transport sector, the Arab Republic of Egypt divided to the following:

1) General Law

2) Special Laws

3) Republic Decrees

4) Decrees of the Presidency of the Council of Ministers and Civil Aviation Minister Decrees

5) Rules and Regulations of the Civil Aviation (EGYPTIAN Civil Aviation Regulation ECAR)

2.9.1. General Laws

An overview of the state laws apply to different ministries or the number of ministries together, including the Ministry of Civil Aviation, which was affected by it directly or indirectly, and these laws are:

- Act No. 53 of 1973 on the state general budget as amended by Act No. 11 of 1979 and Act No. 104 of 1980.
- Act No. 47 of 1978 on the system of state civilian workers.
- Act No. 48 of 1978 on the system of public sector workers.

- Act No. 127 of 1981 on government accounting.
- Act No. 159 of 1981 on the shareholding companies and companies recommend stock companies and limited liability.
- Act No. 203 of 1991 on the law of public enterprise sector companies.
- Act No. 4 of 1994 on the environment.
- Act No. 38 of 1994 on the organization of foreign exchange dealing.
- Act No. 8 of 1997 on investment guarantees and incentives.
- Act No. 19 of 2007 amending some provisions of the law of investment guarantees and incentives of Law No. 8 for the year1997
- Act No. 89 of 1998 on the organization of tenders and auctions.
- Act No. 12 of 2003 on the civil work.

2.9.2. Special Laws

A law concerning the air transport sector and the mechanisms governing the work in this sector are:

- Act No. 28 of 1981 on civil aviation.
- Act No. 3 of 1997 on the granting of commitment to public utilities for the creation, management and exploitation of airports and take the territory.
- Act No. 92 of 2003 on the rights of easement airspace.
- Act No. 93 of 2003 on fees for services and civil aviation.

2.9.3. Republic Decrees

Republic Decrees issued on the air transportation sector and in force until a date:

- Republic Decree No. 72 of 2001 on the establishment of companies in the field of civil aviation.
- Republic Decree No. 95 of 2001 on the granting of the heads of some of the civil aviation authority of administrative supervision of the workers at the airports.
- Republic Decree No. 56 of 2002 on the organization of the Ministry of Civil Aviation.
- Republic Decree No. 137 of 2002 on the transformation of EgyptAir Airlines into a holding company.
- Republic Decree No. 154 of 2002 on the abolition of the Egyptian Authority for the control of civil aviation.
- Republic Decree No. 155 of 2002 on the amendment indefinitely, the Egyptian Holding Company for Aviation.

- Republic Decree No. 156 of 2002 on the conversion of the airport Authority of Cairo to a company.

Republic Decree No. 314 of 2004 on the formation of the Supreme Council of the pricing of air services, the Ministry of Civil Aviation and Republic Decree No. 389 of 2007 on the amendment of certain provisions of Presidential Decree No. 314 of 2004 to form the Supreme Council for the pricing of air services

2.9.4. Decrees of the Presidency of the Council of Ministers and Civil Aviation Minister decrees.

Decisions made or issued by the President of the Council of Ministers or the Minister of Civil Aviation to complete the system of air transport sector, adjusted whenever the need arises to do so.

2.9.5. Rules and Regulations of the Civil Aviation (EGYPTIAN Civil Aviation Regulation: ECARs):

Taking into account the regulations, rules and recommendations issued by the International Civil Aviation Organization (ICAO 18 Annexes), clarified and covering various activities of civil aviation on the basis of the Treaty of Chicago, which is the minimum required by civil aviation authorities of participating States in the International Civil Aviation Organization, the commitment of the Egyptian aviation authority issue regulations and rules governing the Egyptian Civil Aviation Regulation (ECARs) for the Arab Republic of Egypt to conform to global rules and regulations and in line with local conditions and laws of the State and these regulations are updated periodicallyto keep pace with ongoing changes and the recommendations issued by ICAO and in accordance of the global, regional developments and local as well .

Table 2.9.1 Contents of Egyptian Civil Aviation Regulation (ECARs)

Title	Part
General definitions	Part 1
Rules other than airspace assignment and use	Part 11
Investigative and enforcement procedures	Part 13
Design organization approval for products or changes to products	Part 21
Airworthiness standards: for very light airplanes	Part 22
Airworthiness standards: for small airplanes	Part 23
Airworthiness standards: for large airplanes	Part 25
Airworthiness standards: for small Helicopters	Part 27
Airworthiness standards: for large Helicopters	Part 29
Airworthiness standards: for manned free Baloons	Part 31
Airworthiness standards: for aircraft engines	Part 33
Aircraft Emissions	Part 34
Airworthiness standards: for aircraft propellers	Part 35
Aircraft noise certifications	Part 36
Airworthiness directives and reporting systems	Part 39
Maintenance, preventive maintenance, and alterations	Part 43
Nationality and registration Marks	Part 45
The requirements for registering aircraft in the Egyptian aircraft register	Part 47

Title	Part
Pilot certifications	Part 61
Certification of flight crew- members other than Pilots	Part 63
Certification of ground crew- members	Part 65
Medical standards and certifications	Part 67
General operating and flight rules	Part 91
Manned passenger carrying balloons	Part 101
Ultralight vehicles	Part 103
Light sport aircraft	Part 104
Skydiving activities	Part 105
Airport security	Part 107
Aircraft operator security	Part 108
Certification and operations: air carries and air taxi operations	Part 121
Operations: foreign air carriers	Part 129
Agricultural aircraft Operations	Part 137
Ccertification and operations:Heliports	Part 138
Certification and operations: Land airports intended to serve commercial or non-commercial aircraft operations	Part 139
Pilot Schools	Part 141
Aviation training centers	Part 142
Approved maintenance organizations and repair Stations	Part 145
Aviation maintenance engineers schools	Part 147
Certification of AT/RN equipment and their maintenance facilities	Par 171
The certification and operation of organizations providing air traffic service in the Egyptian flight information region	Part 172
Certification and operation of organizations providing aeronautical information service in Egypt	Part 173
Certification and operation of Egyptian organizations providing aeronautical telecommunication services	Part 174
Transport of dangerous goods	Part 175
Representatives of ECAA	Part 183
Protection of voluntarily submitted information	Part 193
Certification and operation of aircraft ground handling service Providers	Part 301
Aviation meteorological service organizations — certifications	Part 303
Units of measurement to be used in air and ground operations	Part 305
Aeronautical charts	Part 311
Accident Investigation Standards	Part 801
Search and Rescue	Part 829

2.10. PRIVATE PARTICIPATION AND PRIVATIZATION IN THE AVIATION SECTOR

2.10.1. Background

Private participation and privatization in the aviation sector have been taken place in the world since 1990s. The terms related to privatization are commonly misused and to avoid confusion of those terms, the following definitions by ICAO are used in this report.

Corporatization: Corporatization means creating a legal entity outside the government to manage airports and/or air navigation services.

Private Participation: Private sector has ownership and/or management in the provision of airports and/or air navigation services but the majority ownership remains with the government. Management contract is part of this category.

Privatization: Private sector has full ownership of majority of ownership of facilities and services. BOT projects fall into this category.

There are some options to manage airports and air navigation services such as, government ownership, management contract, lease of concession, transfer of minority share and private sector ownership and control.

In Egypt, public infrastructures are owned and operated by public sectors under Law 126/1947 amended by Law 61/1958, however private airport concessions became possible by a Airport Build Operate Transfer (BOT) Law No. 3 in 1997. This law allows private sector to establish, operate and manage airports for periods up to 99 years.

There were 10 airports listed as candidates for BOT projects in 1997. Those airports are, Sharm El Sheikh, Marsa Alam, Hurghada, Borg El Arab, Luxor. Assuit, Al Alamain, Bahariya and Farafra (2 airports), East Oweinat, and Sohag. Among these two airports were chosen to develop BOT.

EHCAAN invited domestic and international concessionaries/investors to submit their proposals in respect of BOT contracts to develop Marsa Alam and Al Alamain international airports. And then two private companies were granted two long term BOT contracts in 1998.

In 2005, as next step toward to privatization, EHCAAN granted medium term airport management contracts to two private companies to manage and operate 6 airports in Egypt.

2.10.2. BOT Airports

The Marsa Alam international airport was the first privately owned and operated international airport in Egypt and also was the first airport to be constructed under BOT contract. A 40-year BOT concession contract to EMAK Marsa Alam for management and operation of airports SAE, a subsidiary of the M.A. Al-Kharafi Group, Kuwait was granted the contract from MCAA.

The Al Alamain international airport was the second airport to be operated under private company. MCAA granted a 50-year BOT concession contract to International Company for Airports, a company owned by Kato investments, an Egyptian company owned by private investors.

The contract details are summarized Table 2.10.1.

Table 2.10.1 Conditions of BOT Contracts for Marsa Alam and Al Alamain Airports

Items	Conditions
BOT contract for Marsa Alam International Airport	
Objective	Prepare studies, design, construct, finance, operate, manage, maintain, marketing commercial opportunities, and transfer back at no charge to the Government at the end of the concession a new international airport.
Concession Period	40 years including construction period starting at the beginning of 1998 (signed on August 2, 1997)
Committed Investment	All costs to design, construct, and maintain the airport. (construction cost was US$ 50million)
Airport Facilities	Airport handling capacity: 600 passengers/hour (at first stage) and 2,000 passengers/hour (at the final stage) Runway: 3,000 x 45 m capable for Code "E" Aircraft
Government Obligation	EHCAAN provides ATC and NAVAIDS; Ministry of Interior provides security, ARFF and immigration services; Ministry of Finance provides customs services. All investments and maintenance of required equipment are on behalf of the concessionaire.
Payment of Concessionaire	To EHCAAN: 3% of gross revenues (5-year grace period and 1% increases at every 5 years until the end of the concession. Compensation for the ATC fees 5% for first year, 10% for second year and 15% for following years. All labor costs of ATC employees.
Fees and Tariffs	There are not maximum tariffs and fees in the contract. Charges on the structure have to be approved by MCAA.
BOT contract for Al Alamain International Airport	
Objective	Prepare studies, design, construct, finance, operate, manage, maintain, marketing commercial opportunities, and transfer back at no charge to the Government at the end of the concession a new international airport.
Concession Period	50 years including construction period starting at the beginning of 1998
Committed Investment	All costs to design, construct, and maintain the airport. (construction cost was 200million L.E.
Airport Facilities	Airport handling capacity: 600 passengers/hour (at first stage) and 2,000 passengers/hour (at the final stage) Runway: 3,000 x 45 m capable for Code "E" Aircraft
Government Obligation	EHCAAN provides ATC and NAVAIDS; Ministry of Interior provides security, ARFF and immigration services; Ministry of Finance provides customs services. All investments and maintenance of required equipment are on behalf of the concessionaire.
Payment of Concessionaire	To EHCAAN: 3% of gross revenues (5-year grace period and 1% increases at every 5 years until the end of the concession. Compensation for the ATC fees 5% for first year, 10% for second year and 15% for following years. All labor costs of ATC employees.
Fees and Tariffs	There are not maximum tariffs and fees in the contract. Charges on the structure have to be approved by MCAA.

Source: The national airport master plan, the Louis Berger Group, Inc. in 2006

2.10.3. Private Participation to 6 Airports

EHCAAN employed BNP Paribas, a French investment bank, in 2003 as their advisor for airport management contracts at 6 airports, CIA, Sharm El Sheikh, Hurghada, Luxor, Aswan and Abu Simbel. The CAC made a 8-year airport management contract with Fraport, German company, to manage CIA, and The EAC made a 6-year airport management contract with Aeroports de Paris (ADP), French company, to

manage remaining five regional airports. Conditions of management contracts are summarized in Table 2.10.2.

Table 2.10.2 Conditions of Management Contracts for Cairo Int'l Airport and 5 Airports

Items	Conditions
CAC contract for Cairo International Airport (Fraport)	
Objective	1) Conduct an audit and recommend strategy and action plans on safety & security, marketing plan, development of commercial activities, and required capacity investments and maintenance; 2) Manage the airport; 3) Provide Technical Advice in performance standards, passenger satisfaction surveys, airport marketing and new routes developments, environmental plans, ICAO certification, safety management systems, airport accounting practices review aeronautical charges according to ICAO and IATA practices, information systems, training programs, master plans, regulatory frame work, airport tariffs and slot allocation.
Concession Period	8 years starting in February, 2005 and possibility of two one-year extensions.
Committed Personnel	No investments are contemplated in the contract on behalf of the operator.
Committed Personnel	5 persons are committed during the first four years of the contract and 3 persons during the final four years of the contract.
Compensation Fee	The compensation is composed of Fixed Fee and Inventive Fee (US$ 1.25 million + Inventive (%)) percentage is not disclosed.
EAC contract for 5 airports (Aeroports de Paris (ADP))	
Objective	1) Conduct an audit and recommend strategy and action plans on safety & security, marketing plan, development of commercial activities, and required capacity investments and maintenance; 2) Manage the airport; 3) Provide Technical Advice in performance standards, passenger satisfaction surveys, airport marketing and new routes developments, environmental plans, ICAO certification, safety management systems, airport accounting practices review aeronautical charges according to ICAO and IATA practices, information systems, training programs, master plans, regulatory frame work, airport tariffs and slot allocation.
Concession Period	6 years starting on 15th February, 2005 and possibility of two one-year extensions.
Committed Personnel	No investments are contemplated in the contract on behalf of the operator.
Committed Personnel	5 persons are committed during the first three years of the contract and 3 persons during the final three years of the contract.
Compensation Fee	The compensation is composed of Fixed Fee and Inventive Fee (US$ 1.25 million + Inventive (%)) percentage is not disclosed.

Source: The national airport master plan, the Louis Berger Group, Inc. in 2006

2.11. CURRENT PLANS AND PROJECTS

2.11.1. Development Vision

1) Vision of the Enterprises

As is has been mentioned so far in this reports, two enterprises, EHCAAN and EAHC drive the airport sector. EHCAAN is responsible for airport operation and navigation services, and EAHC is responsible for

airline operation and related services. With these companies' cooperative works, air transport sector has been accelerated its efficiency to support economic growth of Egypt.

2) Directions of Air Transport Sector Development

In "The Sixth Five-Year Plan for Socio-Economic Development (2007 / 2012) & the Plan of its First Year" issued by Ministry of Planning in April 2007, targets for airport developments were written as follows.

- Increasing the air fleet by adding aircrafts to extend airlines networks.
- Upgrading airports through expanding the capacity of passengers' terminals.
- Improving the performance of national companies vis-à-vis other regional alliances.
- Increasing the performance level and capacity of Egyptian Air, the national carrier.
- Upgrading human skills to increase efficiency, and international competitiveness.
- Modernizing means of periodical maintenance of aircrafts and equipments to increase operations' efficiency.
- Improving airports economic operation to meet international competitiveness under GATTS "open skies" principle.
- Expanding Charter flights, given its importance to Egyptian tourism.

Referring these targets and a set of the output from the field studies and interviews with MCAA, directions of the sector development could be summarized with following three categories, 1) air network system, 2) airline operation, and 3) airport development.

Directions in Air Network System

The air network system in Egypt is a hub and spoke system. Cairo International Airport (CIA) is, as international gateway of Egypt, acting as the core of air network system for passengers and cargo. Domestic and international scheduled flights are operated based on this concept. The latest EgyptAir Airline's annual report said that they were now in the process of executing a route network restructuring, focusing on direct flights and using CIA as their main hub. MCAA also mentioned this hub and spoke concept putting CIA in center, would retain in the future.

At the time of field survey, EgyptAir Airlines and EgyptAir Express are the dominant airlines for domestic scheduled flights. Flights were provided to nine local airports located at the coast of Red Sea and ruins along the River Nile in April 2010. Other local airports were linked by non-scheduled flights in terms of chatter flights. New linkage of scheduled flights will be introduced as long as commercially viable.

Other significant point is that Egypt has been successfully adapting "Open Sky Policy". The policy raised up the number of non-scheduled flights in Egypt. Surprisingly, a half of total 28million international passengers came by non-scheduled flights in 2009. Major destinations of these passengers were Sharm El Sheikh and Hurghadah international airports. Accounting 11.5 million international passengers out of 14 million non-scheduled passengers visited these international airports. Most of the people were from European region (98%) and Middle East (1.5%)

The open sky policy has no restriction on the conditions at all, except that CIA, only accepts scheduled flights. That means all airlines from any country can approach to all international airports in Egypt without any bilateral air transport agreement upon counties. This adaption could be the one of the major reasons that international passenger traffic recently keeps high growth at 10% per year. Accordingly, it could be

predicted that international arrivals directly to local airports are continuously increased and expanded in the future.

About the cargo traffic movements, there are cargo facilities at Cairo, Luxor and Alexandria international airports in Egypt. However, the cargo activity at Egyptian airports is so modest that traffic volume reached only 291,277 tons in total during year 2009. 98% of total volume was handled by CIA. The trend using other alternative land modes seems to continue unless needs that cargo traveling by air tends to be smaller, of higher unit value or urgent in nature increases.

Directions in Airline Operation

Major airlines, EgyptAir Airlines and EgyptAir Express are willing to expand their flight opportunities. They tend to buy new aircrafts and expand their international network with competitive airfare welcoming more tourists to the most fascinating country in the world.

EgyptAir Airlines, a national flag carrier, is the main subsidiary of EAHC and provides service more than 75 years. EgyptAir Airlines became an active member of Star Alliance to provide more convenient connectivity with other airlines in 2008. Since then, EgyptAir customers have enjoyed the profit that reaches 975 destinations all over the world.

EgyptAir Express employs medium-range international air routes and major domestic routes with a fleet of 76-seat Embraer-170 aircraft. Main objectives for EgyptAir Express are to dominate the domestic market and serve international markets suitable for regional jets not served by EgyptAir Airlines or mutually agreed upon. 12 units of EMB-70 are in operation.

EgyptAir Airlines and EgyptAir Express would increase the number of aircrafts to support sustainable growth. Additional 19 aircrafts (6-B777/300, 5-A330/200, 8-B737/800) were ordered in 2010. EAHC is targeting to reach 75 aircrafts by the end of year 2013.

Aside from EAHC's airline companies, there are 17 organized and charter air companies in Egypt. MCAA has no objection accepting new Egyptian airline companies, at least 60% of company stocks owned by Egyptians, to be established and to provide scheduled or non-scheduled flights in the aviation market.

Taking into account of recent world trend that LLCs takeover the market, companies having potential to operate at low airfare and low cost can only survive this tough competition. It is, therefore, practical to think that private companies prefer to provide non-scheduled flight services.

Directions in Airport Development

EHCAAN, a head of CAC and EAC, concentrates on the implementation of the facility development at existing airports and the optimization of the airport operation and management. The facility developments are mainly related to capacity and safety improvements complying with ICAO standards and recommended practices (ICAO SARPs). Airport facilities such as passenger terminals, runways at Sharm El-Shiekh and Hurghadah are currently facing capacity constraints, and a passenger handling capacity at CIA will be saturated in short period. CAC is conducting terminal-2 renovation project at CIA and EAC will facilitate large terminal construction projects at Sharm El-Shiekh and Hurghadah international airports.

The airport operation and management are sub-contracted by the CAC and the EAC to private companies, Fraport and ADP. The airport operation and management or airport privatization methods tend to be continued and be expanded to other major airports.

New airport project is positively accepted as long as built as the BOT Project. Marsa Alam international airport and Al Alamain airport are constructed as BOT projects by private companies. As for new airport, Sohug airport, mainly for air force use, is newly opened recently with terminal handling capacity of 4,000 passengers at peak hour. And Sokhana international airport is currently under construction. It will be opened to support the investment of the national project of the economic zone at North West Suez canal. Nweiba, Wwesna, Siwa, Ras Sedr and Gafra are the airport currently under study.

As supplemental information, Al Farafra (HEFR), Ras Sudr (HERS), Al Wahaat Al Baharia airports are indicated as *"under construction projects"* in AIP. The majority of airport development and operation would persist with the policies even these airports were constructed and fully operational.

2.11.2. Development Plan

According to the interview with MCAA, airport developments were followed the national airport master plan which were carried out by the Louis Berger Group, Inc. in 2006. The reports were composed of 4 books and separately submitted to two operation companies, CAC and EAC. Following recommendations were mentioned in the reports.

1) Recommendations to Cairo International Airport

Since CIA is the international gateway of the Egypt, the priority of the investment for CIA was the terminal capacity increases. In the reports, it said that the expansion of the terminals in relation to the passenger increases was necessary. However, it recommended that major activities during the short-term and med-term shall be airport management and operating efficiencies, not constructing new terminals.

Table 2.11.1 the Summary of Major Development Points in CIA (CAC Airport)

Period	Total Capacity	Description
Short Term Development 2006 – 2010	15 to 17 million	TB-2/TB-3 complex designed to handle approximately 20million
Medium Term Development 2011 – 2015	19 to 22 million	TB-3 need to be expanded (liner expansion and additional airside concourses)
Long Term Development 2016 – 2025	27 to 32 million	TB-2/TB-3 to be expanded. Rail connection to/from the airport should be necessary

2) Recommendations to Other Egyptian Airports

Several recommendations for each airport were made in the reports. Major concerns were expansion of passenger terminal buildings and aircraft parking aprons to cope with passenger and aircraft traffic increases. Runway expansion was not critical issue since Annual Service Volume (ASV) at the runways was sufficient for the operation in the most airports. Summary of major recommendations on EAC's airports are shown in Table 2.11.2.

Table 2.11.2 The Summary of Major Development Points in ECA's Airports

Airport	Items	Recommendations
Hurghada Airport	Gate Demand	A "Code E" aircraft position currently exceeds capacity, but the overall demand will not exceed till 2025.
	Runway Length	Take-off weight penalty limitation of the "Code E" aircraft during hot days
	Terminal Building	Short Term by 2010: 59,075 sq.m Medium Term by 2015: 72,850 sq.m Long Term by 2025: 99,300 sq.m
Sharm El Sheikh	Gate Demand	Demand for aircraft positions would exceed the capacity. Apron expansions to accommodate Code C, D and E were needed in the Medium and Long Term
	Runway Length	Take-off weight penalty limitation of the "Code E" aircraft during hot days
	Terminal Building	Short Term by 2010: 75,870 sq.m Medium Term by 2015: 102,700 sq.m Long Term by 205: 148,500 sq.m
Luxor	Terminal Building	Existing facility could accommodate the predicted passengers Short Term by 2010: 28,385 sq.m Medium Term by 2015: 31,570 sq.m Long Term by 2025: 38,400 sq.m
Aswan	Terminal Building	Existing facility could accommodate the predicted passengers Short Term by 2010: 15,230 sq.m Medium Term by 2015: 19,185 sq.m Long Term by 2025: 29,035 sq.m
Marsa Alam	Runway and Taxiway	Need for a parallel taxiway
	Runway Length	Take-off weight penalty limitation of the "Code E" aircraft may incur
	Terminal Building	Not mentioned clearly since the airport operated by private company
Taba	Terminal Building	Terminal expansion was not necessary in Short and Medium term Short Term by 2010: 2,725 sq.m Medium Term by 2015: 4,770 sq.m Long Term by 2025: 7,550 sq.m
Abu Simbel	Terminal Building	Terminal expansion was necessary Short Term by 2010: 10,042 sq.m Medium Term by 2015: 12,695 sq.m Long Term by 2025: 19,420 sq.m

3) Airport Privatization

Airport privatization was recommended as follows. 10 airports were examined to be privatized alone according to the number of handling passengers. Medium size airports, Alexandria, Borg El Arab, Taba and Asyut were recommended to be privatized with larger airports as a bundle. Other airports which did not have scheduled flight were recommended to be separately operated under local or regional government.

Table 2.11.3 Recommendations of Airport Privatization

Recommendations	Airports
To be privatized alone (with other smaller airports as a bundle)	Alexandria (Al Nozha) Aswan, Borg El Arab Cairo, Hurghada Luxor , Sharm El Sheikh Asyut, Taba, Abu Simbel
To be also privatized with larger airports as a bundle	Alexandria (Al Nozha) Borg El Arab, Taba, Asyut
Operated by Local or Regional Government	Dakhla, El Gora, El Kharga El Tor, Mersa Matruh October, Shark El Oweinat St Catherine

2.11.3. Committed Projects

1) A List for Committed Project

Airport developments due to capacity constraints are mandatory to catch up increasing passengers. MCAA said the master plan was revised each 3 years and the list of project developments was yearly re-examined with available annual budget. The latest airport development projects committed by MCAA are stated in *"Financial Figure and Investment Projects of EHCAAN and subsidiaries (2003/2009)"*. The summary of the project list is shown in Table 2.11.4.

Table 2.11.4 The Summary of the Project List

Airport		Name of the Project	Ongoing	Project Cost (Million L.E.)
Cairo	1)	Cairo Cairo Cargo City Project **		384
	2)	Second Passenger Terminal Expansion Project		2,300
	3)	Automated People Mover (APM) Project	✓	560
	4)	Terminal 1 Renovation Project	✓	42
	5)	Access Road Implementation Project (Finished)		120
	6)	Car Parking Building Construction Project (3,000 cars)	✓	226
	7)	New Power Plant Construction and Renovation of the Existing Power Plant at PTB-2 Projects.		250
Sharm El Sheikh	8)	Existing Runway Extension and Development Project		100
	9)	New Passenger Terminal 3 and Runway Construction Project		2,500
Hurghada	10)	Terminal Development Project (Phase2)		167
	11)	Installation of Computed Tomography (CT) System Project		40
	12)	New Passenger Terminal and Runway Construction Project		2,200
Alexandrial (Al Nozha)	13)	Runway Extension and Development Project		100
Borg El Arab	14)	Borg El Arab International Airport Construction Project		128
	15)	Utilities Implementation Project, e.g., Telephone, water, electricity, etc.		22

Airport		Name of the Project	Ongoing	Project Cost (Million L.E.)
Abu Simbel	16)	Apron and Runway Expansion Project		120
Asyut	17)	New Passenger Terminal Construction Project	✓	170
Taba	18)	Passenger Terminal and Runway Extension Project		89
National Air Navigation Services Company	19)	New Control Tower Construction Project at Hurghada Int'l Airport		40
	20)	New Control Tower Construction Project at CIA (Finished)		220
	21)	Air Navigation Facility Replacement / New Installation Project (VOR/DME, ILS, etc.) – (continuous project)	✓	114
	22)	VHF Communication Systems Development Project	✓	58
	23)	Installation of Air Traffic Control Simulation Systems at Cairo Air Traffic Control Center (Cairo ACC)		150
Information System in International Airports	24)	Installation of Information System in International Airports of Egyptian Airports Company (EAC)	✓	181

Source: Ministry of Civil Aviation Authority (MCAA)

NOTE: ** Finished the design but implementation is not started.

Projects listed No.2 Second Terminal Expansion Project at CIA, No.12 New Passenger Terminal and Runway Construction Project at Hurghada international airport and No.14 Borg El Arab International Airport Construction Project are implemented by foreign funds i.e. soft loans. MCAA is seeking foreign fund to facilitate the Project listed No.9 New Passenger Terminal 3 and Runway Construction Project at Sharm El Sheikh international airport. Other projects are carried out by self-financing. Major projects mostly the projects in CIA (Bolded Letter in Table 2.11.4) are summarized below.

2) Development Projects in Cairo International Airport

Cairo Cargo City Project

CAC intends to develop an extension of the existing cargo area of CIA, in order to accommodate the future growth of air cargo in Egypt. The total cargo area will be renamed Cairo Cargo City (CCC).

After the completion of Cairo Cargo City (CCC) project, the air cargo industries will gain great benefits. This will make all stakeholders (shippers, freight forwarders, handling agent, export and import brokers, airlines, and last but not least, customs and other government authorities) in one bonded area, so as to ensure a smooth and safe handling for the transfer cargo. The project is divided into 2 phases. Phase1 is expected to be finished by the end of 2010 or early 2011 and it will subsequently start the operation. Currently design stage is finished and waiting for implementation. The project cost is estimated 384 million L.E.

Phase 1	Phase 2
Cargo Terminal 1: The total floor area 29,914 m² (23,914 m² as working area, 6,000 m² as offices) including: 1- Perishables center 2- Export & transit area 3- Import & transit area 4- Express area 5- Live animal center Forwarders building 1: The total area 17,898 m² (12,894 m² as storage area, 5,004 m² as offices) Forwarders building 2: The total area 11,935 m² (8,167 m² storage areas, 3,768 m² as offices) Trucks & Car's parking: Inside the bonded area: Cargo Terminal 1 - over 90 truck and dollies Forwarder's buildings - over 70 trucks spaces Outside the bonded area: Two storey car park building over 1,200 car spaces and parking space for more than 50 trucks Fire Fighting Equipment Catering: The total area 1,400 m²	Cargo Terminal 2: The total area 27, 237 m² (Added another 150,000 tons capacity) (21,995 m² as working area, 5,242 m² as offices area) Cargo Community System (CCS) E-Freight IATA visions and mandates to lead an industry-wide project whose aim is to take paper out of the air supply chain, and create the conditions to replace the existing processes with new processes where the industry, and governments, relies on the electronic exchange of information between the parties to facilitate the movement of freight.

Second Passenger Terminal Expansion Project

The existing second passenger terminal building (PTB-2) was taken into operation in 1986 with 10 contact stands after renovation works. The facility accommodates around 3.5 million passengers per year and handled most of the international airlines.

Upgrade of PTB-2 includes a modernization of the 20 years old facility to reach the same level of service as the new PTB-3 which is newly opened in 2009. New PTB-2 will accommodate double capacity accounting for 7.5 million passengers per annum. New facilities will also provide the gates for Airbus 380. Upon completion of the project, the passengers will receive a highly enhanced and modern designed terminal at international standard service levels. It will also give passengers' convenience including a large and appealing retail and lounge areas. CIA will then increase the overall handling capacity to 25 million passengers per annum.

The construction period is expected as 36 months and the project cost is estimated approximately 2.3 billion L.E in total. A part of the project is a loan from the Word Bank in the amount of US$ 280 million. The project is about to start its implementation at the time of study.

Automated People Mover (APM) Project

The automated people mover (APM) will integrate into the airport's infrastructure especially for up-grading connectivity between terminals. It will ensure a smooth and seamless passenger flow and reduce walking distances of passengers. The main station will be located between PTB-2 and PTB-3 and will become an integral part of the bridge connecting the two terminals.

APM will link the facilities, terminal 1, the Air Mall, the Multi-storey Car Park and Terminals 2 and 3 and expected into operation by middle of 2011 with 1.8 km track. As a high-performance and cost-effective solution for passenger transportation, a "Cable Car System" which is a highly innovative public transportation rope-hauled system, is selected. The project is ongoing with budget of 560 million L.E.

3) Development Project in Sharm El Sheikh International Airport

New Passenger Terminal 3 and Runway Construction Project

In May 2007, Sharm El-Sheikh airport celebrated operating its state-of-the-art terminal with a unique design that mixes Bedouin heritage with marine life characters. The second terminal raised up its handling capacity from 3 million to 7.5 million passengers per annum i.e. handling 4,300 passengers per hour.

Only two years after opening its second terminal building, passenger traffic hit a record of 7 million which rang a warning alarm that an overcapacity problem would come soon. MCAA decided to take a step forward to expand its capacity to double. The passenger traffic in Sharm El-Sheikh reached 5.5 million in 2007 and expected to reach 8 million by year 2012, and 10 million in year 2015.

A new passenger building includes modernized systems to facilitate the procedures and improve the services to passengers. A Spanish construction designer, Pointec, was appointed to design the terminal with the design capacity of 10 million. The project takes the total capacity of the airport from 7.5 million to 17.5 million passengers per annum with a new runway construction.

The design phase is scheduled to be completed within a year. International contractors then will be invited for an open tender to construct the terminal. The project is scheduled to be completed by 2012. MCAA is now seeking the foreign fund for the implementation of the project. Expected total project cost is 2.5 billion L.E.

4) Development Project in Hurghada International Airport

New Passenger Terminal and Runway Construction Project

Hurghada Airport is capable of receiving 5 million passengers per year, but traffic exceeded it handling capacity in 2007. It recorded almost 5.5 million passengers in 2009. Demand has been continuously increased at 10% annual growth. Providing new passenger terminal is mandatory to meet future demands.

Project includes the building of a new 91,500 m² terminal, having 9 contact gates with double passenger loading bridges, 72 check-in counters, 9 baggage claim carrousels, 6 outbound baggage handling system and 5 level security control systems. Construction will be implemented over the course of 36 months and will use cutting-edge technology. An automated luggage management system and another for integrated security will meet international requirements. The terminal design capacity is 7.5 million in order to reach its handling capacity of 15 million passengers in total per annum.

MCAA contracted with a large Saudi group in the amount of US$ 273 million for the project implementation. Total project cost according to MCAA is 2.2 billion L.E. GOE requested the foreign fund for the project loan from the Arab Fund for Economic and Social Development.

5) Development Project in Borg El Arab International Airport

Borg El Arab International Airport Construction Project

Alexandria (Al Nozha) international airport was the only international airport in the northern coast area, and so it had been played an important role as the international gateway airport in the northern coast area for tourists and business destinations to/from Europe and Middle East.

The air traffic demands at Alexandria international airport increased steadily. However, the airport facilities were not able to handle increasing demands due to capacity constraints of the runway and the passenger terminal building. The expansion was therefore needed, but there were many obstructions around the airport and it was difficult to remove those obstructions. In additions, the soft ground condition of the airport was making the development cost expensive. Taking into consideration of these circumstances, the GOE decided to implement the development of Borg El Arab Airport, which was located 43 km South-west of Alexandria city, for civil use instead of Alexandria international airport.

In early stage, the airport was attempted to be developed as a BOT project. The results of the study showed it was impossible to urgently develop the airport with BOT basis, and so the GOE decided to officially request the Government of Japan (the GOJ) for an ODA loan.

The Project is aimed to develop a completely new passenger & cargo terminal complex including international passenger terminal building (24,000 m^2), cargo terminal building (2,000 m^2), control tower, administration building (3,000 m^2), rescue & fire station (800 m^2), primary power station and other utilities in civilian airport property, on the opposite side of the existing runway which at present occupies military land. The passenger terminal building concept is based on an image of “water and sky” incorporating Egyptian culture, history and the geographical location of Alexandria region. The feature of this concept includes arc-shaped roof with a curved airside façade.

At the completion of the project, Borg El Arab international airport will be able to handle 2 million passengers per annum. The project is ongoing and almost finished and so the remaining project cost is estimated 128 million L.E., while the amount of the Japanese Yen Loan for the project is 5.732 Billion JPY.

2.12. ISSUES IN AVIATION SECTOR IN EGYPT

Old airport development procedures, that is, giving a disorderly growth dedicated by the current demand at the time, has been reformed to the procedures orderly growth based on airport master plans developed following an air traffic forecast. MCAA has been supervising the implementation of airport sector development aggressively straight forward to modernization of the national airport system with future perspective. Airport sector in Egypt is therefore noted to be in good conditions overall.

The biggest challenge is dealing with the high growth in aviation demand. Investments in existing airports and terminals need to be focused and strategically placed. In addition to infrastructure build-up, effort shall be made for enhancing productivity at the airports. Privatization for large international airports together with several small airports to the third sector shall be facilitated.

2.12.1. Modernization of Passenger Terminals

An appearing terminal facility with safety, security and comfort generally attract visitors. Providing well modernized terminal facilities are very important for such country like Egypt having a huge number of tourists. Regarding that point, the existing facilities at airports have minor outstanding to be resolved.

For major airports, Cairo, Sharm El Sheikh, Hurghada international airports, the focus is to add more capacity of the terminal, i.e. additional runways or bigger terminal buildings. However, it is also recommended to pay attention to increasing the throughout at the airports by adapting new technology, systems and methodologies. Delay-driven demand management measures can smoothen out peak periods, aside from reducing actual inter-arrival and inter-departure spacing to and from runways. In the terminals, the queue is shortened and the number of persons at any given time can go down by speeding up the service times for each passenger. If more passengers can be processed per hour, the capacity of the airport increased without investing in a bigger terminal. For example, some international airports, e.g. Narita International Airport (Japan), have already installed self-service check-in kiosk.

The major problems of the terminal operation in other regional airports are similar to each other. For example, no redundancy in the baggage handling systems, unbalanced outbound / inbound systems, small area for re-entrance security of the terminals, etc. are observed at the airports. Giving more attractiveness to passengers, installation of new equipments or systems shall be considered to each airport when it is renovated or constructed new terminals, especially for major tourist destination airports, Luxor, Aswan, Abu Simbel.

2.12.2. Up-grading Airport Facilities Complying with ICAO SARPs

In several airports, the dimensions of airside facilities are not complied with the ICAO SARPs. To provide safety airport operation, reallocation of facility layout shall be examined.

- A minimum separation distance between runway and parallel taxiway centerlines at Hurghada is too small for Category E airport:

  Separation between existing runway and parallel taxiway is 165m and this is shorter than the requirement of ICAO standard 182.5 m for "Code 4 E" instrument runway.

- Existing runway separation at Sharm El Sheikh does not allow simultaneous operation so the airport has limitation of runway operation:

  A distance between runways is 450m that does not allow for independent parallel approaches or departures. Instrument runways must have a minimum separation of 1,035 m for independent approaches and 760m for independent departures. This limited separation impacts number of handling capacity under the dual parallel runway configuration, particularly for operating under Instrument Flight Rule (IFR).

- Existing taxiway widths at Sharm El Sheikh does not satisfy ICAO SARPs for "Code 4E" operation:

  A required taxiway width in accordance to ICAO SARPs is 44m for "Code 4E" operation. But the existing taxiway only has its widths of 39m.

- Down-grade of airport category at Dakhla airport:

Lack of 7.5m-runway shoulders made Dakhla Category "4C" airport in accordance to ICAO SARPs, even thought it has been stated as Category "4D" in AIP.

New runway constructions are planned at Sharm El Sheikh and Hurgada, location of new runways should be determined so as to keep right distance with future allocation of the existing facilities.

2.12.3. Impact for Future Budget Allocation

Magnitude of financial aspect is that the need of repairing and maintenance costs and need of budget support for airport that does not have enough income will impact the budget allocation to other new investment. In addition, repayment for the foreign funds will also increase. Softening of the impact for future budget allocation must be considered to sustainable growth of air transport sector.

1) Scheduling of Maintenance Project

Currently, most of the airport facilities are in good condition so there are no needs to facilitate maintenance projects with a large amount of costs. But, it will be major issue in future once the facilities become deteriorated. The repairing and maintenance costs will then become expensive. To extend facilities' lifetime and to minimize the impact of a large maintenance costs, a preventive and routinely maintenance are necessary. In addition, maintenance projects such as overlay of runways, repairing taxiways & aprons and terminal renovation are necessary to carry out as long as the facilities exist. To avoid the projects coming up at once from each airport, the implementation schedule for the projects shall be orderly planned with regards to short term budget schedule i.e. at least 5 years perspective.

2) Re-sizing Airport Facility

Some of the Egyptian airports are a very well developed airside and landside facilities even there is no commercial flight. Re-sizing (more on minimizing) airport facilities with regards to actual traffic shall be considered especially for the airports which do not have any flight or currently operated for only small and charter aircrafts. That will minimize the maintenance costs and even airport operation costs.

3) Accelerating Privatization with Other Major Airports

As it is stated in the national master plan, a set of privatization of airport operation shall be accelerated. Softening of the impact is also the meaning of removing un-necessary costs from the budgeting. Currently 6 major international airports have managed by private sector, Fraport and APD, remaining airports could be bundles with major profitable airports as a group operation. It could be operated either under long-term Integral concession or management contract.

CHAPTER 3: PIPELINE SECTORS

3.1. OVERVIEW OF PIPELINE

Pipeline is infrastructure to transport goods which generally denote liquid and gas, which include water, sewage, slurry, oil, gas and the like. As understood, Egypt is an oil producing country as a member of Organization of Arab Petroleum Exporting Countries (OAPEC) and a gas (commonly designates "natural gas" unless other meaning is defined hereafter) producing country which has regularly started its production in 1980s. The oil & gas are undoubtedly the most valuable goods among them in view of their investments, developments and associated dominant impacts other than other goods in relation with the pipeline. Therefore, focus generally gives the pipelines of the two commodities in this Study.

Oil is commonly one of major export commodity of Egypt, supporting 30-40 % in the total exports. However, trend of oil production gradually decreases under political control of the Egyptian Government and the proportion is resultantly smaller infallibly, which gives two reasons assumed that oil market balances its prices and provided oil reserves within the Egyptian territory is 16 years only remaining by estimate[4].

On the other hand, gas is becoming the alternative of the oil based on backup of the Egyptian Government Policy about domestic energy alternation. This has been strongly supported since 2000 by discoveries of new gas wells at offshore of the Nile Delta in the Mediterranean Sea within the Egyptian territory. Due to facilitation and promotion of the new developments, the gas significantly raises its dependency in domestic market and export from 2005. It is expected in export that the gas is a new source to get foreign currency in Egypt, since a new international gas pipeline was linked with Jordan in 2003 and international trade of natural liquid gas (LNG) had been started with European countries and others. Production of the gas rapidly increases from 2005 upon the said discoveries and developments and its consumption gradually grows in volume by the mentioned governmental encouragement.

3.2. ADMINISTRATIVE FRAMEWORK IN PIPELINE SECTOR

The Egyptian oil & gas industry exists under the public organization comprised of Ministry of Petroleum (MOP) and four state owned companies and one authority as described in Figure 3.2.1.

3.2.1. Ministry of Petroleum (MOP)

MOP was established in 1973 as the head of the organization for the Egyptian oil & gas industry. It is to generally supervise production, marketing, and distribution of oil and gas, and other natural resources of Egypt.

4 BP Statistical Review of World Energy June 2010

3.2.2. Egyptian General Petroleum Corporation (EGPC)

EGPC was formerly operated as General Petroleum Authority (GPA) established in 1956 and changed from GPA in 1962, as the first economic company in petroleum industry of Egypt. EGPC is fully responsible for all sectors of the Egyptian oil & gas industry, and holds the sole right to import and export crude oil, gas and other products. In any foreign investments of the petroleum industry of Egypt, EGPC requires joint venture under supervision of MOP. Major activities of the EGPC are to conclude petroleum agreements and to carry out exploration, production, transportation and refining.

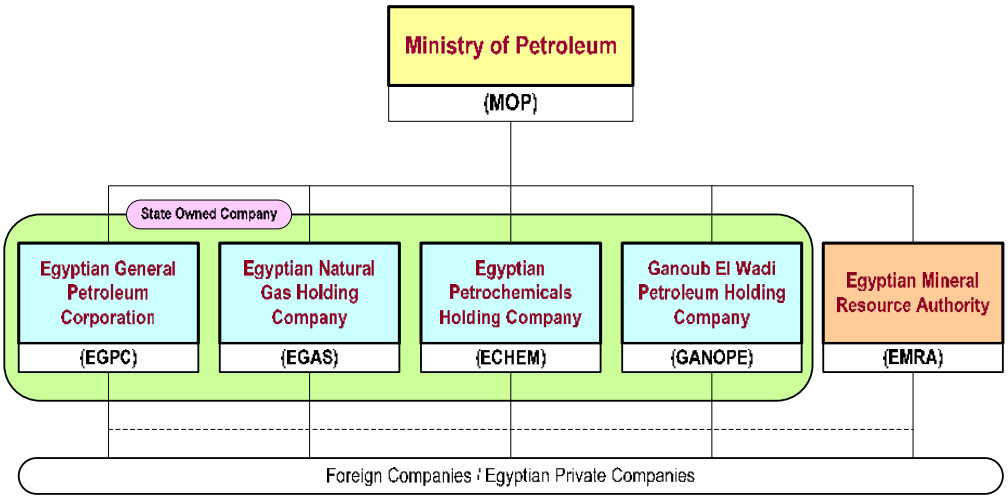


Figure 3.2.1 Organization Chart of Public Sector in Oil & Gas Industry

3.2.3. Egyptian Natural Gas Holding Company (EGAS)

EGAS was established in 2001 as a governmental holding company with knowledge of importance to natural gas. EGAS has full responsibility to supervise natural gas industry, and to manage foreign investment in exploration and the use of LNG (Liquefied Natural Gas) tankers, production and infrastructure related to the natural gas in Egypt.

3.2.4. Egyptian Petrochemicals Holding Company (ECHEM)

ECHEM was established in 2002 as a governmental holding company. ECHEM holds responsible role to manage and market Egypt's petrochemical industry emerging these days.

3.2.5. Granoub El Wadi Petroleum Holding Company (GANOPE)

GANOPE was established in 2003 as previously known as the South Valley Development Company (SVDC). GANOPE is responsible to promote development activities and to handle and assess all oil & gas activities specifically in Upper Egypt (Sohag, Aswan, Assyout, Qena, AL Wadi El-Gedied etc.).

3.2.6. Egyptian Mineral Resource Authority (EMRA)

EMRA was established in 1896 as a governmental agency in Egypt. EMRA has responsibility to conduct geological mapping of the country and to explore, discover and evaluate its mineral wealth, and to provide technical advice to a wide variety of governmental departments, mining companies, land reclamation and housing projects.

3.3. EXISTING PIPELINE TRANSPORT SYSTEM

The Egyptian pipeline system encompasses a variety of uses: condensate 320 km; condensate/gas 13 km; gas 5,586 km; liquid petroleum gas 956 km; oil 4,314 km; oil/gas/water 3 km; refined products 895 km; and, water nine km5. The Egyptian pipeline network is depicted in Figure 3.3.1.

The "oil commodity sector", encompassing crude oil, oil products, bunker and jet fuel as well as natural gas[6], therefore dominates in terms of pipeline facilities and usage thereof[7].

- Oil. According to the *Oil and Gas Journal*'s 2008 estimate, Egypt's proven oil reserves stand at 3.7 billion barrels. Egypt's oil production during the previous averaged 664,000 barrels per day (bbl/d), less than 1 percent of world production. Despite discoveries and enhanced oil recovery techniques at mature fields, production is declining annually. Egyptian oil production comes from four main areas: the Gulf of Suez (about 50 percent), the Western Desert, the Eastern Desert, and the Sinai Peninsula. Most Egyptian production is derived from mature, relatively small fields that are connected to larger regional production systems. The fields in the Gulf of Suez are declining most rapidly while independent producers such as Apache and Seagull Energy are helping to slow the decline through the development of small fields, especially in the Western Desert and Upper Egypt.

- Natural Gas. Due to major recent discoveries, natural gas is likely to be the primary growth engine of Egypt's energy sector for the foreseeable future. Egypt's natural gas sector is expanding rapidly with production having increased considerably between 1999 and 2007. In 2006, Egypt produced roughly 1.9 trillion cubic feet (Tcf) and consumed 1.3 Tcf of natural gas. According to the *Oil and Gas Journal*, Egypt's estimated proven gas reserves stand at 58.5 Tcf, or roughly 1 percent of world reserves. With the continued expansion of the Arab Gas pipeline, which increased its exports to roughly 68 bcf during fiscal 2006 from 8 bcf in 2003, Egypt is on its way to becoming a leading supplier of natural gas throughout the Mediterranean region. Most current exploration and production is sourced in the Nile Delta region and in the Western Desert. Offshore developments also exist. In the Western Desert, the Obeiyed and Khalda fields are the most important natural gas areas. They have lower development and operating costs than fields in the Mediterranean region due to an expanding network of pipelines and processing plants that allow for quick transport upstream to Alexandria via a near 300 kilometer pipeline.

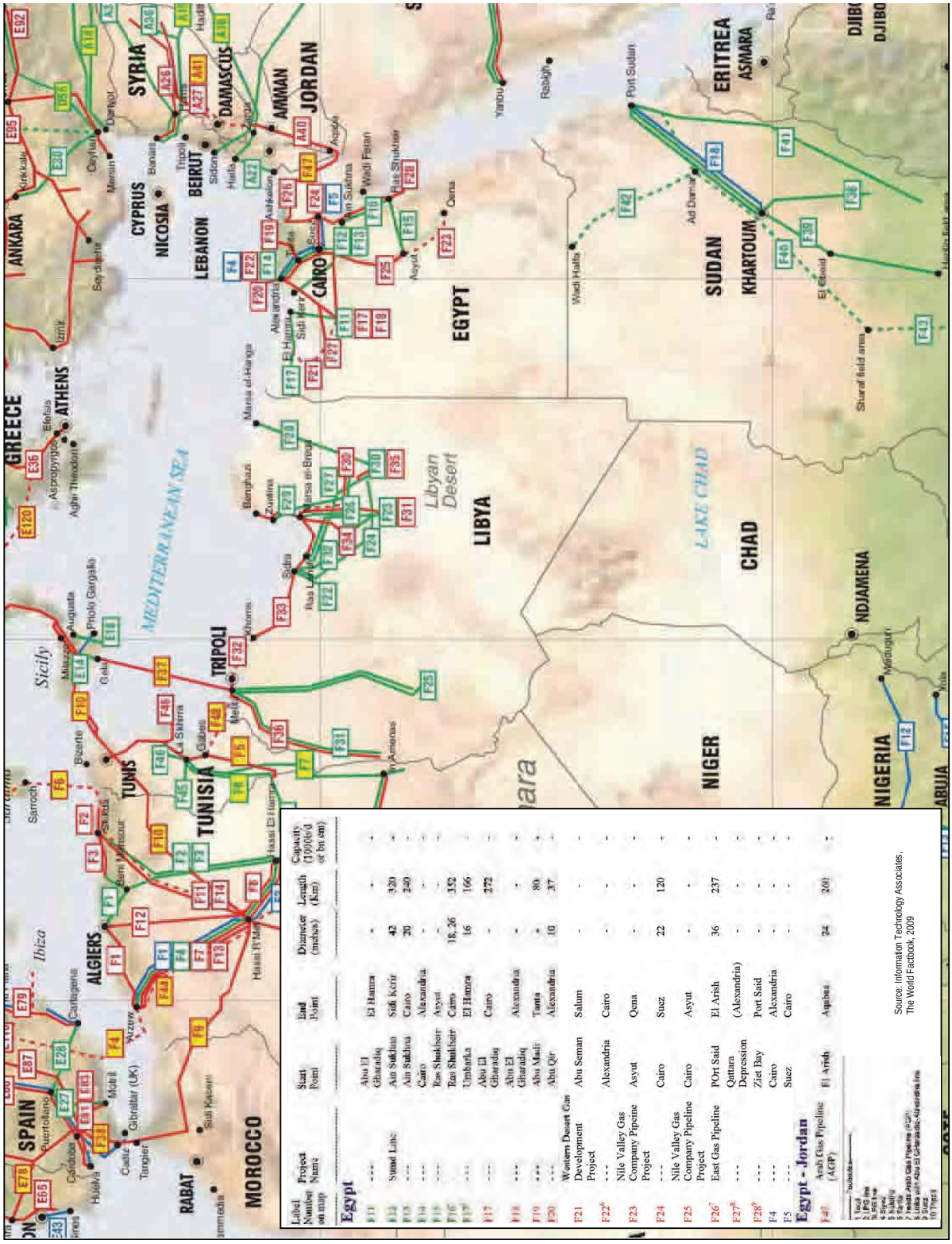
- Oil Transit: Suez Canal/Sumed Pipeline. Egypt has strategic importance because of its operation of the Suez Canal and Sumed (Suez-Mediterranean) Pipeline, two routes for export of Arabian Gulf oil. Crude oil shipped through the Suez Canal in 2007 amounted to 980,000 bbl/d southbound and 280,000 bbl/d northbound, according to the Middle East Economic Survey. This compared with a flow of 160,000 bbl/d southbound and 1,100,000 bbl/d northbound in 2006. The change in the flow's direction reflects the decline in European demand and the continued demand growth in Asia. The Sumed pipeline runs 200-miles from Ain Sukhna on the Gulf of Suez to Sidi Kerir on the

[5] Source: CIA Factbook, Washington DC (year 2008 data). Excludes 59 kilometers of "unknown use" classification.

[6] Per Egyptian Ministry of Finance definition.

[7] Subsequent discussion draws upon information contained in *Egypt Country Analysis Briefs*, by Energy Information Administration, Department of Energy, and Washington DC. These data utilize subsidiary sources among the *Oil and Gas Journal* (online at http://www.ogj.com/index.html).

Mediterranean. The Sumed's original capacity was 1.6 million bbl/d, but with the completion of additional pumping stations, capacity has increased to some 2.3 million bbl/d. During the 2007 FY, the Sumed pipeline carried approximately 1.89 million bbl/d of Arab and Iranian crude.



Label Number on map	Project Name	Start Point	End Point	Diameter (inches)	Length (Km)	Capacity (1000b/d or bn cm)
Egypt						
F11	---	Abu El Gharadiq	El Hamra	-	-	-
F12	Sumed Line	Ain Sukhna	Sidi Krir	42	320	+
F13	---	Ain Sukhna	Cairo	20	240	-
F14	---	Cairo	Alexandria	-	-	-
F15	---	Ras Shukheir	Asyut	-	-	-
F16	---	Ras Shukheir	Cairo	18, 26	352	-
F17	---	Umbarka	El Hamra	16	166	-
F17	---	Abu El Gharadiq	Cairo	-	272	-
F18	---	Abu El Gharadiq	Alexandria	-	-	-
F19	---	Abu Madi	Tanta	-	80	+
F20	---	Abu Qir	Alexandria	10	37	-
F21	Western Desert Gas Development Project	Abu Seman	Salum	-	-	-
F22[6]	---	Alexandria	Cairo	-	-	-
F23	Nile Valley Gas Company Pipeine Project	Asyut	Qena	-	-	-
F24	---	Cairo	Suez	22	120	+
F25	Nile Valley Gas Company Pipeline Project	Cairo	Asyut	-	-	-
F26[7]	East Gas Pipeline	POrt Said	El Arish	36	237	-
F27[8]	---	Qattara Depression	(Alexandria)	-	-	-
F28[9]	---	Ziet Bay	Port Said	-	-	-
F4	---	Cairo	Alexandria	-	-	-
F5	---	Suez	Cairo	-	-	-
Egypt - Jordan						
Fa1	Arab Gas Pipeline (AGP)	El Arish	Aqabaa	24	260	+

Source: Information Technology Associates; The World Factbook, 2009

Figure 3.3.1 Egyptian and North African Pipeline Network

Egypt's most expansive export project is the Arab Gas Pipeline that currently connects Egypt to Jordan and Syria. In 2008, the Jordan-Syria section of the Arab Gas Pipeline was completed and Egypt is expected to export some 32.2 bcf rising to 77.3 bcf in 2013. In 2008, Turkey and Syria also signed an agreement to connect the pipeline to the Turkish grid for use in 2011 and extend the pipeline into Europe for export to Austria, via Bulgaria, Romania, and Hungary. There is also discussion of connecting the pipeline to Lebanon and Cyprus. The Arish-Ashkelon gas pipeline to Israel became operational in 2008 and began transferring what is expected to be 60 bcf per year. Recently, Libya also agreed to build a natural gas pipeline between Alexandria and the eastern Libyan city Tobruk.

The importance of the Arab Gas Line is confirmed by the Ministry of Petroleum which states that it "….*is considered a distinguished model for Arab cooperation strategic projects as it is the economic and strategic link between Egypt, Jordan, Syria, Lebanon and Africa, Europe, Asia in successive phase. The project is aiming to exporting the Egyptian Natural gas (and later the Iraqi's gas) to Turkey and Europe in addition to supplying Jordan, Syria, and Lebanon with their needs of the natural gas"*[8].

The oil/gas sector is clearly important within the Egyptian context. Thus, ipso facto, the role of pipelines. It has yet to be determined by MiNTS which proportion of, for example, fuels and gas move by truck, rail or pipeline. The answer is likely to structure by locale, available infrastructure and activity (for example, well to processing chain or delivery to fuel stations). Nevertheless the role of pipelines is likely to emerge as an important element of the national transport fabric.

3.4. IMPORT AND EXPORT

It is of interest to examine the overall role of oil and gas activity within the Egyptian economy.

National imports, all commodities, have, between years 2000 and 2008, grown from 46.8 billion LE to 287.8 billion LE. Over the same time period, exports have increased from 16.4 billion LE to 143.0 billion LE. Imports have been increasing faster than exports; thus, the balance of trade has worsened from -32.2 billion LE to -144.7 billion LE (Figure 3.4.1).

"Mineral products" (per CAPMAS) represents a sizable component of exports. The average over the 2000 to 2008 period is 48 percent. The trend has been steadily increasing from year 2000 (43 percent) to year 2007 (55 percent), however, has ameliorated to 46 percent in year 2008.

[8] Online at http://www.petroleum.gov.eg/

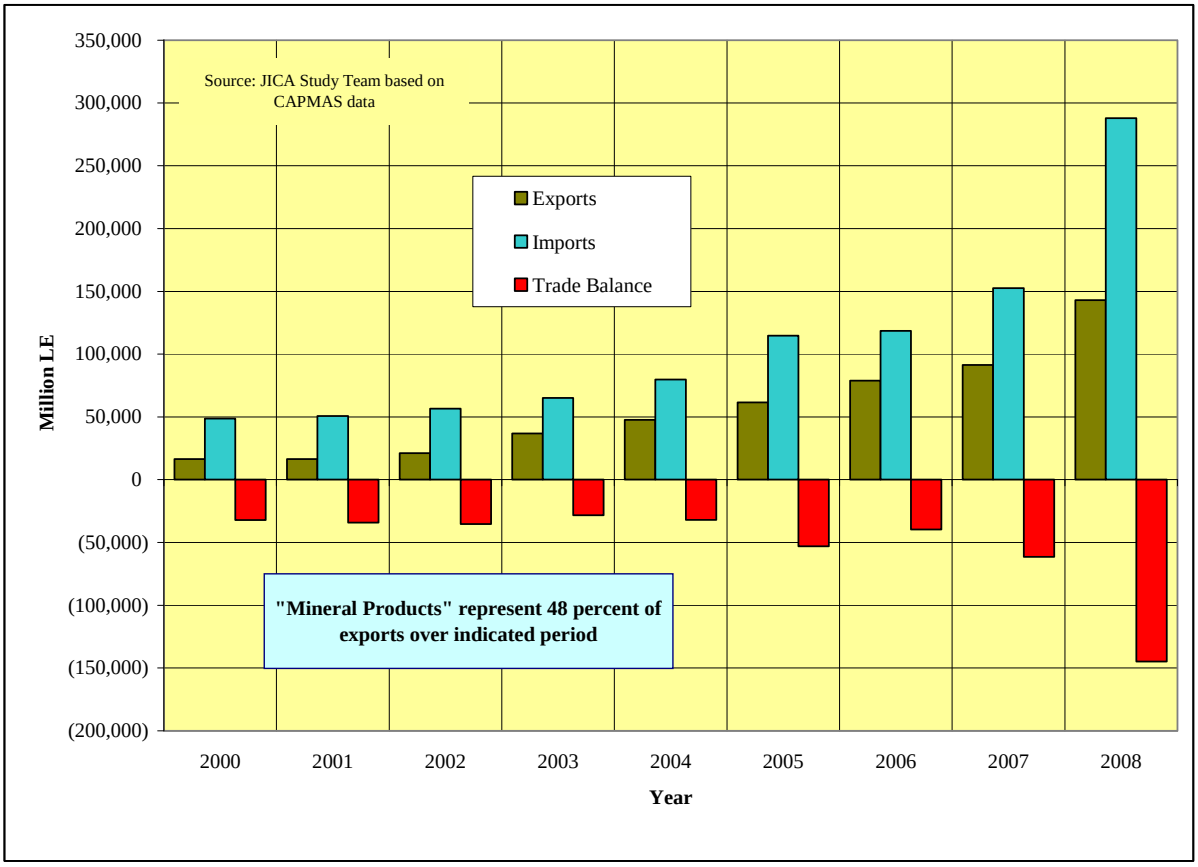


Figure 3.4.1 Egyptian National Trade Balance: 2000-2008

The "oil commodity sector" (per Ministry of Finance), representing almost half of national exports, has consistently shown a positive balance. During 2008/2009, for example, the overall sector achieved a positive balance of $3.97 billion. Stratified, crude oil achieved a positive balance of $1.39 billion, bunker and jet fuel a positive balance of $0.66 billion, and gas a positive balance of $3.10 billion. Only oil products incurred a negative balance totaling $1.18 billion (Figure 3.4.2).

The relationship of imports and exports in the oil commodity sector is governed not only by principles of international trade, but also sensitive towards social matters.

As noted in previous reports[9], "…Natural gas is also a very important fuel for the domestic market, since about 80% of Egypt's electricity production relies on natural gas. There is also a large and growing demand for natural gas by industrial, commercial and household customers. Increasing the household use of natural gas is a key priority for the Government of Egypt, given that it would replace consumption of Liquefied Petroleum Gas, which is more heavily subsidized and more expensive to transport on a very large scale. Egypt consumes more than 3 million tons of LPG per year, of which approximately half has to be imported. In 2006 LPG subsidies cost the Government US$1.7 billion (equivalent to 1.6% of Egypt's GDP or US$4.6 million per day). The Government has announced plans to eliminate gas and electricity subsidies for energy-intensive industries (cement and steel) to help reduce the budget deficit".

[9] Refer *Project Information Document: Egypt Natural Gas Connections Project*, The World Bank, January 2008

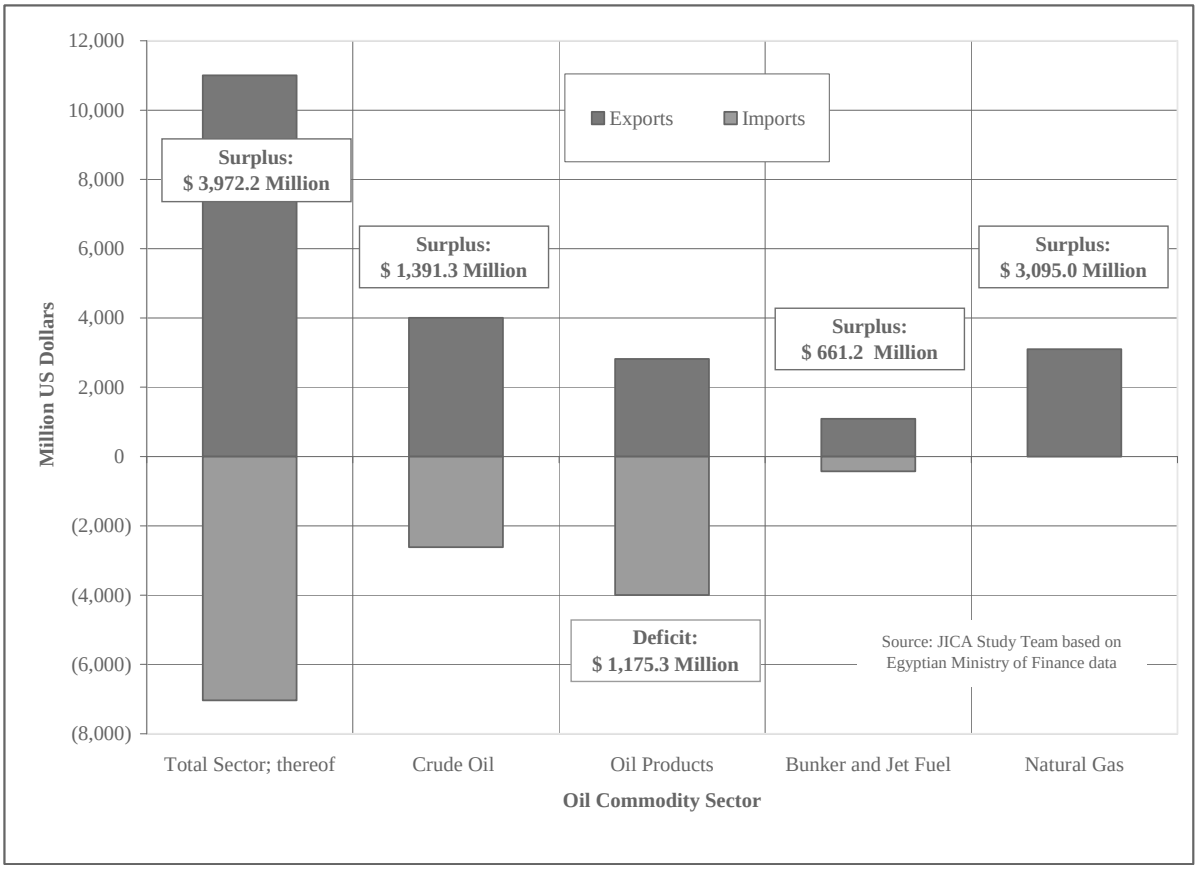


Figure 3.4.2 Balance of Payments 2008/2009: Oil Commodity Sector

Egypt has also long subsidized several varieties of fuel, particularly diesel and regular gasoline. As reported by Reuters News Service[10] "*Egyptian fuel subsidies will likely climb to 66 billion Egyptian pounds in the current (2010) fiscal year to June 30, the oil minister said on Tuesday. The government has said it wants to better target subsidies to the most needy in a country where a fifth of its 78 million people live on less than $1 a day. Economists say targeting subsidies would help cut the budget burden and reduce waste. "Ten years ago it was 1.2 billion Egyptian pounds. This year we expect it at 66 billion pounds," Sameh Fahmy told business executives at an American Chamber of Commerce in Egypt event*".

3.5. CURRENT PLANS AND PROJECT

3.5.1. Development Vision

1) Basic Vision

- As the head of oil & gas industry, MOP has a comprehensive vision for development of the industry in Egypt as established in 2000. The following are the vision of the MOP:

[10] Online at http://af.reuters.com/article/investingNews/idAFJOE6180FQ20100209

- Supporting oil and gas reserves and increasing their production
- Meeting the local demand of oil, gas and petrochemicals
- Supporting the exports and increasing Egypt's income from foreign currency and the state's reserves
- Setting up clear achievable national plans
- Increasing job opportunities for youth and improving the workers skills
- Dealing with developed countries and keeping abreast of technology
- Developing and restructuring the mineral resources sector

- As stated in the above vision, MOP well recognizes the current situation surrounded to the industry in Egypt, such as importance for development of oil, gas, petrochemicals and mining sectors, impact to national economy and job opportunity to young generation and worker's skills. In stream of decreasing oil and increasing gas productions, the vision implies sustainable and well-balanced reserves and productions to the both oil & gas and maximization of the exports of Egypt.

- Moreover, it is remarkable that "dealing with developed countries and keeping abreast of technology" is enumerated in the vision. This seems to be conflict between "dealing" and "keeping". However, it represents that MOP needs to secure national interests through the valuable resources existing and in the future, and to maintain world standard in their technologies.

- EGPC is actually the leading executing company of MOP to supervise and manage all sectors in oil & gas industry. The vision of EGPC is consequently same as that of MOP as previously stated.

- EGAS is responsible to focus on the natural gas activities, adapting an effective action plan to organize and diligently handle the activities of the natural gas resources of Egypt to add value to the Egyptian economy. The following are the vision and mission of the company:

Develop natural gas business in Egypt to be one of the key natural gas players in the region and worldwide

1. **Operate** with integrity to improve HSE performance and increase the staff & contractors awareness
2. **Maintain** a strategy of innovation and growth
3. **Continue** issuing Bid Round signing Concession Agreements and applying applications of state of art technology in all Exploration processes
4. **Increase** natural gas proven reserves to meet all obligations that fulfill local market demand and export commitments
5. **Increase** Annual Production to manage Supply Vs Demand requirements
6. **Create** Infrastructure and optimize Facilities Utilization
7. **Project** Management aiming cost optimization and effective schedule
8. **Maximize** applying the Value Added Projects
9. **Establish** new specialized companies in the area of Drilling Engineering & Marine vessels
10. **Expand** Egyptian Natural Gas Grid to meet the targeted projects and develop new communities

- ECHEM is particularly responsible to manage and supervise petrochemical industry including expansion of its market in Egypt. The following are the vision and mission of the company:

ECHEM's vision is to be a leading international producer and distributor of petrochemical products

ECHEM' s mission is to establish a strong and reliable petrochemical industry in Egypt based on state-of-the-art technology and to encourage and support local and international investors to invest in this industry

- GANOPE is a particularly responsible for supervision and management of all oil & gas activities under latitude line N 28 in Egypt. The main objectives of the company are summarized as flows:

1. **Market** new blocks for oil & gas exploration through international bid rounds to cover Ganope Work Areas
2. **Increase** Egypt's production & proven & possible reserves for crude oil and natural gas
3. **Establish** joint venture companies to manage operations on behalf of Ganope and its partners
4. **Encourage** investment in petroleum projects.
5. **Construct** strategic petroleum projects that support & expedite the development in Upper Egypt
6. **Construct & Supervise** refineries petrochemical plants LPG filling stations & its distribution stations and vehicles fuel & services stations in Upper Egypt
7. **Study** different plans for developing and modernizing oil & gas industry in Ganope work areas to improve the economic performance of affiliated companies.
8. **Prepare** feasibility studies for different projects

- EMRA is different category from the presented state own companies. This authority was originally a governmental sector responsible for researching/investigating/managing mineral resources in Egypt. The following is the mission of the authority:

Maximizing benefit of national economy through exploration and assessment of Egyptian mineral wealth

1. License exploration and exploitation activities
2. Promote invest in mineral commodities
3. Explore and assess mineral resources
4. Survey and make geological map

As mentioned in the above, the basic frame of vision, mission and objectives is derived from the MOP vision, even through each company is commercially operating the business. It can be understood that achievements for individual visions set up by each company is also vision of MOP indirectly.

2) Short-term Policies in The Sixth Five Years Plan (2007-2012)

In the 6th five Years Plan of the Government of Egypt, the industry displays the short-term policies more concretized from the Vision of MOP as presented in the following summary.

- Intensifying on-shore and off-shore explorations of petroleum and natural gas
- Expanding production levels of crude oil at rates in line with essential needs
- Completing the Egyptian petro-chemicals industry National Plan
- Encouraging high-value exports of petroleum and petro-chemical products
- Copying with international scientific developments in the field of petrochemical industries and technology transfer to Egypt
- Opening new external markets to Egyptian petroleum companies to bring in foreign currency
- Increasing the capacity of refinery labs, and achieving balanced spatial distribution to satisfy domestic consumption needs of oil products
- Expanding natural gas projects to increase the use of natural gas as a substitute for other petroleum products, especially in the field of transportation and electricity
- Developing and expanding infrastructure for gas transport and distribution
- Motivating the private sector to effectuate its participation in implementing refining, distribution, and petro-chemical projects

As sited, oil sector has main frame to secure possible exploration, production fit for essential needs and balanced distribution to domestic consumption needs. This policy implies balanced continuity of between production with certain demands and consumption able to be equally distributed. For Gas sector, the policy particularly stresses further expansion of natural gas projects and the relevant infrastructures.

Petrochemical sector symbolizes encouragement of high-valued products with upgrading its technology to international level. Other concerns are commonly same to the all sectors.

Based on the above visions from two aspects, it is clear that each sector of the industry has certain goals to maximize advantages of the industry w maintaining sustainability. Through the above visions, it is assumed that the following perspectives relative to infrastructures are basically summarized:

- Oil sector basically maximizes use of the existing infrastructures in situation of underproduction unless new resources are developed

- Gas sector rapidly expands necessary infrastructures to facilitate export and its use for commercial, industrial and residential purposes as an alternative of the oil sector

- Petrochemical sector further develops its infrastructures to produce high-valued products with upgrading the relevant technology international

Mineral resource sector has mainly services of researching & investigation and producing necessary information to the relevant sectors. So, it has no infrastructural concern so far as well as in the future

3.5.2. Development Plan

Based on the visions previously summarized, the Egyptian oil & gas industry has implemented the MOP' development plan as stated in The Sixth Five Years Plan (2007 – 2012) which is consisted of the following four aspects:

1) Targets of the Sixth Five Years Plan

- Increasing the production of crude oil and natural gas from 84 million tons (2007) to 117.6 million tons (2011) with an annual average growth rate of 10% during the Plan period

- Increasing the production of crude oil from about 37.4 million tons (2007) to 42.8 million tons (2011) with an annual average growth rate of 6% compared to 2007

- Increasing the production of natural gas from about 46.6 million tons (2007) to 74.8 million tons (2011), recording an annual average growth rate of 12.8%

- Completing the connection of natural gas networks to cover about 6 million housing units with an increase of 2.2 million units in various regions, especially in Upper Egypt governorates

2) Most important products within the Sixth Five Years Plan

- Signing (9) new gas contracts with a total area of 51 thousand km2, and digging 58 natural gas wells with expenditure of 1.15 billion USD in the Mediterranean Sea with an area of 4050 km2

- Establishing three fuel projects of capacity of 25 thousand m2 and two water containers with capacity of 4 thousand m3

- Expanding petroleum and petro-chemicals to increase value added.

3) Targeted investments

- Reaching LE 145.5 billion as targeted investments for extractive activities (petroleum and natural gas) to be implemented by holding and private companies, with a limited contribution of LE 2 billion from oil companies under Law No. 97/1983

- Maintaining proportion of natural gas activity accounts for about 75% of total sector's investments

4) Employment and Wages in the Petroleum Sector

- Increasing job opportunity to provide employment of 220 thousand workers with corresponded wages up to LE 15.7 billion per year

As seen, the targets of the plan are quite clear for oil and gas productions including numerical indicators based on the actual records and the projected volumes. Those are considered in the current environment has been held by the relevant Egyptian industry. For example, expansion of gas sector is conspicuous rather than oil sector. However, the oil sector is still aimed at gradual expansion in consideration of increasing domestic demand upon balanced resource control by MOP.

The plan mentions investments and employment which affect the Egyptian economy. The industry is an important way to bring foreign currency to the Egyptian economy and its contribution is to be required in increasing job opportunity of the industry.

3.5.3. Committed Project

Oil & gas industry in Egypt is apparently commercial base and requires flexible and quick adaptation to global market, and the pipeline development has been also involved in the stream. To discuss the pipeline development projects, it is essential to oversee development projects of the Egyptian industry. In such nature, this section reviews committed projects of the industry based on the aforementioned vision and

development plan. Table 3.5.1 generally gives 20 committed projects currently available and picked up in this industry of Egypt.

As found in the table, most 18 are infrastructural projects and the rests are operational and institutional projects. In commodity base, 4 and 7 projects are respectively of oil and gas, 6 projects are of petrochemical, 1 project is of Gas& Petrochemical combined. There is also one mineral resource project on going. Those projects can be typically categorized of refinery, exploration & production, transportation, GTL , NGL & LNG, extraction, olefins & aromatics and the like. The locations of the projects cover whole Egypt, i.e. at/along offshore and shoreline of the Nile Delta, west desert, Cairo region and the Gulf of Suez. MOP has one international refinery project joint-ventured with Chinese National Corporation. EGPC holds two gas exploration & production and three oil refinery projects which have large-scaled capacity in these productions with international funds and joint partnership with global firms concerned to the industry. EGAS executes two plant projects and one transportation project, each one project of extraction and transportation which are on preliminary stage. This company has a loan project of natural gas network connection funded by World Bank and the Kuwait Fund of Arab Economic Development, but the rest is mainly of local and/or self funded projects. ECHEM implements all petrochemical plant/complex building projects in the specific areas along shoreline of the Nile Delta facing the Mediterranean Sea. This ECHEM has a joint project to construct a methanol plant in Damietta with EGAS and Canadian private company. Funds of ECHEM projects are also mostly of local but sometime partially resourced from foreign companies as joint ventured. In addition, EMRA actually carried out many mining research projects not written in the table for possible new mineral resources including oil & gas. As a joint study project of International Finance Corporation (IFC), EMRA with MOP has been involved in reforming mining policy of Egypt to gather more private sectors for investment to Egyptian mineral industry.

In the table, it is recognized that the pipelines are included in some of the major projects for such as oil refinery and exploration & production. These pipelines are partially installed around the refinery plants or as connection lines between offshore platform and land base stations. There are also two particularly transportation projects related to the pipelines in the table as follows:

- EGAS- Cairo-Giza Gas Network Project funded by World Bank, the Kuwait Fund for Economic Development and others to develop a new gas network system in Cairo and Giza aiming at service for 300,000 commercial and industrial consumers and connection of 2 million residential customers in 28 districts by 2012.

Table 3.5.1 Committed Projects of Egyptian Oil & Gas Industry

ID No.	Project Name	Project Type	Objective Commodity	Project Category	Location	Jurisdiction	Implementing Sector	Scope of Work	Project Period by	Estimated Cost (Million USD)	Status				Remark
											Completed	On-going	Not yet	Cancelled	
1	MOP/CNPC*1/Rongsheng -Egypt Refinery	Infrastructural	Oil	Refinery	N/A	MOP	MOT/CNPC/ Rongsheng JV	Construction of a new refinery with capacity of 15 million ton/year production by Build, Own, Operate and Transfer (BOOT) to provide fuel and diesel to Egyptian domestic market and export them to China	-2035	2,000		✔			Ownership to be transferred to MOP by 2035
2	Abu Qir Petroleum - Abu Qir Field Development	Infrastructural	Gas	Exploration& Production	Nile Delta Offshore	EGPC	EGPC/AQP	Construction of Platforms with producing wells including 40 km offshore pipeline installation to increase field's gas production capacity to 4.5 billion cu.m/year	-2011	1,700		✔			
3	Burullus - West Delta Deep Marine (WDDM) Concession Phase 7	Infrastructural	Oil	Exploration& Production	Nile Delta Offshore		EGPC/Burullus	Construction of compression station between a new gas export pipeline and two existing pipelines in the West Delta Deep Marine (WDDM) concession in Egypt by Lump Sum Turnkey (LSTK)	-2010	95		✔			
4	ERC*2 - Musturud Refinery - Hydro cracking/Coking Facility	Infrastructural	Gas	Refinery	Musturd		EGPC/ERC	Construction of a new refinery with capacity of 5 million ton/year production by LSTK	-2014	3,500		✔			
5	Midor - Refinery Expansion	Infrastructural	Oil	Refinery	Ameriya/ Alexandria		EGPC/Midor	Expansion of petrochemical refinery to add production of 130,000 BPD (Ballers Per Day)	-2010	N/A		✔			
6	SRPC*3 - Ain Al Sokhna Refinery	Infrastructural	Oil	Refinery	Ain Sukhna/ Suez Canal		EGPC/SRPC	Construction of a new refinery with capacity of 140,000 BPD	N/A	2,200		✔			Project announced in 2008
7	EGAS - Cairo and Giza Gas Network	Infrastructural	Gas	Transportation	Cairo/Giza	EGAS	EGAS	Development of a gas network system in Cairo and Giza by installation of 39km pipelines with capacity of 450 cu.m per hour	-2012	210		✔			145 million USD partially funded by World Bank & others and 75 million USD loan approved by Kuwait Fund of Arab Economic Development in
8	EGAS - El Hamra GTL Plant	Infrastructural	Gas	GTL*4	El Hamra		EGAS	Building/operating a 47,000 - 54,000 BPD GTL facility in El Hamra area to supply a feedstock of 600 million cu.f/d of natural gas from the national grid and to sale their baulk production to international markets.	-2012	500		✔			
9	EBGDCO*5 - Ras Shukheir NGL Plant	Infrastructural	Gas	NGL*5	Ras Shukheir		EGAS/ EBGDCO	Construction of an NGL plant at Ras Shukheir on the western shore of the Gulf of Suez to process 4 million cu.m./d of gas and produce 120,000 t/y of propane and butane	-2010	80		✔			10,000 t/y to be sold to EGPC who provides gas feedstock to the Plant
10	UGDC*6 - Ethane Extraction	Infrastructural	Gas	Extraction	El Gamil		EGAS/EGPC/ ECHEM/UGDC	Extraction of Ethane at a rate of 360 Ktons/yr from feed gas supplied to UGDC, El Gamil Plant to supply the planned future petrochemical projects	N/A	N/A		(✔)			Preliminary engineering study completed (2009)
11	Small Liquefaction Units and LNG transporting tracks to remote areas (Added Value and Optimization Projects)	Operational	Gas	Transportation	Remote areas		EGAS	Supplying natural gas to remote areas not connected with the national gas grid, by producing LNG, using small scale liquefaction units (300 -1000 ton/d) to be transported by trucks specially designed	N/A	N/A		(✔)			Detailed feasibility study to be conducted (2010)
12	EMethanex - Methanol Plant	Infrastructural	Gas Petrochemical	Olefins & Aromatics	Damietta	ECHEM	EGAS/ECHEM/ Methanex	Construction of methanol plant with capacity of 1.3 million t/y of methanol by LSTK	-2010	950		✔			Jointly implemented between EGAS and ECHEM
13	E-styrenics - Styrene/Polystyrene Plant	Infrastructural	Petrochemical	Olefins & Aromatics	Alexandria		ECHEM/ESPC*7	Building a 200,000 t/y of styrene / polystyrene plant by LSTK	-2010	200		✔			
14	EIPET*8 - Polyester Plant	Infrastructural	Petrochemical	Olefins & Aromatics	Ain Sukhna/ Suez Canal		ECHEM/EIPET	Building a 420,000 t/y of PET Resins plant	-2012	160		✔			Aiming to be a local domestic source of PET resin
15	EPPC*9 - Propane Dehydrogenation (PDH) and Polypropylene (PP) Complex	Infrastructural	Petrochemical	Olefins & Aromatics	Port Said		ECHEM/EPPC	Building a 350,000 t/d propylene and 350,000 t/d polypropylene (PP) complex in Al Jameel Industrial Zone at Port Said by LSTK	-2010	680		✔			
16	Echem - Alexandria Petrochemicals Complex	Infrastructural	Petrochemical	Olefins & Aromatics	Alexandria		ECHEM	Construction of a petrochemicals complex to produce 750,000 to 1 million t/y of ethylene to be used to produce polyethylene	N/A	2,000		(✔)			Tendering & Bidding on going (2010)
17	Methanex/XinAo Group/Echem - Dimethyl Ether Facility	Infrastructural	Gas	LPG*10	Damietta		ECHEM/Methanex/ XinAo G. JV	Construction of a 200,000 t/y dimethyl ether facility (DME) in Damietta Free Zone area	-2012	90		✔			
18	LAB Project	Infrastructural	Petrochemical	Olefins & Aromatics	EL Max/ Alexandria		ECHEM/ELAB*11	Building a 100,000 t/y of LAB and 5,000 t/y of HAB plant	-2010	N/A		✔			
19	ESTYRENICS*12 - Polystyrene Project	Infrastructural	Petrochemical	Olefins & Aromatics	Dekhila		ECHEM/ ESTYRENICS	Building a 200,000 t/y of Polystyrene plant	-2011	N/A		✔			
20	Mining Policy Reform	Institutional	Mineral Resource	Program	Egypt	EMRA	IFC*13/ MOP/EMRA	Study for facilitating participation of private sectors in mining industry	N/A	0.43		(✔)			Jointly studied among IFC, MOP and EMRA

Note: Shown asterisks respectively imply *1: China National Petroleum Corporation, *2: Egyptian Refining Company, *3: Sokhna Refining Petrochemical Company, *4: Gas to Liquids, *5: Egyptian Bahrain Gas Derivative Company, *6: United Gas Derivatives Company, *7: Egyption Indian Polyester Company, *8: Egyptian Styrenics Production Company, *9: Egyptian Propylene and Polypropylene Company, *10: Liquefied Petroleum Gas, *11: Egyptian Linear Alkyl Benzene Company, *12: Egyptian Styrenics Production Company and *13: International Finance Corporation

Source: Ministry of Petroleum(MOP), Egyptian General Petroleum Corporation (EGPC), Egyptian Natural Gas Holding Company (EGAS), Egyptian Petrochemicals Holding Company (ECHEM), Egyptian Mineral Resource Authority (EMRA), World Bank (WB) and International Finance Corpration (IFC)

- Small Liquefaction Unit and LNG Transporting Project to supply natural gas to remote areas not connected with national gas grids by producing LNG using small scale liquefaction unit to be transported by trucks specially designed (under preparatory stage as a project)

The above two transportation projects closely related to the pipelines provide a sort of background of the pipeline development, which means the pipelines:

- are already on-demand upon commercial basis being operated by the said relevant companies
- do not have major new investment project(s) for domestic/international oil & gas sectors, because the core of the lines had been already developed respectively since 1960s and 1980s in view of historical aspect as referred to Figure 3.6.1 and Figure 3.6.2
- would have some minor investment project(s) for the both sectors like the abovementioned, in order to efficiently provide better services to the commercial, industrial and residential consumers
- may have some major investment project(s) for the both sectors in case of discovery of new resource(s) of either oil or gas, however, which would be reasonably adjusted to match the present situation in place

From this point of view, it is possible to say that the pipeline development reaches a stage of efficient application of the investments themselves and probable new investments depends upon commercial examination be profitable considering harmonization to the existing infrastructures as a condition in the process.

3.6. ISSUES IN PIPELINE SECTOR IN EGYPT

Oil & gas industry surrounding pipelines is one of the important national revenue to obtain foreign currency other than tourism, money transfer from overseas workers and Suez Canal, which has resultantly compensated huge trade deficit accumulated in Egypt. The pipelines have depended on the environment of the industry. Currently, Egypt became a country to rely on import of oil due to inclination of its production as well as increase of its consumption. In order to tackle the crisis and find optimal course in such resources, the Egyptian Government has instead encouraged substitution use of gas since 1990s, initially started from power stations, which has still stable potential in its provided reserves estimated inside Egypt territory. It is therefore the reason that development of the gas sector is being raised in the industry. Simultaneously, MOP and EMRA currently look for new sources of the both oil & gas to make impact for national economy.

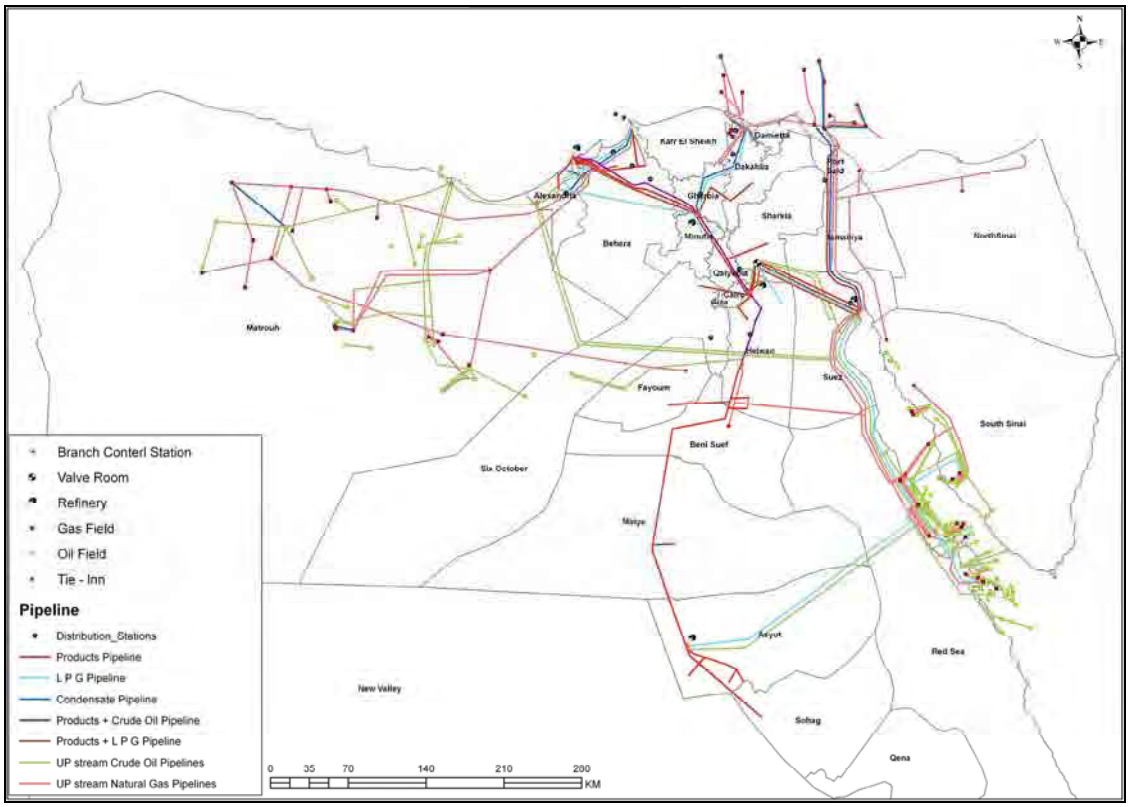
In such background, it is assumed that the pipelines holds/will hold the following probable impacts and/or issues to be considered and/or resolved in terms of transportation:

- Creation of negative impact for reducing income gained from passage of LPG/LNG tankers in Suez Canal by developed inland pipeline networks nationwide especially for connection route between the Red and Mediterranean Seas:
- This is at first sight not issue of the pipelines, but the negative impact seems to bring back to the both parties, provided that there is price competition. In fact, there are many oil gas fields inside the Gulf of Suez along fairway toward to Suez Canal as well as the Mediterranean Sea near the Canal. The conflict of interest should be mitigated before it would be an issue.

- Anticipated scale down and/or liquidation of the relevant oil pipeline infrastructures currently operated to be affected by oil underproduction or desiccation might happen:

- In the situation that provided oil reserves declines, oil is in tendency of underproduction in Egypt, even through the consumption increases. This creates a rest of the relevant oil infrastructures, which may bring reduction/scale down of the infrastructures.

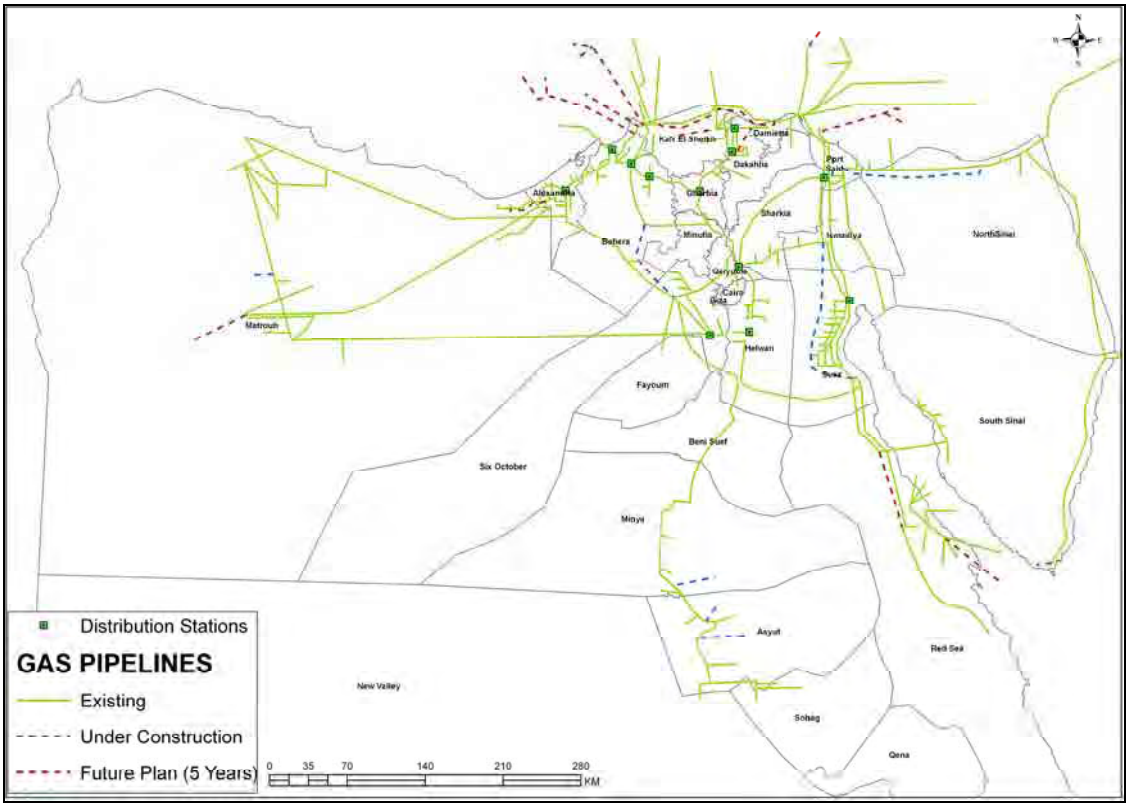
- Making probable constraint to other existing and development infrastructures by change, improvement/development of the existing/new gas pipeline networks have been extremely implemented by the encouragement of MOP policy:



Note: Information of natural gas pipelines should be referred to major pipeline network (Gas) even some appear in the above figure

Source: MOP/EGPC

Figure 3.6.1 Major Pipeline Networks (Oil)



Source: EGAS

Figure 3.6.2 Major Pipeline Networks (Gas)

Under the encouragement of the Egyptian Government, the development of gas infrastructures is not negligible. The development currently implementing at urban and/semi-urban areas and may give some difficulty without proper coordination.

- Expected increase of traffic volume depending on frequency of transferring oil and/or gas to remote areas by using tank lorries, where the pipeline transportation is not commercially profitable:

This difficulty is directly related to road congestion but it can't be avoided in commercial basis operation. In such situation anticipated, some coordination is required between transport and petroleum sectors in the Government.

- Less coordination and/or involvement to tackle impact studies and policy makings within the Government body in relation to sector's concerns, especially among the Government body:

It is essential to have a close coordination between MOP and MOT in respect of energy policy and transportation policies. Also, environmental sector in the Government is to be involved for international environmental concerns.

APPENDIX

1. List of Airport Layout (24 civil use airports in Egypt)
2. Type of Traffic Permitted to Use the Aerodrome
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Appendix 1 List of Airport Layout

Name	ICAO Code	Coordinates	AIP Classification	Operator	Runway Designation	Runway Dimensions [length x width] [m]
Abu Simbel	HEBL	22.37583 N 31.61167 E	National	EAC	15/33	3,000x45
Al Alamain	HEAL	30.92444 N 28.46139 E	Primary	INTL Airports Company	13/31	3,500x45
Alexandria Int'l (Al Nozha)	HEAX	31.18167 N 29.94639 E	Primary	EAC	04/22 18/36	2,201x45 1,801x30
Almaza Airfirce Base	HEAZ	30.09194 N 31.35972 E	Secondary	Egyptian Air force	18/36 05/23	2,050x45 1,240x50
Aswan International	HESN	23.96444 N 32.82000 E	Primary	EAC	17/35	3,402x45
Asyut International	HEAT	27.04639 N 31.01194 E	Secondary	EAC	13/31	3,019x45
Borg El Arab International	HEBA	30.91806 N 29.69583 E	Primary	EAC	14/32	3,400x45
Cairo International	HECA	30.10111 N 31.41389 E	Primary	CAC	05R/23L 05C/23C 05L/23R 16/34	4,000x60 3,999x60 3,301x60 3,178x60
Dakhla	HEDK	25.41167 N 29.00167 E	National	EAC	15/33	2,489x45
El Arish International	HEAR	31.07333 N 33.83583 E	Secondary	EAC	16/34	3,019x45
El Gora	HEGR	31.07333 N 34.14944 E	National	EAC	08/26 17/35	2,400x30 2,400x45
El Gouna	HEGO	27.36687 N 33.66816 E	National	DG of Airport, El Gouna Resort	16/34	1,600 x 30
El Kharga	HEKG	25.47361 N 30.59083 E	National	EAC	18/36	3,500x45
El Tor	HETR	28.21222 N 33.63056 E	National	EAC	10/28	3,000x45
Hurghada International	HEGN	27.17861 N 33.80083 E	Primary	EAC	16/34	4,000x45
Luxor International	HELX	25.67083 N 32.70639 E	Primary	EAC	02/20	3,000x45
Marsa Alam International	HEMA	25.55722 N 34.58361 E	Primary	EMAK Marsa Alam Company	15/33	3,000x45
Mersa Matruh	HEMM	31.32528 N 27.22167 E	National	EAC	06/24 15/33	3,000x45 3,000x45
October	HEOC	29.81222 N 30.82333 E	National	EAC	01/19	2,000x35
Port Said	HEPS	31.27944 N 32.24000 E	Secondary	EAC	10/28	2,349x45
Shark El Oweinat International	HEOW	22.58333 N 28.71611 E	Secondary	EAC	01/19	3,500x45
Sharm El Sheikh International	HESH	27.97861 N 34.39333 E	Primary	EAC	04R/22L 04L/22R	3,081x45 3,081x45
St Catherine International	HESC	28.68528 N 34.06250 E	Secondary	EAC	17/35	2,115x36
Taba International	HETB	29.58778 N 34.77806 E	Secondary	EAC	04/22	4,000x45

Source: AIP Egypt AD 1.3-1, 11 MARCH 2010

Appendix 2 Type of Traffic Permitted to Use the Aerodrome

	Name	Clacification	International	National	Scheduled	Non-Scheduled	Private
1	Al Alamain**	Primary					
2	Alexandria International (Al Nozha)	Primary	✓	✓	✓	✓	✓
3	Aswan International	Primary	✓	✓	✓	✓	✓
4	Borg El Arab International	Primary	✓		✓	✓	✓
5	Cairo International	Primary	✓	✓	✓	✓	✓
6	Hurghada International	Primary	✓	✓	✓	✓	✓
7	Luxor International	Primary	✓	✓	✓	✓	✓
8	Marsa Alam International	Primary	✓	✓	✓	✓	✓
9	Sharm El Sheikh International	Primary	✓	✓	✓	✓	✓
1	Almaza Air force Base	Secondary	✓	✓		✓	✓
2	Asyut International	Secondary	✓	✓	✓	✓	✓
3	El Arish International	Secondary	✓	✓	✓	✓	✓
4	Port Said	Secondary	✓	✓	✓	✓	✓
5	Shark El Oweinat International	Secondary	✓	✓	✓	✓	✓
6	St Catherine International	Secondary	✓	✓	✓	✓	✓
7	Taba International	Secondary	✓	✓	✓	✓	✓
1	Abu Simbel	National		✓	✓	✓	✓
2	Dakhla	National		✓	✓	✓	✓
3	El Gora	National		✓		✓	✓
4	El Gouna**	National					
5	El Kharga	National		✓	✓	✓	✓
6	El Tor	National		✓		✓	✓
7	Mersa Matruh	National		✓	✓	✓	✓
8	October	National		✓			✓

Source: AIP Egypt AD 1.3-1, 01 JAN 2009

Note: ** Type of traffic permitted to use the aerodrome at Al Alamain International Airport and El Gouna Airport were not indicated in AIP

Appendix 3 International Passenger by Country

Airport	Scheduled								Non-Scheduled												Grand Total	Share (%)
	Cairo	Sharm El Shaeikh	Hurghada	Luxor	Alexandria	Borg El Arab	Sub Total	Share (%)	Cairo	Sharm El Shaeikh	Hurghada	Luxor	Aswan	Alexandria	El-Alamain	Borg El Arab	Marsa Alam	Taba	Sub Total	Share (%)		
Europe	3,281,696	786,785	703,295	146,479	32,476	26,916	4,977,647	35.46%	184,381	5,444,232	5,332,316	838,484	40,217	3,138	33,296	7,003	784,388	379,658	13,047,113	98.22%	18,024,760	65.97%
Albania								0.00%		7,251									7,251	0.05%	7,251	0.03%
Armenian								0.00%		5,597									5,597	0.04%	5,597	0.02%
Austria	132,591	17,520	25,148	10,507			185,766	1.32%	357	65,090	205,822	15,113					20,560	2,906	309,848	2.33%	495,614	1.81%
Azerbaijan								0.00%		1,043									1,043	0.01%	1,043	0.00%
Belarus								0.00%		15,942	29,007					69			45,018	0.34%	45,018	0.16%
Belgium	54,472	41,283	8,417	49,031			153,203	1.09%		88,107	128,628	19,897				215	37,127	25,624	299,598	2.26%	452,801	1.66%
Bosnia								0.00%			3,487								3,487	0.03%	3,487	0.01%
Bulgaria								0.00%	5	1,899	12,413	380							14,697	0.11%	14,697	0.05%
Canada								0.00%									3,574		3,574	0.03%	3,574	0.01%
Croatia								0.00%		162	157	328	173						820	0.01%	820	0.00%
Cyprus	39,466	723					40,189	0.29%	4,534	9,158							3,139		16,831	0.13%	57,020	0.21%
Czech	38,758						38,758	0.28%		97,442	275,165	1,010					1,223	54,999	429,839	3.24%	468,597	1.72%
Denmark								0.00%	2,733	64,501	49,375	4,467							121,076	0.91%	121,076	0.44%
Estonia								0.00%		51,904	33,593	2,826			2,181			1,662	92,166	0.69%	92,166	0.34%
Estonia								0.00%								234			234	0.00%	234	0.00%
Finland								0.00%		36,743	40,552	7,253				2,250			86,798	0.65%	86,798	0.32%
France	354,994		3,668	22,480			381,142	2.71%	82,411	42,831	227,306	242,890					11,120	12,762	619,320	4.66%	1,000,462	3.66%
Georgia								0.00%		1,578									1,578	0.01%	1,578	0.01%
Germany	572,513	72,428	174,349	11,020		26,916	857,226	6.11%	224	324,647	1,124,022	139,812		1,514		182	131,059	242	1,721,702	12.96%	2,578,928	9.44%
Greece	202,229				32,476		234,705	1.67%	1,738	2,130	3,304	2,292	142	972	5	384			10,967	0.08%	245,672	0.90%
Hungary	37,661						37,661	0.27%		25,556	68,181							9,154	102,891	0.77%	140,552	0.51%
Ireland								0.00%		29,634		5,528							35,162	0.26%	35,162	0.13%
Italy	473,904	24,583		11,602			510,089	3.63%	15,839	1,073,612	119,302	78,683		179	31,110		456,141	5,404	1,780,270	13.40%	2,290,359	8.38%
Kazakhstan								0.00%		18,282									18,282	0.14%	18,282	0.07%
Latvia			9,501				9,501	0.07%		26,657	23,812								50,469	0.38%	59,970	0.22%
Lithuania								0.00%		44,679	84,579								129,258	0.97%	129,258	0.47%
Luxembourg								0.00%		8,075	23,285	5,379							36,739	0.28%	36,739	0.13%
Macedonia								0.00%		4,079	2,192								6,271	0.05%	6,271	0.02%
Malta	3,060						3,060	0.02%												0.00%	3,060	0.01%
Netherlands	224,652						224,652	1.60%		109,558	191,461	30,190					20,235	23,994	375,438	2.83%	600,090	2.20%
Norway								0.00%		49,324	18,514								67,838	0.51%	67,838	0.25%
Poland			11,652				11,652	0.08%		398,424	439,532	174					145	2,382	840,657	6.33%	852,309	3.12%
Portugal	17,008						17,008	0.12%	561										561	0.00%	17,569	0.06%
Romania	18,295						18,295	0.13%		12,974	35,455	171							48,600	0.37%	66,895	0.24%
Russian	57,392	358,608	376,878				792,878	5.65%	243	1,142,511	1,160,388	13					19,213	18,110	2,340,478	17.62%	3,133,356	11.47%
Serbia								0.00%		12,165	39,622								51,787	0.39%	51,787	0.19%
Slovakia								0.00%		13,112	108,738							15,398	137,248	1.03%	137,248	0.50%
Slovenia								0.00%	370	19,221	18,284	352							38,227	0.29%	38,227	0.14%
Spain	178,081			13,539			191,620	1.36%	54,902		668	54,555	34,338			57			144,520	1.09%	336,140	1.23%
Sweden								0.00%		67,200							185	504	67,889	0.51%	67,889	0.25%
Sweden								0.00%			230,141					25			230,166	1.73%	230,166	0.84%
Switzerland	181,123	16,689	84,394	5,142			287,348	2.05%		126,733	155,077	11,477	658	11			23,681	10,750	328,387	2.47%	615,735	2.25%
Turkey	235,134						235,134	1.67%	20,464	9,379	864	1,225	272	462		1,484			34,150	0.26%	269,284	0.99%
Ukraine	13,919						13,919	0.10%		442,138	308,529							71,633	822,300	6.19%	836,219	3.06%
United Kingdom	444,424	254,951	9,288	23,158			731,821	5.21%		994,894	170,861	214,469	4,634			2,103	56,986	124,134	1,568,081	11.80%	2,299,902	8.42%
Uzbekistan	2,020						2,020	0.01%												0.00%	2,020	0.01%
Middle East	5,442,804	106,517	224	231,490	872,228	128,343	6,781,606	48.31%	34,232	141,601	3,301	1,376	1,561	14,647		10,031			206,749	1.56%	6,988,355	25.58%
Bahrain	228,426			1,488	27,801		257,715	1.84%	1,094										1,094	0.01%	258,809	0.95%
Iraq	32,806						32,806	0.23%												0.00%	32,806	0.12%
Israel	44,289						44,289	0.32%												0.00%	44,289	0.16%
Jordan	327,473	13,411			24,933		365,817	2.61%	9,324	114,291	1,834	947	195			1,484			126,591	0.95%	492,408	1.80%
Kuwait	524,204	48,643		143,404	206,739		922,990	6.57%	6,436	1,758	215	74		14		8,283			16,780	0.13%	939,770	3.44%
Lebanon	206,933				1,822		208,755	1.49%	316	5,307	273	51							5,947	0.04%	214,702	0.79%
Oman	100,409						100,409	0.72%	797		332								1,129	0.01%	101,538	0.37%
Qatar	270,793	361		47,207	45,356		363,717	2.59%			345								345	0.00%	364,062	1.33%
Saudi Arabia	2,326,036	44,099	224	9,764	317,838	44,327	2,742,288	19.53%	14,253	9,881	162	168	1,366	13,064		1,531			40,425	0.30%	2,782,713	10.18%
Syria	199,501						199,501	1.42%	753	10,057		136							10,946	0.08%	210,447	0.77%
U.A.E	994,637	3		29,627	247,739	84,016	1,356,022	9.66%	1,259	307	140			1,569		217			3,492	0.03%	1,359,514	4.98%
Yemen	187,297						187,297	1.33%												0.00%	187,297	0.69%
Africa	1,374,217				138,551	11,599	1,524,367	10.86%	5,309	5,221	987	15,671				2,368			29,556	0.22%	1,553,923	5.69%
Algeria	93,832						93,832	0.67%	96		900								996	0.01%	94,828	0.35%
Cameroon								0.00%	124										124	0.00%	124	0.00%
Eritrea	19,467						19,467	0.14%				33							33	0.00%	19,500	0.07%
Ethiopia	51,349						51,349	0.37%			87								87	0.00%	51,436	0.19%
Ghana	23,864						23,864	0.17%	579										579	0.00%	24,443	0.09%
Kenya	70,559						70,559	0.50%		5,203		5,160							10,363	0.08%	80,922	0.30%
Libyan Arab J.	428,836				138,551	11,599	578,986	4.12%	3,920	18		3,510				2,368			9,816	0.07%	588,802	2.16%
Morocco	101,603						101,603	0.72%												0.00%	101,603	0.37%
Nigeria	78,345						78,345	0.56%												0.00%	78,345	0.29%
South Africa	100,275						100,275	0.71%												0.00%	100,275	0.37%
Sudan	329,403						329,403	2.35%	505										505	0.00%	329,908	1.21%
Tanzania								0.00%				6,788							6,788	0.05%	6,788	0.02%
Tunis								0.00%				180							180	0.00%	180	0.00%
Tunisia	64,049						64,049	0.46%												0.00%	64,049	0.23%
Uganda	12,635						12,635	0.09%	85										85	0.00%	12,720	0.05%
Asia	482,815			6,905			489,720	3.49%												0.00%	489,720	1.79%
China	72,532						72,532	0.52%												0.00%	72,532	0.27%
India	24,977						24,977	0.18%												0.00%	24,977	0.09%
Japan	117,858			6,905			124,763	0.89%												0.00%	124,763	0.46%
Korea	52,318						52,318	0.37%												0.00%	52,318	0.19%
Malaysia	36,761						36,761	0.26%												0.00%	36,761	0.13%
Singapore	71,762						71,762	0.51%												0.00%	71,762	0.26%
Thailand	106,607						106,607	0.76%												0.00%	106,607	0.39%
North America	265,078						265,078	1.89%												0.00%	265,078	0.97%
Canada	8,964						8,964	0.06%												0.00%	8,964	0.03%
USA	256,114						256,114	1.82%												0.00%	256,114	0.94%
Total	10,846,610	893,302	703,519	384,874	1,043,255	166,858	14,038,418	100.0%	223,922	5,591,054	5,336,604	855,531	41,778	17,785	33,296	19,402	784,388	379,658	13,283,418	100.0%	27,321,836	100.0%

Source: Annual Statistical Report 2008, Ministry of Civil Aviation Authority (MCAA)

Appendix 4 List of Radio Navigation Aids/Systems in Egypt

Name of Station (VOR/VAR)	ID	Frequency (CH)	Hours of Operation	Coordinates	Elevation of DME Antenna	Remarks
Abu Simbel VOR/DME (2ºE)	SML	113.500 MHz (CH82X)	H24	22 21 18 N 031 37 19 E	640 FT	Range 200NM
Alexandria VOR/DME (3ºE)	AXD	115.900 MHz (CH106X)	H24	31 11 13 N 029 57 01 E	10 FT	Range 150NM
Aswan VOR/DME (3ºE)	ASN	112.300 MHz (CH70X)	H24	23 58 18N 032 49 01 E	668 FT	Range 150NM
Asyut VOR/DME(3ºE)	AST	117.700 MHz (CH124X)	H24	27 01 52 N 031 01 57 E	850 FT	Range 200NM
Baltim VOR/DME(3ºE)	BLT	116.900 MHz (CH116X)	H24	31 31 44 N 031 07 21 E	10 FT	Range 200NM
Borg El Arab NDB (3ºE)	DJ	563 KHz	H24	30 52 36 N 029 43 54 E	NIL	Range 100NM
Cairo DVOR/DME (3ºE)	CAI	112.500 MHz (CH72X)	H24	30 09 07 N 031 25 26 E	200 FT	Range 150NM
Cairo VOR/DME (3ºE)	CVO	115.200 MHz (CH99X)	H24	30 05 32 N 031 23 18 E	460 FT	Range 150NM
Dakhla NDB (2ºE)	MB	387 KHz	SR/SS	25 25 15 N 029 00 05 E	580 FT	Range 100NM
El Arish VOR/DME (3ºE)	ARH	113.600 MHz (CH83X)	H24	31 04 23 N 033 49 55 E	140 FT	Range 150NM
El Daba VOR/DME (3ºE)	DBA	115.700 MHz (CH 104X)	H24	31 00 41 N 028 28 01 E	110 FT	Range 150NM
El Kharga VOR/DME (2ºE)	KHG	113.800 MHz (CH 85X)	H24	25 27 11 N 030 35 27 E	137 FT	Range 150NM
Fayoum VOR/DME(3ºE)	FYM	117.300 MHz (CH120X)	H24	29 23 51 N 030 23 35 E	50 FT	Range 150NM
Hurghada VOR/DME (3ºE)	HGD	116.500 MHz (CH112X)	H24	27 10 35 N 033 48 49 E	70 FT	Range 100NM
Luxor VOR/DME (3ºE)	LXR	114.400 MHz (CH91X)	H24	25 44 58 N 032 46 07 E	332 FT	Range 150NM
Marsa Alam DVOR/DME (3ºE)	MAK	115.500 MHz (CH102X)	H24	25 34 58 N 034 33 56 E	265 FT	Range 25NM
Mersa Matruh DVOR/DME (3ºE)	MMA	116.400 MHz (CH111X)	H24	31 19 11 N 027 13 20 E	93 FT	NIL
Nuweibaa NDB (3ºE)	NWB	288 KHz	H24	29 01 56 N 034 40 16 E	70 FT	Range 150NM
Port Said DVOR/DME (4ºE)	PSD	112.700 MHz (CH74X)	H24	31 16 44 N 032 14 16 E	30 FT	Range 200NM
Saint Catherine NDB (4ºE)	CAT	262 KHz	H24	28 41 04 N 034 03 36 E	4440 FT	Range 150NM
Shark El Oweinat NDB (1ºE)	OWT	301 KHz	SR/SS	22 34 46 N 028 43 13 E	870 FT	Range 100NM
Sharm El Sheikh DVOR/DME(4ºE)	SHM	114.200 MHz (CH89X)	H24	27 59 53 N 034 24 48 E	130 FT	Range 200NM
Sidi Barrani VOR/DME (3ºE)	BRN	116.200 MHz (CH109X)	H24	31 34 32 N 026 00 20 E	120 FT	Range 150NM
Taba VOR/DME (4ºE)	TBA	114.500 MHz (CH92X)	H24	29 36 24 N 034 47 51 E	2430 FT	Range 150NM

Source: ENR 4.1-2 AIP A.R.E. 01 SEP 2008

Appendix 5 List of Airline Companies in Egypt

Airport	Scheduled								Non-Scheduled												Grand Total	Share (%)
	Cairo	Sharm El Shaeikh	Hurghada	Luxor	Alexandria	Borg El Arab	Sub Total	Share (%)	Cairo	Sharm El Shaeikh	Hurghada	Luxor	Aswan	Alexandria	El-Alamain	Borg El Arab	Marsa Alam	Taba	Sub Total	Share (%)		
Europe	3,281,696	786,785	703,295	146,479	32,476	26,916	4,977,647	35.46%	184,381	5,444,232	5,332,316	838,484	40,217	3,138	33,296	7,003	784,388	379,658	13,047,113	98.22%	18,024,760	65.97%
Albania								0.00%		7,251									7,251	0.05%	7,251	0.03%
Armenian								0.00%		5,597									5,597	0.04%	5,597	0.02%
Austria	132,591	17,520	25,148	10,507			185,766	1.32%	357	65,090	205,822	15,113					20,560	2,906	309,848	2.33%	495,614	1.81%
Azerbaijan								0.00%		1,043									1,043	0.01%	1,043	0.00%
Belarus								0.00%		15,942	29,007					69			45,018	0.34%	45,018	0.16%
Belgium	54,472	41,283	8,417	49,031			153,203	1.09%		88,107	128,628	19,897				215	37,127	25,624	299,598	2.26%	452,801	1.66%
Bosnia								0.00%			3,487								3,487	0.03%	3,487	0.01%
Bulgaria								0.00%	5	1,899	12,413	380							14,697	0.11%	14,697	0.05%
Canada								0.00%									3,574		3,574	0.03%	3,574	0.01%
Croatia								0.00%		162	157	328	173						820	0.01%	820	0.00%
Cyprus	39,466	723					40,189	0.29%	4,534	9,158							3,139		16,831	0.13%	57,020	0.21%
Czech	38,758						38,758	0.28%		97,442	275,165	1,010					1,223	54,999	429,839	3.24%	468,597	1.72%
Denmark								0.00%	2,733	64,501	49,375	4,467							121,076	0.91%	121,076	0.44%
Estonia								0.00%		51,904	33,593	2,826			2,181			1,662	92,166	0.69%	92,166	0.34%
Estonia								0.00%								234			234	0.00%	234	0.00%
Finland								0.00%		36,743	40,552	7,253				2,250			86,798	0.65%	86,798	0.32%
France	354,994		3,668	22,480			381,142	2.71%	82,411	42,831	227,306	242,890					11,120	12,762	619,320	4.66%	1,000,462	3.66%
Georgia								0.00%		1,578									1,578	0.01%	1,578	0.01%
Germany	572,513	72,428	174,349	11,020		26,916	857,226	6.11%	224	324,647	1,124,022	139,812		1,514		182	131,059	242	1,721,702	12.96%	2,578,928	9.44%
Greece	202,229				32,476		234,705	1.67%	1,738	2,130	3,304	2,292	142	972	5	384			10,967	0.08%	245,672	0.90%
Hungary	37,661						37,661	0.27%		25,556	68,181							9,154	102,891	0.77%	140,552	0.51%
Ireland								0.00%		29,634		5,528							35,162	0.26%	35,162	0.13%
Italy	473,904	24,583		11,602			510,089	3.63%	15,839	1,073,612	119,302	78,683		179	31,110		456,141	5,404	1,780,270	13.40%	2,290,359	8.38%
Kazakhstan								0.00%		18,282									18,282	0.14%	18,282	0.07%
Latvia			9,501				9,501	0.07%		26,657	23,812								50,469	0.38%	59,970	0.22%
Lithuania								0.00%		44,679	84,579								129,258	0.97%	129,258	0.47%
Luxembourg								0.00%		8,075	23,285	5,379							36,739	0.28%	36,739	0.13%
Macedonia								0.00%		4,079	2,192								6,271	0.05%	6,271	0.02%
Malta	3,060						3,060	0.02%												0.00%	3,060	0.01%
Netherlands	224,652						224,652	1.60%		109,558	191,461	30,190					20,235	23,994	375,438	2.83%	600,090	2.20%
Norway								0.00%		49,324	18,514								67,838	0.51%	67,838	0.25%
Poland			11,652				11,652	0.08%		398,424	439,532	174					145	2,382	840,657	6.33%	852,309	3.12%
Portugal	17,008						17,008	0.12%	561										561	0.00%	17,569	0.06%
Romania	18,295						18,295	0.13%		12,974	35,455	171							48,600	0.37%	66,895	0.24%
Russian	57,392	358,608	376,878				792,878	5.65%	243	1,142,511	1,160,388	13					19,213	18,110	2,340,478	17.62%	3,133,356	11.47%
Serbia								0.00%		12,165	39,622								51,787	0.39%	51,787	0.19%
Slovakia								0.00%		13,112	108,738							15,398	137,248	1.03%	137,248	0.50%
Slovenia								0.00%	370	19,221	18,284	352							38,227	0.29%	38,227	0.14%
Spain	178,081			13,539			191,620	1.36%	54,902		668	54,555	34,338			57			144,520	1.09%	336,140	1.23%
Sweden								0.00%		67,200							185	504	67,889	0.51%	67,889	0.25%
Sweden								0.00%			230,141					25			230,166	1.73%	230,166	0.84%
Switzerland	181,123	16,689	84,394	5,142			287,348	2.05%		126,733	155,077	11,477	658	11			23,681	10,750	328,387	2.47%	615,735	2.25%
Turkey	235,134						235,134	1.67%	20,464	9,379	864	1,225	272	462		1,484			34,150	0.26%	269,284	0.99%
Ukraine	13,919						13,919	0.10%		442,138	308,529							71,633	822,300	6.19%	836,219	3.06%
United Kingdom	444,424	254,951	9,288	23,158			731,821	5.21%		994,894	170,861	214,469	4,634			2,103	56,986	124,134	1,568,081	11.80%	2,299,902	8.42%
Uzbekistan	2,020						2,020	0.01%												0.00%	2,020	0.01%
Middle East	5,442,804	106,517	224	231,490	872,228	128,343	6,781,606	48.31%	34,232	141,601	3,301	1,376	1,561	14,647		10,031			206,749	1.56%	6,988,355	25.58%
Bahrain	228,426			1,488	27,801		257,715	1.84%	1,094										1,094	0.01%	258,809	0.95%
Iraq	32,806						32,806	0.23%												0.00%	32,806	0.12%
Israel	44,289						44,289	0.32%												0.00%	44,289	0.16%
Jordan	327,473	13,411			24,933		365,817	2.61%	9,324	114,291	1,834	947	195						126,591	0.95%	492,408	1.80%
Kuwait	524,204	48,643		143,404	206,739		922,990	6.57%	6,436	1,758	215	74		14		8,283			16,780	0.13%	939,770	3.44%
Lebanon	206,933				1,822		208,755	1.49%	316	5,307	273	51							5,947	0.04%	214,702	0.79%
Oman	100,409						100,409	0.72%	797		332								1,129	0.01%	101,538	0.37%
Qatar	270,793	361		47,207	45,356		363,717	2.59%			345								345	0.00%	364,062	1.33%
Saudi Arabia	2,326,036	44,099	224	9,764	317,838	44,327	2,742,288	19.53%	14,253	9,881	162	168	1,366	13,064		1,531			40,425	0.30%	2,782,713	10.18%
Syria	199,501						199,501	1.42%	753	10,057		136							10,946	0.08%	210,447	0.77%
U.A.E	994,637	3		29,627	247,739	84,016	1,356,022	9.66%	1,259	307	140			1,569		217			3,492	0.03%	1,359,514	4.98%
Yemen	187,297						187,297	1.33%												0.00%	187,297	0.69%
Africa	1,374,217				138,551	11,599	1,524,367	10.86%	5,309	5,221	987	15,671				2,368			29,556	0.22%	1,553,923	5.69%
Algeria	93,832						93,832	0.67%	96		900								996	0.01%	94,828	0.35%
Cameroon								0.00%	124										124	0.00%	124	0.00%
Eritrea	19,467						19,467	0.14%				33							33	0.00%	19,500	0.07%
Ethiopia	51,349						51,349	0.37%			87								87	0.00%	51,436	0.19%
Ghana	23,864						23,864	0.17%	579										579	0.00%	24,443	0.09%
Kenya	70,559						70,559	0.50%		5,203		5,160							10,363	0.08%	80,922	0.30%
Libyan Arab J.	428,836				138,551	11,599	578,986	4.12%	3,920	18		3,510				2,368			9,816	0.07%	588,802	2.16%
Morocco	101,603						101,603	0.72%												0.00%	101,603	0.37%
Nigeria	78,345						78,345	0.56%												0.00%	78,345	0.29%
South Africa	100,275						100,275	0.71%												0.00%	100,275	0.37%
Sudan	329,403						329,403	2.35%	505										505	0.00%	329,908	1.21%
Tanzania								0.00%				6,788							6,788	0.05%	6,788	0.02%
Tunis								0.00%				180							180	0.00%	180	0.00%
Tunisia	64,049						64,049	0.46%												0.00%	64,049	0.23%
Uganda	12,635						12,635	0.09%	85										85	0.00%	12,720	0.05%
Asia	482,815			6,905			489,720	3.49%												0.00%	489,720	1.79%
China	72,532						72,532	0.52%												0.00%	72,532	0.27%
India	24,977						24,977	0.18%												0.00%	24,977	0.09%
Japan	117,858			6,905			124,763	0.89%												0.00%	124,763	0.46%
Korea	52,318						52,318	0.37%												0.00%	52,318	0.19%
Malaysia	36,761						36,761	0.26%												0.00%	36,761	0.13%
Singapore	71,762						71,762	0.51%												0.00%	71,762	0.26%
Thailand	106,607						106,607	0.76%												0.00%	106,607	0.39%
North America	265,078						265,078	1.89%												0.00%	265,078	0.97%
Canada	8,964						8,964	0.06%												0.00%	8,964	0.03%
USA	256,114						256,114	1.82%												0.00%	256,114	0.94%
Total	10,846,610	893,302	703,519	384,874	1,043,255	166,858	14,038,418	100.0%	223,922	5,591,054	5,336,604	855,531	41,778	17,785	33,296	19,402	784,388	379,658	13,283,418	100.0%	27,321,836	100.0%

Source: Annual Statistical Report 2008, Ministry of Civil Aviation Authority (MCAA)

Appendix 6 List of Airline Companies in Egypt

First: Organized and Charter air companies			Second: Air taxi companies			Third: Private			Fourth: Balloon Companies		
Item	Company	Fleet	Item	Company	Fleet	Item	Company	Fleet	Item	Company	Fleet
1	EgyptAir Holding Company	64	1	Alkan Air	2	1	Hussein Tohamy	1	1	Magic Horizon	6
2	Air Cairo	4	2	Oraskom	1	2	Sahar Farouq amen	1	2	Solomon hoopoe	8
3	Cairo Aviation	4	3	Petroleum Services	43				3	Egyptian Airship Air	7
4	Aircrafts Manitenance	5	4	Legend Of The Nile	1				4	Sindbad	8
5	Air Memphis	4	5	National Overseas	1				5	Viking Air	5
6	Luxor Air	0	6	Travco Air	0				6	Alaska	5
7	Lotus Air	4	7	Executive Wings	1				7	Empress	1
8	Tristar	1	8	Mesa Air	1				8	Dream	2
9	Palestinian Airlines	2	9	EgyptAir	1				9	Horus	2
10	Alexandria Airlines	1	10	National Aviation	2						
11	Euro Mediterranean Airlines	0	11	Smart	5						
12	Coral Bliye	3	12	Fast Link	0						
13	Sun Air	0									
14	Enka	1									
15	AlMasria Universal Airlines	2									
16	Midwest Airlines	1									
17	Nile Air	2									
18	Air Arabia - Egypt	1									
	Total	99		Total	58		Total	2		Total	44

Source : Ministry of Civil Aviation Authority (MCAA)

Appendix 7 Air Passengers at Each Airport from 1985 to 2009

	Year	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Primary Airports	Al Alamain	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	18.0	29.0	28.0	31.1
	Alexandria (Al Nozha)	162.5	116.0	130.4	135.8	165.9	178.9	141.8	192.7	236.5	291.0	A	278.0	323.3	337.0	372.3	263.5	219.5	334.0	337.0	447.0	534.0	620.0	795.0	1,163.0	1,142.4
	Aswan	651.8	550.3	887.1	1,089.3	1,156.4	1,023.5	699.2	1,418.6	710.0	467.4	591.0	783.8	825.3	731.9	1,391.3	1,666.5	1,058.6	834.0	844.0	1,167.0	1,032.0	874.0	979.0	1,107.0	864.2
	Borg El Arab	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.6	169.6	118.0	139.0	90.0	125.0	231.0	236.0	189.0	371.6
	Cairo	6,452.8	5,280.9	6,178.6	6,890.3	7,725.0	7,493.6	5,955.5	7,637.4	6,324.1	6,630.3	7,177.0	7,900.1	7,727.8	7,129.0	8,270.6	8,777.5	8,228.2	8,393.0	8,337.0	9,534.0	10,220.0	10,778.0	12,577.0	13,506.0	14,382.0
	Hurghada	96.2	89.6	113.1	132.0	191.2	223.6	234.9	432.5	448.8	665.9	1,112.5	1,536.3	1,474.0	1,215.3	2,364.8	2,730.3	2,683.6	3,049.0	3,398.0	4,576.0	4,525.0	4,834.0	5,948.0	6,743.0	6,730.1
	Luxor	675.4	630.7	949.5	1,063.2	1,285.7	1,358.5	1,011.7	2,268.6	1,396.5	820.0	1,337.6	1,825.3	2,003.5	1,170.4	1,908.7	2,250.0	1,858.2	1,831.0	1,657.0	2,129.0	2,273.0	2,052.0	1,978.0	2,165.0	1,872.1
	Marsa Alam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	170.0	271.0	430.0	496.0	500.0	643.0	815.0	938.9
	Sharm El Sheikh	12.5	8.9	26.0	41.1	53.2	60.1	68.7	209.3	252.7	428.0	633.6	780.0	989.9	1,060.6	1,743.0	2,251.5	2,220.2	2,920.0	3,423.0	4,594.0	4,756.0	5,059.0	6,425.0	7,759.0	7,430.9
Secondary Airport	Asyut	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	23.8	26.1	25.3	31.7	49.0	46.0	64.0	73.0	92.0	133.0	329.0	258.9
	El Arish	7.4	5.6	4.1	1.5	2.5	1.6	1.2	1.2	3.0	2.4	18.0	11.3	10.2	17.9	1.1	2.6	24.2	15.0	14.0	12.0	24.0	15.0	3.0	1.0	9.3
	Port Said	2.9	2.2	1.5	0.5	1.0	0.4	0.1	4.3	8.2	9.7	20.8	22.7	25.5	16.9	15.7	18.4	17.8	19.0	27.0	36.0	51.0	54.0	52.0	43.0	30.2
	Sharm El Oweinat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.2	1.7	4.1	3.0	3.0	3.0	2.0	3.0	5.0	8.0	8.0
	St. Catherine	9.6	7.2	4.7	4.4	8.2	2.9	0.8	1.0	1.7	1.0	0.6	0.4	1.8	0.2	0.3	1.6	0.8	0.2	0.2	1.0	1.0	1.0	1.0	1.0	0.8
	Taba	10.9	6.5	8.3	4.4	6.0	5.1	4.4	10.0	14.5	9.2	3.4	10.5	1.9	13.7	2.6	2.7	10.8	41.0	67.0	103.0	150.0	210.0	306.0	448.0	340.2
National Airport	Abu Simbel	362.4	318.3	447.1	545.9	572.0	537.6	309.6	646.3	258.8	179.0	246.4	324.3	372.1	370.4	1,023.8	1,238.6	828.1	547.0	541.0	759.0	650.0	499.0	538.0	634.0	449.2
	Dakhla	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	5.8	6.2	2.8	0.2	1.0	0.2	0.2	0.2	0.2	0.2	0.7
	El Kharga	13.5	16.0	17.4	13.8	14.2	16.1	3.7	8.3	8.8	11.5	11.6	11.4	11.3	10.0	8.5	11.6	10.3	10.0	10.0	0.2	0.2	2.0	3.0	4.0	4.3
	El Tor	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	0.0	1.3	6.2	2.0	9.0	10.0	13.0	0.2	0.2	0.2	0.0
	Marsa Matruh	4.2	4.8	3.3	4.4	3.6	7.0	8.0	12.8	11.7	1.1	10.8	10.5	1.9	13.7	20.1	22.3	16.2	28.0	19.0	19.0	21.0	42.0	50.0	43.0	71.7
	Grand Total	8,462.1	7,037.0	8,771.1	9,926.6	11,184.9	10,908.9	8,439.6	12,843.0	9,675.3	9,516.4	11,163.2	13,499.6	13,773.6	12,112.1	17,155.0	19,363.4	17,393.1	18,363.4	19,143.2	23,974.4	24,946.6	25,884.4	30,701.4	34,986.4	34,936.6

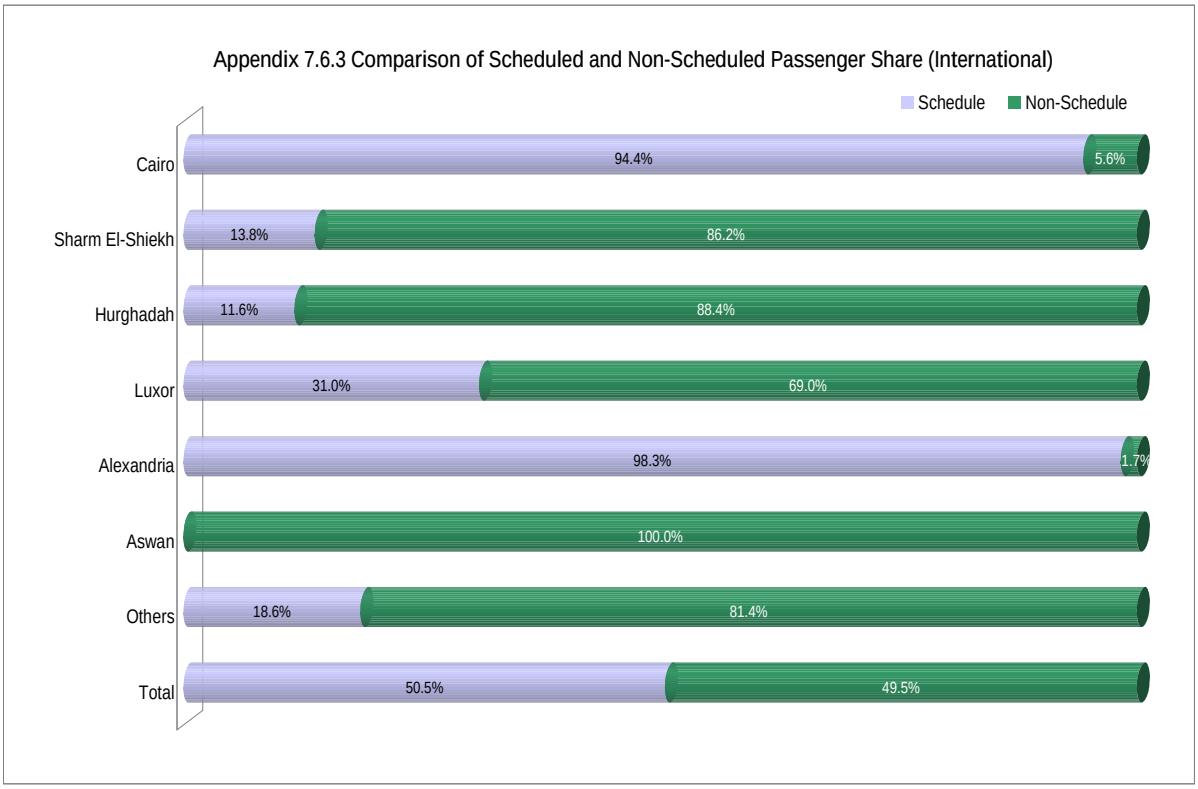
Source: JICA Study Team based on Ministry of Civil Aviation and Egyptian Airport Company data.

Appendix 8 Traffic Movement at Each Airport in 2009

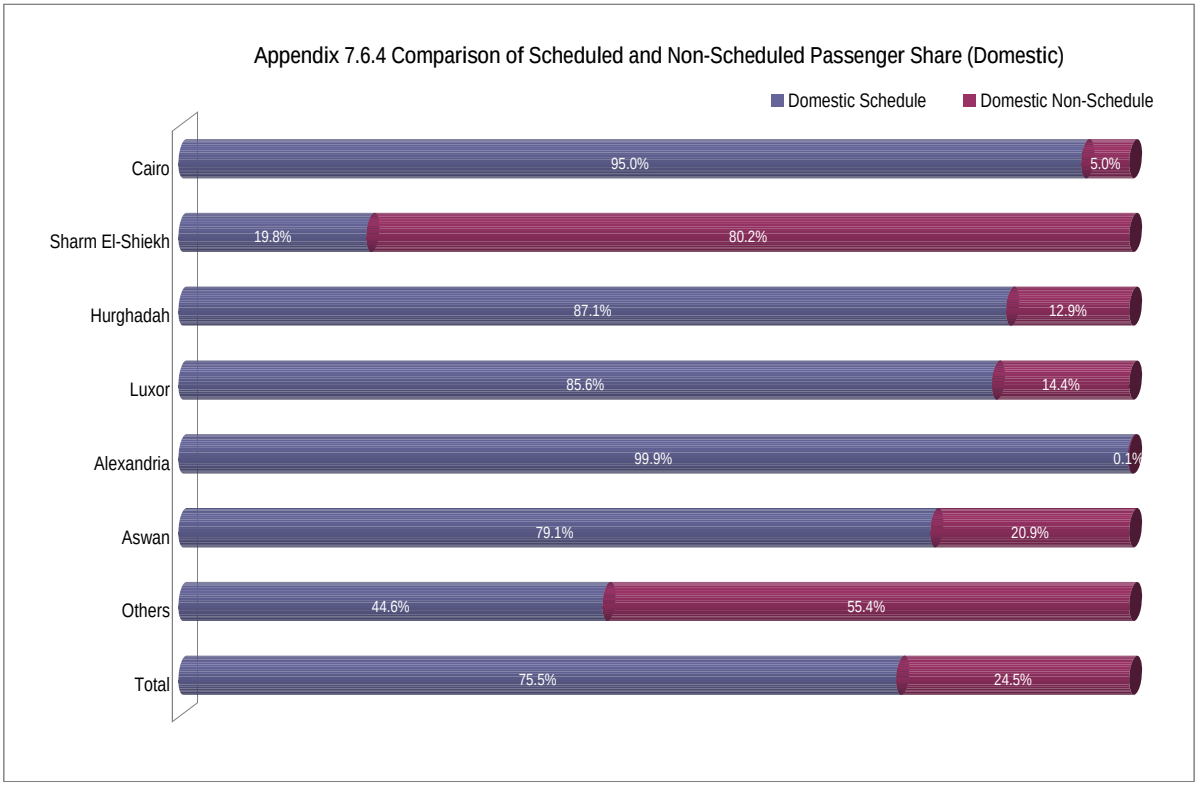
Airport	Flights				Total Flights		Passengers				Total Pax	
	International		Domestic				International		Domestic			
	Arr.	Dep.	Arr.	Dep.	Int'l	Dom	Arr.	Dep.	Arr.	Dep.	Int'l	Dom
Cairo	48,833	49,472	22,244	21,806	98,305	44,050	5,683,364	6,031,581	1,288,864	1,375,033	11,714,945	2,663,897
Sharm El Shiekh	20,082	20,204	6,825	6,696	40,286	13,521	3,256,728	3,210,557	484,359	467,823	6,467,285	952,182
Hurghadah	18,981	19,122	4,486	4,336	38,103	8,822	3,044,540	3,200,111	224,824	258,816	6,244,651	483,640
Luxor	5,058	4,280	5,855	6,459	9,338	12,314	567,865	403,322	427,710	448,304	971,187	876,014
Alexandria	5,196	5,248	961	908	10,444	1,869	497,176	536,110	33,213	31,406	1,033,286	64,619
Marsa Alam	3,230	3,216	524	519	6,446	1,043	450,500	447,904	19,397	21,057	898,404	40,454
Aswan	377	208	5,555	5,717	585	11,272	23,343	2,270	392,112	446,070	25,613	838,182
Abu Simbel	4	8	2,296	2,293	12	4,589	228	379	221,656	226,313	607	447,969
Borg El-Arab	1,718	1,729	54	43	3,447	97	161,367	208,264	904	619	369,631	1,523
Taba	1,156	1,100	355	409	2,256	764	167,016	168,621	2,072	2,438	335,637	4,510
Asyut	1,218	1,218	164	164	2,436	328	114,631	116,882	12,396	13,213	231,513	25,609
Marsa Matruh	205	206	210	209	411	419	26,624	26,466	9,113	9,276	53,090	18,389
Al Alamain	203	215	110	91	418	201	12,065	18,148	535	344	30,213	879
Port Said	3	2	4,150	4,160	5	8,310	26	-	13,041	17,129	26	30,170
El Arish	186	179	36	42	365	78	362	4,329	232	101	4,691	333
El Kharga	-	-	56	56	-	112	-	-	2,087	2,190	-	4,277
St. Catherine	3	2	11	13	5	24	11	24	354	355	35	709
Dakhla	-	-	11	11	-	22	-	-	275	301	-	576
Shark El Oweinat	-	-	-	-	-	-	-	-	-	-	-	-
El Tor	-	-	-	-	-	-	-	-	-	-	-	-
Total	106,453	106,409	53,903	53,932	212,862	107,835	14,005,846	14,374,968	3,133,144	3,320,788	28,380,814	6,453,932

Source: Egyptian Holding Company for Airports and Air Navigation (EHCAAN)

Appendix 9 Comparison of Scheduled and Non-Scheduled Passenger Share (International)



Appendix 10 Comparison of Scheduled and Non-Scheduled Passenger Share (Domestic)



Appendix 11 Origin and Destination of Domestic Passengers by EgyptAir in 2009

	Abu Simbel	Alexandria	Asyut	Aswan	Borg El Arab	Cairo	Hurghada	Luxor	Marsa Alam	Mersa Matruh	Sharm El Sheikh	Taba	Total
Abu Simbel				80,666		480							81,146
Alexandria						10,803							10,803
Asyut						13,291							13,291
Aswan	79,186					273,227							352,413
Borg El Arab						48							48
Cairo	4	11,373	12,568	237,597	135		188,666	360,383	16,019	1,493	301,425	84	1,129,748
Hurghada						216,847					18,439		235,286
Luxor						344,343							344,343
Marsa Alam						16,200							16,200
Mersa Matruh						1,547							1,547
Sharm El Sheikh		34,032				320,930							354,961
Taba						43							43
Total	79,190	45,405	12,568	318,263	135	1,197,759	188,666	360,383	16,019	1,493	319,864	84	2,539,829

	Abu Simbel	Alexandria	Asyut	Aswan	Borg El Arab	Cairo	Hurghada	Luxor	Marsa Alam	Mersa Matruh	Sharm El Sheikh	Taba	Total
Abu Simbel				3.18%		0.02%							3.19%
Alexandria						0.43%							0.43%
Asyut						0.52%							0.52%
Aswan	3.12%					10.76%							13.88%
Borg El Arab						0.00%							0.00%
Cairo	0.00%	0.45%	0.49%	9.35%	0.01%		7.43%	14.19%	0.63%	0.06%	11.87%	0.00%	44.48%
Hurghada						8.54%					0.73%		9.26%
Luxor						13.56%							13.56%
Marsa Alam						0.64%							0.64%
Mersa Matruh						0.06%							0.06%
Sharm El Sheikh		1.34%				12.64%							13.98%
Taba						0.00%							0.00%
Total	3.12%	1.79%	0.49%	12.53%	0.01%	47.16%	7.43%	14.19%	0.63%	0.06%	12.59%	0.00%	100.00%

Source: EgyptAir Statistical Data in 2009 (Domestic)

Appendix 12 Characteristic of Visitors from 2002 to 2007

Purpose of Visit	Number of Visitors					
	2002	2003	2004	2005	2006	2007
Recreation (Leisure)	4,736,827	5,529,329	7,532,642	7,993,236	8,435,950	10,365,999
Convention / Business	69,489	93,867	122,499	110,268	102,511	116,710
Health Treatment	73,645	77,496	80,193	69,053	68,180	84,879
Study / Training	25,810	45,395	59,250	71,769	38,956	42,440
Same - Day Visitors	285,907	298,073	309,025	363,481	437,180	480,835
Total	5,191,678	6,044,160	8,103,609	8,607,807	9,082,777	11,090,863

Mode of Visit	Number of Visitors					
	2002	2003	2004	2005	2006	2007
By Air	4,279,903	4,837,642	6,735,826	6,713,414	7,610,488	9,863,274
By Sea	437,279	457,848	487,216	1,094,081	660,339	280,323
By Road	474,496	748,670	880,567	800,312	811,950	947,266
Total	5,191,678	6,044,160	8,103,609	8,607,807	9,082,777	11,090,863

Source: Ministry of Tourism

Appendix 13 Characteristic of Visitors in 2007

Purpose of Visit	Number of Visitors	Share (%)
Recreation (Leisure)	10,365,999	93.46%
Convention / Business	116,710	1.05%
Health Treatment	84,879	0.77%
Study / Training	42,440	0.38%
Same - Day Visitors	480,835	4.34%
Total	11,090,863	100.00%

Mode of Visit	Number of Visitors	Number of Visitors
By Air	9,863,274	88.93%
By Sea	280,323	2.53%
By Road	947,266	8.54%
Total	11,090,863	100.00%

Source: Ministry of Tourism

Appendix 14 Summary of Recommendations of Egyptian Airports

	Airport Name	ICAO Code	AIP Category	Passenger Demand (Thousands)			Runway & Taxiway System					Apron & Gate Demand				Passenger Terminal Building		
				Shor Term	Middle Term	Long Term	Runway Service Volume		Recommendations	Runway Length	Taxiway	Gate Demand			Recommendations	Terminal Bulding (sq.m)		
				2015	2020	2025	Annualy	Hourly				2015	2020	2025		2015	2020	2025
1	Al Alamain	HEAL	Primary	385	531	685	-	-	-	-	-	-	-	-	-	BOT Private Operation		
2	Alexandria International (Al Nozha)	HEAX	Primary	1,089	1,358	1,624	75,000	14	Capable	Limited length	Absence of a taxiway system influences the runway occupancy time. ASV, therefore reduced.	4	5	7	Depend on the Airport Operation with Borg El Arab Int'l Airport	Considered with Borg El Arab Int'l Airport		
3	Aswan International	HESN	Primary	1,918	2,360	2,903	-	-	Capable	-	-	-	-	-	-	15,230	19,185	29,035
4	Borg El Arab International	HEBA	Primary	Cooperatively operated with Alexandria international airport			210,000	47	Capable	-	-	4	5	7	Depend on the Airport Operation with Alexandria Int'l Airport	Considered with Alexandria Int'l Airport		
5	Cairo International	HECA	Primary	19,506	22,898	26,888	230,000	57	New Runway is necessary	4,000 m x 60 m	-	28	36	43	Need to expand Apron Area	20 million per annum	19 to 22 million per annum	27 to 32 million per annum
6	Hurghada International	HEGN	Primary	7,282	8,596	9,925	152,250	41	Capable	Take-off weight penalty limitation of the "Code E" aircraft during hot days	The separation between the runway and the parallel taxiway is 165m, which is less than the ICAO standards of 182.5m for a Code 4E instrument runway	13	15	20	A "Code E" aircraft position currently exceeds capacity, but the overall demand will not exceed till 2025.	59,075	72,850	99,300
7	Luxor International	HELX	Primary	3,134	3,456	3,813	-	-	Capable	-	-	-	-	-	Capable	28,385	31,570	38,400
8	Marsa Alam International	HEMA	Primary	2,071	3,669	5,390	210,000	39	Capable	Take-off weight penalty limitation of the "Code E" aircraft during hot days	Need for a parallel taxiway	3	5	11	Gate for Code D & E exceeds capacity by 2020	BOT Private Operation		
9	Sharm El Sheikh International	HESH	Primary	10,268	12,533	14,846	187,000	41	Anticipated to exceed the current hourly capacity	Take-off weight penalty limitation of the "Code E" aircraft during hot days	Between two runways are only 450m. It does not allow for independent parallel approach nor depurture	16	26	30	Gate for Demand for aircraft positions would exceed the capacity. Apron expansions to accommodate Code C, D and E were needed by 2020	75,870	102,700	148,500
10	Almaza Air Force Base	HEAZ	Secondary	Military use			-	-	Capable	-	-	-	-	-	-	-	-	-
11	Asyut International	HEAT	Secondary	183	226	265	-	-	Capable	-	-	-	-	-	-	-	-	-
12	El Arish International	HEAR	Secondary	27	34	42	-	-	Capable	-	-	-	-	-	-	-	-	-
13	Port Said	HEPS	Secondary	13	16	20	-	-	Capable	-	-	-	-	-	-	-	-	-
14	Shark El Oweinat International	HEOW	Secondary	0	0	1	-	-	Capable	-	-	-	-	-	-	-	-	-
15	St Catherine International	HESC	Secondary	0	0	0	-	-	Capable	-	-	-	-	-	-	-	-	-
16	Taba International	HETB	Secondary	477	617	755	-	-	Capable	-	-	-	-	-	-	2,725	4,770	7,550
17	Abu Simbel	HEBL	National	1,269	1,570	1,942	-	-	Capable	-	-	-	-	-	-	10,042	12,695	19,420
18	Dakhla	HEDK	National	0	0	0	-	-	Runway Shoulder is needed for Category 4D Airport	-	-	-	-	-	-	-	-	-
19	El Gora	HEGR	National	1	1	1	-	-	Capable	-	-	-	-	-	-	-	-	-
20	El Gouna	HEGO	National	Not forecasted			-	-	-	-	-	-	-	-	-	Private Operation		
21	El Kharga	HEKG	National	0	1	1	-	-	Capable	-	-	-	-	-	-	-	-	-
22	El Tor	HETR	National	0	0	0	-	-	Capable	-	-	-	-	-	-	-	-	-
23	Mersa Matruh	HEMM	National	1	1	1	-	-	Capable	-	-	-	-	-	-	-	-	-
24	October	HEOC	National	7	9	11	-	-	Capable	-	-	-	-	-	-	-	-	-

Source: The National Airport Master Plan, Louis Berger Group, Inc. in 2006.

Appendix 15 Summary of Passenger Demand Forecast in the National Airport Master Plan

	Name	ICAO Code	AIP Category	2012				2015				2017				2020				2022				2025			
				Int'l	Dom	Other	Total	Int'l	Dom	Other	Total	Int'l	Dom	Other	Total	Int'l	Dom	Other	Total	Int'l	Dom	Other	Total	Int'l	Dom	Other	Total
1	Al Alamain	HEAL	Primary	262,911	13,146	1,183	277,240	365,093	18,255	1,643	384,991	423,103	21,155	1,904	446,162	503,923	25,196	2,268	531,387	560,866	28,043	2,524	591,433	649,273	32,464	2,922	684,659
2	Alexandria International* (Al Nozha)	HEAX	Primary	805,864	57,778	14,061	877,703	1,005,353	66,502	17,451	1,089,306	1,114,723	72,404	19,328	1,206,455	1,253,912	82,253	21,754	1,357,919	1,349,711	89,553	23,433	1,462,697	1,496,449	101,735	26,020	1,624,204
3	Aswan International	HESN	Primary	95,622	1,574,481	379	1,670,482	105,646	1,812,232	436	1,918,314	111,167	1,973,063	473	2,084,703	117,972	2,241,463	536	2,359,971	122,738	2,440,387	582	2,563,707	130,250	2,772,358	659	2,903,267
4	Borg El Arab International*	HEBA	Primary	* Borg El Arab international airport is cooperatively operated with Alexandria international airport.																							
5	Cairo International	HECA	Primary	13,421,276	3,183,912	21,631	16,626,819	15,851,879	3,628,986	25,334	19,506,199	16,842,524	3,927,681	27,010	20,797,215	18,445,771	4,422,448	29,735	22,897,954	19,598,517	4,786,452	31,706	24,416,675	21,464,108	5,389,398	34,913	26,888,419
6	Hurghada International	HEGN	Primary	5,907,468	539,825	4,595	6,451,888	6,654,986	621,340	5,186	7,281,512	7,133,433	676,482	5,566	7,815,481	7,821,257	768,505	6,122	8,595,884	8,279,807	836,708	6,497	9,123,012	8,967,630	950,527	7,068	9,925,225
7	Luxor International	HELX	Primary	1,979,087	958,408	4,669	2,942,164	2,087,986	1,041,171	4,974	3,134,131	2,162,523	1,090,533	5,171	3,258,227	2,281,414	1,168,999	5,484	3,455,897	2,364,284	1,224,421	5,704	3,594,409	2,494,267	1,312,520	6,051	3,812,838
8	Marsa Alam International	HEMA	Primary	1,327,382	87,041	799	1,415,222	1,960,998	109,297	1,170	2,071,465	2,507,741	125,728	1,488	2,634,957	3,514,355	152,537	2,072	3,668,964	4,185,430	170,112	2,461	4,358,003	5,192,044	195,252	3,044	5,390,340
9	Sharm El Sheikh International	HESH	Primary	7,530,643	1,087,509	29,128	8,647,280	8,937,879	1,295,218	34,587	10,267,684	9,736,201	1,442,787	37,784	11,216,772	10,794,701	1,696,255	42,218	12,533,174	11,507,691	1,889,516	45,281	13,442,488	12,574,764	2,221,465	50,010	14,846,239
10	Almaza Air Force Base **	HEAZ	Secondary	** the airport is military use																							
11	Asyut International	HEAT	Secondary	119,570	19,669	4,778	144,017	154,358	22,640	6,073	183,071	171,763	24,649	6,739	203,151	190,437	28,002	7,495	225,934	203,015	30,487	8,012	241,514	221,840	34,634	8,800	265,274
12	El Arish International	HEAR	Secondary	614	48	23,171	23,833	746	86	26,371	27,203	746	93	28,747	29,586	889	106	32,717	33,712	993	115	35,666	36,774	1,167	131	40,591	41,889
13	Port Said	HEPS	Secondary	0	11,215	0	11,215	0	12,908	0	12,908	0	14,054	0	14,054	0	15,966	0	15,966	0	17,383	0	17,383	0	19,747	0	19,747
14	Shark El Oweinat International	HEOW	Secondary	0	0	322	322	0	0	366	366	0	0	399	399	0	0	455	455	0	0	496	496	0	0	564	564
15	St Catherine International	HESC	Secondary	0	22	82	104	0	26	93	119	0	28	102	130	0	32	116	148	0	35	126	161	0	40	143	183
16	Taba International	HETB	Secondary	348,131	3,459	2,608	354,198	469,254	3,981	3,511	476,746	532,562	4,334	3,983	540,879	607,742	4,924	4,545	617,211	660,494	5,361	4,939	670,794	742,966	6,090	5,557	754,613
17	Abu Simbel	HEBL	National	82	1,101,657	1,141	1,102,880	91	1,268,010	1,313	1,269,414	95	1,380,543	1,430	1,382,068	101	1,568,341	1,625	1,570,067	105	1,707,527	1,769	1,709,401	111	1,939,806	2,009	1,941,926
18	Dakhla	HEDK	National	0	0	14	14	0	0	16	16	0	0	18	18	0	0	20	20	0	0	22	22	0	0	25	25
19	El Gora	HEGR	National	0	500	206	706	0	575	235	810	0	626	256	882	0	712	291	1,003	0	775	317	1,092	0	880	361	1,241
20	El Gouna ***	HEGO	National	*** El Gouna airport is opened after the master plan, so the traffic demand was not forecasted. (the airport is small and private use)																							
21	El Kharga	HEKG	National	0	271	96	367	0	311	110	421	0	339	119	458	0	385	136	521	0	419	148	567	0	476	169	645
22	El Tor	HETR	National	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Mersa Matruh	HEMM	National	0	506	0	506	0	543	0	543	0	567	0	567	0	605	0	605	0	631	0	631	0	673	0	673
24	October	HEOC	National	0	0	6,329	6,329	0	0	7,203	7,203	0	0	7,852	7,852	0	0	8,936	8,936	0	0	9,741	9,741	0	0	11,086	11,086

Source: The National Airport Master Plan, Louis Berger Group, Inc. in 2006.

Appendix 16 Project Lists in CAC and EA

Brief on airport projects before establishing the Company

- In 1963, Terminal (1) was inaugurated to serve 5 million passengers per annum.
- In 1977, Arrival Hall (2) was inaugurated.
- In 1979, Departure Hall (3) was inaugurated.
- In 1982, the third runway 05R/23L was established.
- In 1986, Terminal (2) was inaugurated to serve 3 million passengers per annum.

Development projects since establishing the Company till now

Development projects since the establishment of the company till now

- Development of terminal (1) is completed
  - Development of balcony area.
  - Development of hall (1) and establishment of two waiting areas
  - Development of lounges in transit area
  - Establishment of two baggage claim areas next to arrival area of 1 and 2
  - Installment of speaker system and restaurant
  - Renovation of hall 2 to be international passenger area.
  - Renovation of VIP lounges
  - Adding a passenger boarding bridge to terminal (1)
  - Establishment of mall linked to Hall 3
  - Establishment of hall 4 with capacity of 2.63 million passenger per annum

- In December 2008, terminal (3) was inaugurated. Its establishment was funded by International Bank for Reconstruction and Development and the National Bank of Egypt. Its capacity reaches 11 million passenger per annum (6 million international + 5 million domestic)
- A new airport access road is established to facilitate the traffic from and to Cairo international airport (CIA) from Suez road and the Ring road. It was opened in December 2006 in correspondence with the inauguration of Terminal (3)
- A 120 meter height tower building is under construction. It will be in a lotus design.

Future Development projects

- Renovation and enlargement of terminal (2) to increase its capacity from 3.5 million passenger per annum to 7.5 million passenger per annum, double the number of boarding bridges from 7 to 14, and increase commercial and services areas.
- Introduction of Automated People Mover (APM) between T1, T2, and T3. It will be on a 2 km track with capacity of 2,000 pax/ hour for one direction. The maximum speed will be 45 km/h.
- Establishment of international hotel comprises 350 room linked to terminal 3 by a bridge. It will be managed by Le Meridian International
- Establishment of new cargo village
- A multi-storey car park is under construction. It will have capacity for 3000 car
- A new runway for giant aircrafts is under construction


Egyptian Airports Company
(EAC)
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Sharm El Sheikh International Airport

Brief on airport projects before establishing the Company

- In 1993, a new terminal had been established in Ras Nasrany airport with the capacity of 600 passengers/ hour and total area of 4,500 m^2 to accommodate the increasing air traffic. It was called Sharm El Sheikh airport.
- 5 stands for aircraft had been established and they were operating for 24 hours.
- In 1998, because of increasing air traffic in Sharm El Sheikh, the terminal was expanded to have the capacity for 800 passengers/ hour and total area of 6,000 m^2

Development projects since establishing the Company till now

- In 2001, new expansions were made to the terminal to have the capacity for 1,200 passengers/ hour and total area of 9,000 m^2
- In 2004, the terminal was enlarged 40 % of the total area to accommodate 1,800 passengers/ hour and area of 14,000 m^2. Aircraft stands increased 26.
- After the inauguration of the new terminal in 2007, the capacity became of 2,500 passengers / hour.
- On 23/05/2005, the new terminal in Sharm El Sheikh international airport was established and inaugurated. The total area is 44,000 m^2 with the capacity of 2,500 passengers / hour. Thus, the total capacity for the airport reached 8 million passengers per annum. It is equipped with the latest international systems for airports management and administration.
- Development of the existent terminal.
- Establishment of fence in accordance with ICAO specifications and standers.
- Prolonging the current runways.
- Establishment of 18 rests for workers and service building for workers as well.
- Establishment of service buildings (fuel supply – journalists - Republican Guard)
- Establishment of maintenance workshops.

Future Development projects

- Project of establishing terminal (3)

A contract has been concluded with a consultant to design terminal three to accommodate 10 million passengers to increase the capacity of the airport. In addition, the final designs of the new runway and tarmac are due to be made by the end of 2010. The implementation is expected to last for 36 months.

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Hurghada International Airport

Development projects since establishing the Company till now

- Expansion of the current terminal
  - Adding 5,000 flat meter to the current terminal in addition to 2,500 flat meter services.
  - Belts and storehouses.
  - Establishment of firefighting system for administration building and storehouses and upgrading the security system (surveillance cameras).
  - Adding 9 electric belts for arrivals baggage.
  - Expansion of arrival terminals and domestic flights.
  - Adding 3 passport counters for international arrival terminals
  - Adding 10 passport counters for international departure. Thus, total counters became 38.
  - Adding 6 X-ray sets for internal departure terminals. Thus, the total is 11 X-ray sets.
  - Adding 5 gates for international departure terminals to reach 15 gates.

Future Development projects

- Establishment of new terminal with a loan from the Arab Fund for Economic and Social Development.

It will have the capacity for 7.5 million passengers per annum in addition to new control tower and a 4 km runway. The new terminal will separate completely arrivals and departures.

- Providing a separate road for arrival and departure cars and parking area. Adding 9 passenger boarding bridges.
- 72 counters for departures registration.
- 6 automatic baggage conveyor belts monitored by 5 security stages with CT scan systems.
- 18 passport registration outlets for arrivals and another 18 for departures.
- Expansion of the tarmac and adding new stands to accommodate 46 aircraft. It should be prepared to fit huge aircraft expected to be operating in our airports within the next few years.

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Luxor International Airport

Development projects since establishing the Company till now

- A new terminal for international and domestic flights with the capacity of 7.5 million passengers (4,700 passengers / peak hour) - a new 4 km runway parallel to the current runway to service the latest generation of aircraft.
- Establishment of a building for security, customs, and aircraft sanitation treatment unit.

Future Development Projects

- Purchase of optical character recognition passport readers
- Renovation of Electricity plants

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Borg El Arab International Airport

Development projects since establishing the Company till now

- A new terminal is under construction. It will be provided with the latest security systems and with capacity of 1.2 million passengers per annum and will be expandable up to 2 million passengers per annum.
- Establishment of 4 loaders.
- A new building for air cargo is under construction. It will accommodate 10,000 ton / year.
- Establishment of aircraft stand that will have the capacity of 10 different size planes and another stand for 1 cargo plane.
- Establishment of service buildings (administrative building – electricity plant – water tank).
- Park for 348 car and contact roads.
- Establishment of firefighting station and liquid and solid wastes treatment station.
- Establishment of 2 auxiliary runways and covering and restoration of contact roads.
- Establishment of meteorological station and control tower.
- Establishment of a service ring road.
- Fuel supply station.
- Establishment of security fence.
- Transfer of lighting system for runways from the military side to the civil one.

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Asyut Airport

Development projects since establishing the Company till now

- Establishment of a new terminal with the capacity of 600 passengers /hour
  - A ground floor of 12,000 m^2 comprises a departure hall, arrival hall, procedures hall, 6 passport counters, 6 passport and arrival offices, 6 customs counters, security offices, tourism companies offices, arrival and departures accompany lounge , VIP hall, and VIP lounge for rent.
  - A two-level floor includes restaurants and employee offices.
  - A basement that contains arrival and departure belts, control units, and maintenance offices.
  - 4 parking lot for cars.
  - Establishment of service buildings.

Other projects to service the current airport

- Establishment of electricity plant
- Establishment of water tank with the capacity of 1,000 liter.
- Establishment of storehouses building
- Establishment of soldiers quarter building

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Taba International Airport

Development projects since establishing the Company till now

- Development and expansion of the current terminal to have capacity for 850 passengers /hour instead of 600 passengers /hour.
- Resuming restoration and covering the main runway.
- Establishment of a ring road to secure fences.
- Providing the runways with lighting network
- Supplying fire apparatus

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Marsa Matrouh Airport

Development projects since establishing the Company till now

- Started to receive international flights in June 2006

  Development works include:

  - Converting arrival and departure hall into international halls
  - Increasing the area of runways that receive medium aircraft like Boeing 737 and Airbus 320 and 321.
  - Providing the runways with lighting network and navigation equipment for night flights.
  - Adding 2 aircraft stands on the runway.
  - Upgrading the control tower.
- Security permits necessary to enlarge the current terminal is to be obtained.

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Aswan International Airport

Current and Implemented projects in Aswan Airport

- Establishment of new storehouses building.
- Establishment of an alternative way parallel to the tarmac.
- Renovation and covering of the main runway and adjusting the curves.
- Establishment of security, customs, and drainage building.
- Providing the runways with lighting network.

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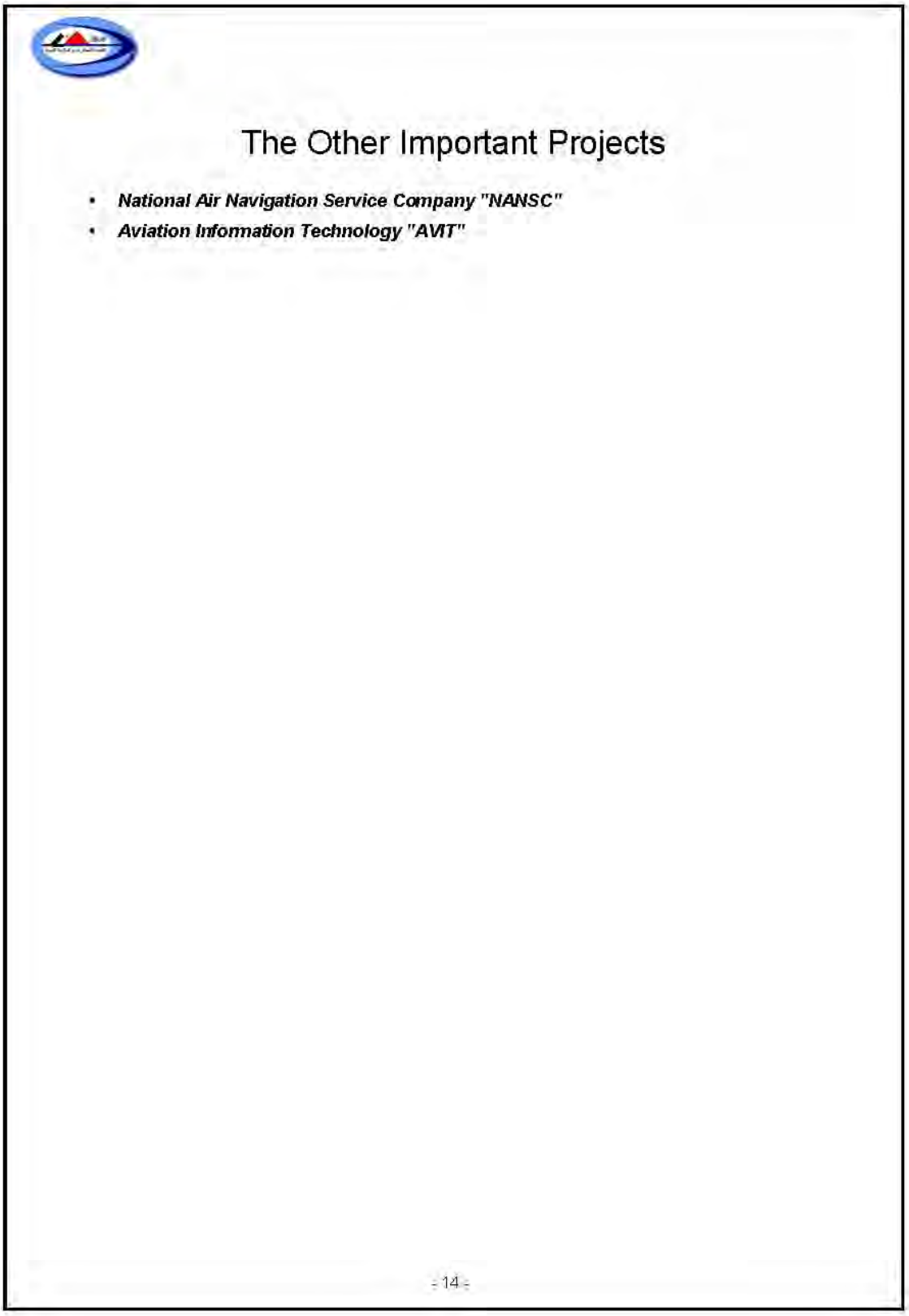
Alexandria International Airport

Current and Implemented projects in Aswan Airport

- A contract has been concluded to prolong the runway to be 2,700 m instead of 2,200 m with 45m width.


The Other Important Projects
• National Air Navigation Service Company "NANSC"
• Aviation Information Technology "AVIT"
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Important Projects of National Air Navigation Service Company "NANSC"

- A new tower in CIA is now under construction to be simultaneous with the new runway to ensure aviation safety inside the airport especially after the establishment of new runways and stands for terminal 3. Construction works are due to be done by the end of 2010.
- Development works in Luxor and Arish airports are finished. The establishment of the new tower in Borg El Arab airport is to be finished by the end of the current development project in the airport.
- Cairo air traffic control center has been developed and upgraded. Establishment of approach radar station in CIA was done. Sharm El Sheikh, Hurghada, Luxor, Aswan, Taba, Arish, Borg El Arab Airports were provided with Radar services. Thus, the radar coverage of airspace reached 100%. 95% of navigation aids were updated.
- Main Satellite station in Cairo was upgraded and 19 other auxiliary stations in other airports were established and developed.
- To support air navigation and communication, NANSC contributed to the establishment of Navisat Middle East and Africa which aims at launching a satellite for air navigation and communication in the Middle East and Africa. The satellite is to have the ability for economic investment in other fields.

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Important Projects of National Aviation Information Technology "AVIT"

First: Projects for Ministry of Civil Aviation

- Stage one of security monitoring system of the airports in the ministry.
- Supply, installation, and testing information and telephone network for operations and crises management centre.
- Insurance fund for employees of the Ministry of Civil Aviations and its affiliates.
- Stage two of security monitoring system of the airports
- Purchase of necessaries to connect information networks of Civil Aviation Authority and Ministry of Civil Aviation and monitoring.
- Supply and installation of visual communication system between the facility of and other authorities.
- Equipping crises management rooms in Civil Aviation Authority building.
- Purchase of the control system of data management applications.
- Purchase of an integrated system for crises management ***"Real Presence"***

Second: projects for Egyptian Holding Company for Airports and Air Navigation (EHCAAN)

- Supply and operation of financial programs ***ERP***

Third: projects for Cairo Airport Company (CAC)

- Providing surveillance cameras on the new road from Suez road to PTB-3 to secure it.
- Replacement of keyboards, screens, and computers in PTB-1.
- Establishment of ***Oracle Data Centre***.
- Equipping of the four main control rooms in PTB-1.
- Extending fiber optical cables between PTB-3 and PTB-1, and the financial building and main operation center for **SITA** Company in the building of Ministry of Civil Aviation.
- Establishment of control centre for the management of Information technology sector in the ground floor in the building of the general secretariat of Cairo Airport Company.
- Supply of 25 computer unit for Plasma screens in the Mall.

Fourth: projects for Egyptian Airports Company (EAC)

- Supply of 187 digital wirelesses "Motorola" for the Headquarter of the Egyptian Airports Company, Hurghada airport, Sharm El-Sheikh airport, and Luxor airport.
- Supply of 163 keyboards with optical character recognition passport readers.
- Expansion projects in Hurghada airport and information technology system and networks for airports.

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Fifth: projects for National Air Navigation Service Company (NANSC)

- Supply and operation of financial programs ***ERP***

Sixth: projects for EgyptAir Holding Company, Information sector

- Supply, installation, and securing systems and networks for EgyptAir medical services.

Seventh: projects for Egypt Air medical

- Supply and installation of surveillance cameras CCTV in EgyptAir Hospital

Eighth: projects for EgyptAir Airlines

- Supply and installation of CCTV and VOIP in the offices of the company in Adly Street, Nasr City, and Cairo Airport Air Mall.

Ninth: projects for National Civil Aviation Training Organization (NCATO)

- Supply and installation of internal and external communication networks in the organization's building in Six October airport and connecting it to Imbaba and Arish airport.
- Connecting internet and linking Imbaba and Arish airports and providing their ability to be linked to Six October airport.

Tenth: projects for Authorities outside the scope of Civil Aviation Sector

- Supply, installation, and guarantee of communication systems and information networks and securing it through Central Agency for Public Mobilization and statistics of the Ministry of Communication and Information.
- Establishment of information and communication network that link the national company for food products, Rashidy Al Mezan Sweets Company, and Egypt October for food industries (Masryeen) of Rashidy Al Mezan.
- Spreading the system of supply distribution system by using smart cards in governorates (Alexandria, Matrouh, Beheira, Qalyubia) to the Ministry of Administrative Development.
- Maintenance, technical support, and Service level agreement SLA for airports information technology systems in CIAPTB-3 for ARINC.
- Data network in the core rooms in CIA PTB-1 for SITA Company.
- Linking data networking for POS, 3G / Edge solution for Durfy Egypt

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