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Cairo Airport Between Origination And Future Vision

To cite this article: Mostafa Mahmoud *et al* 2020 *IOP Conf. Ser.: Mater. Sci. Eng.* **974** 012014

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Cairo Airport Between Origination And Future Vision

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ABSTRACT

Airports are the latest means of transportation that reflect the progress of human civilization and reflect the distinctive identity of each country. The passenger building is the main component of the airport, which in turn contains many dynamic and constantly evolving facilities depending on the increase in passenger traffic and the continued entry of new aircraft and modern operating and service systems that are constantly heading to try to facilitate and accelerate the travel procedures, as the development of airports in recent years is a remarkable development that promotes the level of booms as a result of increased air traffic in the world. The airports have become one of the most important international projects.

In this research, Cairo Airport has been chosen because it is considered the largest airport used in Egypt, and the interface that arrives from the outside world to Cairo. It accommodates all foreign air movements for all foreign airlines operating in Egypt. In this research, a detailed explanation about Cairo Airport will be provided by studying its components from the ground side, passenger buildings and the air side, and studying the area of Cairo Airport and how to benefit from unexploited places at the airport by studying the elements of the airport city and how to benefit from the application of the components of the airport city at Cairo International Airport.

Key Words: Airport - Airport City –landside –Terminal Building - Airside.

Introduction: The airport with its various elements is considered a city within the city, and this city with its components, the way of work inside it, the distribution system and the relationship of these elements to each other, which aims first and foremost to achieve the requirements of travelers and arrival. The consequences of the movement of these departures and arrivals to and from the state on which the airport is located are precautions for security and securing the airport's entrances and exits. In this research, Cairo Airport is studied in terms of location, access roads to the airport, a study of the ground side and passenger buildings, methods of distributing passenger buildings and assessing their locations in relation to each other and their relationship to the air side with the study of the preparation of the airstrips and their relationship to each other, as well as the study of vacant places and how to benefit from them by studying the components of the airport city and adding its elements in these spaces and making use of the entire surface of the airport land.

1-1 Research Hypothesis: If the efficiency of Cairo airport performance increases through the development of the airport and the exploitation of vacant flats and its transformation into an airport



city, that development affects the airport's income and consequently the Egyptian economy is affected by that growth.

1-2 Research Structure:

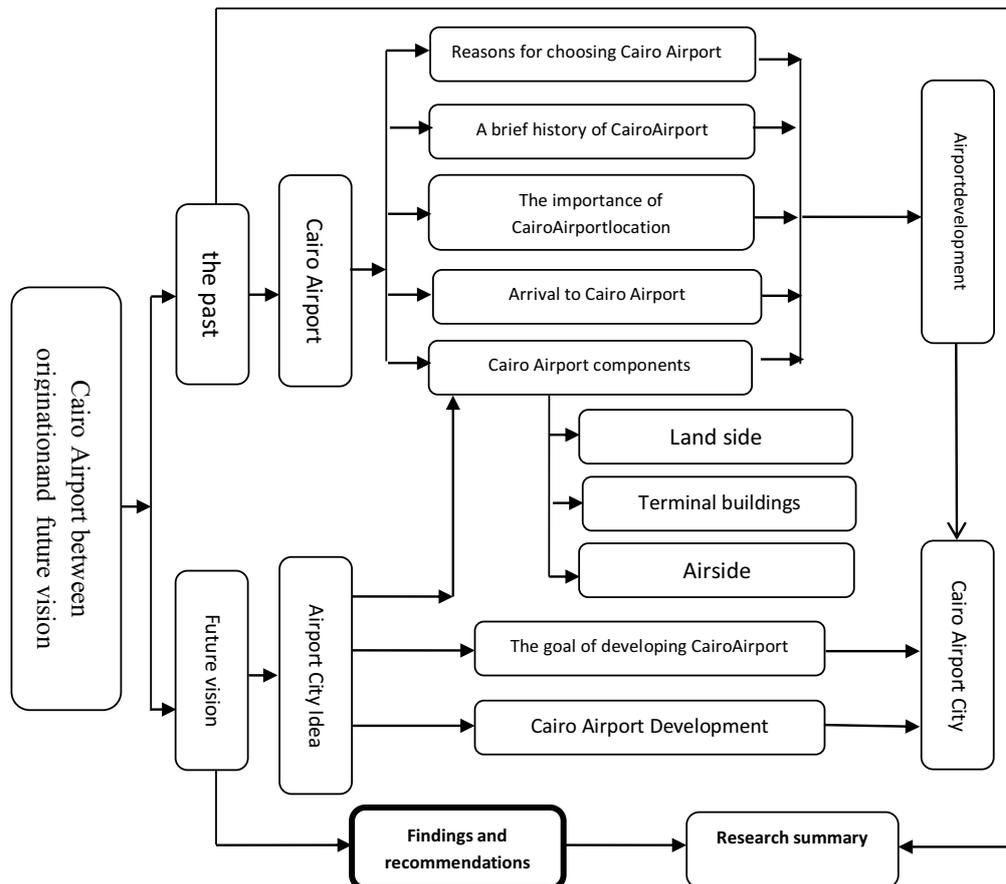


Figure (!) Shows the research structure

1-3 Airport Definition:

A specified area on the surface of the earth or water that includes any buildings, installations or equipment that are wholly or partly designated for the arrival, departure and movement of aircraft on the surface¹.

1-4 Determining The Problem:

The research problem lies in developing Cairo Airport and studying the factors that have a significant impact on prosperity and economic progress, and the growth of the airport with the aim of achieving the desired benefits from them through the concept of linking the airport with the surrounding environment and how to take advantage of the whole airport space in the development work, which results in large numbers of users (passengers & non passengers), which makes designers keep this in mind during the planning process in order to improve, develop and convert the airport into a small city to attract investors.

1-5 Research Objectives:

1- Introducing Cairo Airport.

¹Annex 14 to the Convention on International Civil Aviation –A erodromes- Volume I- pp 1-2

2- How to take advantage of the entire surface of the airport land and benefit from the airport's location in the economic aspects through studying the development of the airport to reach the airport city of Cairo, which needs to add some services to passengers and non-passengers such as (entertainment - logistical - administrative - commercial - educational - residential - Healthy - etc.) services.

2 Cairo Airport:

Cairo International Airport is an international airport away from downtown Cairo, the capital of Egypt, about 22 kilometers in the northeastern direction. The land area of the airport is about 40 million square meters and is the air gateway to Egypt and to the continent of Africa. The airport is the second largest airport in the continent in terms of congestion and passenger density. In 2017, the airport served about 31 million passengers.

2-1 Reasons for choosing Cairo Airport in the research:

- Cairo International Airport is the most important airport in the Arab Republic of Egypt and one of the most important airports in Africa.
- Identifying the strengths and weaknesses of Cairo International Airport.
- The ability to define the strategy followed in the Cairo Airport growth process.

2-2 Historical overview of the airports⁽²⁾:

The airport's construction dates back to 1942, when the US Air Force, in cooperation with the British Army, built a military airport 5 kilometers in the north of Almaza Airport to serve the coalition forces participating in World War II, and the airport was called "Pine Field Airport" in relation to the name of the American pilot soldier "John Payne", who was the first American pilot killed in the battles of World War II, and the airport was very large if compared to the standards that prevailed in the airports at that time as it included two runways for the aircraft, an air traffic control tower, four hangars, and many buildings. On April 22, 1945, the Egyptian Civil Aviation Authority was established after it was a small department in the Ministry of War, and after the end of World War II, the airport administration and all Egyptian airports that were under British administration, aviation facilities and their responsibilities moved to the Egyptian side on December 15, 1946.

The new administration began to equip an international civil airport to accommodate the largest number of traffic, so the travel and arrival halls were expanded to accommodate the incoming and outgoing passenger traffic to the Egyptian lands, while Almaza Airport was designated for domestic flights. In 1946 the name of the airport was changed from Pine Field Airport to Farouk I Airport, and the number of passengers traveling through the airport in that year reached nearly 200 thousand passengers, and after the revolution of July the name of the airport was changed from "Farouk First Airport" to "Cairo Air Port". In 1955, some studies were conducted to build a new terminal building instead of the old one in order to keep pace with the increasing travel movement, and the location of the new building was chosen between the two main runways. Construction began in 1957, and the building was officially opened on March 18, 1963, and the capacity of Cairo Airport at that time reached 5 million passengers annually.

The increase in travel traffic through Cairo Airport and its arrival to the maximum absorptive capacity led to thinking about the expansion of the airport and the creation of new halls in building (1) and the establishment of a new terminal building, between 1977 and 1979 two travel & arrival halls NO.2 were established in the main terminal building, and a new third runway for aircraft was established, in 1980 the terminal hall NO. 3 was established, and in 1986 the Terminal (2), located in the southern direction of Building (1), was opened, and the capacity of the new building reached about 3.5 million passengers annually. This was followed by the expansion and development of the passenger lounges, which increased the airport's capacity to 11 million passengers annually. In 2005 work began on the construction of Terminal (3) near Terminal (2) in order to reach the airport to its maximum operational capacity- the capacity of the new building is 11 million passengers annually.

(2) Cairo Air Port History, the official website of Cairo Air Port

The building was officially opened on December 18, 2008 and it was actually put into operation on April 27, 2009 bringing the capacity of Cairo International Airport in 2010 to 23 million passengers annually.

Due to the revival of the travel and arrival movement and its severe intensity in some times of the year excluding others such as the Hajj and Umrah season, the seasonal trips building was opened in 2011 to be allocated to serve the guests of Rahman in travel and access to EgyptAir flights flying to and from Jeddah & Madinah to alleviate the pressure on the travel hall No. 1 from which Egypt's Hajj and Umrah flights were taking off, along with other companies, and the passenger terminal yards No. 1 were also developed.

In 2012, the multi-storey garage was opened with a capacity of 3700 cars. The automated train project has also been opened to connect all terminals to the airport in record time and facilitate the travel and transit process. A firefighting station has also been established.

In 2013, the "Meridian Cairo Airport" hotel was opened with a capacity of 350 rooms. A new air cargo village was also developed, which provides technical facilities to support the growth in freight traffic through the airport.

The year 2014 came to witness the opening of the new cargo village, which is located on an area of 17 thousand meters, which represents a boom for the export and import movement in Egypt. The DHL building at Cairo Airport was opened on an area of 10,000 square meters. The center is the main hub for distribution in Africa and the Middle East, where the center works on Promoting sorting operations and re-exporting of incoming shipments from Europe to the countries of the region. The new center includes the latest international technologies that ensure receiving and delivering shipments of the highest quality and speed.

In addition, Terminal 2 was opened after its development and the increased capacity to 7.5 million passengers annually, raising the total capacity of Cairo International Airport to more than 30 million passengers annually.

2-3 The importance of Cairo Airport location³ :

Cairo International Airport has a great importance, especially after Egypt Air Company joined the Star Alliance and has transformed Cairo Airport into a hub connecting Africa, the Middle East and Europe together in order to collect transit passengers and take them to the world's airports.

In view of the situation of Cairo Airport with the importance of its location, we find that it does not have a significant impact on air traffic in Africa, the Middle East and Europe due to several reasons including (mismanagement, planning, lack of customs exemptions on products and high ticket prices, especially in Egypt Air Company and the lack of improvement services that qualify the airport to increase the reception of transit passengers, which results in fewer passengers at Cairo Airport).

2-4 Arrival at the airport:

The airport can be reached through three roads: the first road is Salah Salem Street which passes in the middle of the Heliopolis area, the second



³³ Eng. Ahmed Nabil - Design Foundations of Terminal Buildings- Master Thesis - Al-Azhar University - 2014 AD p.

Figure No. (2) shows the way to get to Cairo Airport 216.

road is Al-Nasr Highway, and the third road is the road that runs between the Cairo-Suez road and the western ring road and has two entrances, there is another entrance on the one hand of Joseph Tito Street (New Nozha), but it is a special entrance to Sharq base (Military Airport), and the following figure shows the entrances of Cairo Airport, The airport will be connected to the neighborhoods of central Cairo and Giza Governorate through the third line of the Cairo subway. The new third metro line will carry passengers traveling and arriving through the airport to the neighborhoods of the capital, then an extension to Dokki and Giza.

By studying the roads leading to Cairo International Airport, we find the main roads of the airport work as car roads, and this is not sufficient for entry and exit of the airport; therefore it is recommended to increase railways (train - metro) linking the airport and the city center so that the load on the highways is reduced and the benefit becomes greater for travelers.

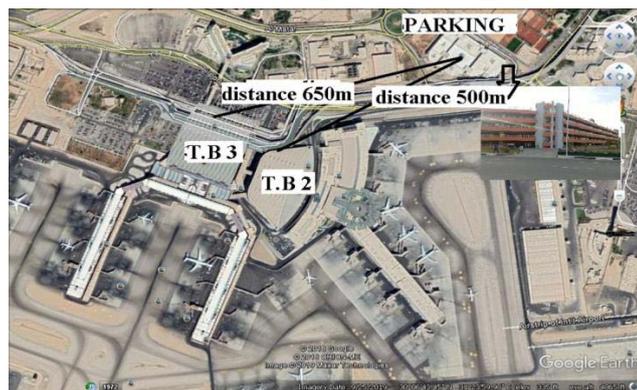
2-5 Cairo Airport components:

2-5-1 Landside⁴

: It means all uses surrounding the airport connected to and from the city, private parking lots, bus and taxi stops, and other services related to the part surrounding the airport affecting or affected by it; in general it is the area of the movement of cars and buses carrying passengers, their luggage and depositors, concerning that the path of the tracks must be appropriately expanded for the sake of the movement outside the airports.

When we talk about the landside, it is necessary to define what the landside is and what its limits are. The landside is the external area in front of the terminal building starting from the terminal building pavement, services, garages, and so on. Therefore, Cairo International Airport has landsides according to the number of terminal buildings inside it, which are the landside of the terminal building (1, 2, 3, 4 and the seasonal hall) ;and we will talk in detail about each part separately.

After completing the study of the landside of Cairo International Airport, there is some difficulty in using the parking lots in front of the three buildings of Cairo International Airport and in a very bad condition, but the worst thing is the case of Building «2» because it doesn't accommodate the number of cars and it doesn't fit with the intensity of the cars movement, as well as after adding the multiple storey garage next to the terminal building (2), but the distance is far, especially for baggage holders. It was preferable to make multi-storey car parks under the garage currently standing next to the terminal building (3) to achieve proximity to the terminal building and increase the area of parking lots whether in the horizontal direction or the vertical one; and the following figure shows the car parking lots in Terminal 2 and 3.



Figure(3) shows car parking lots in Terminal 2&3

2-5-2The Terminal Building⁵:

The terminal building area is the most important one in the airport, as it contains the terminal building with all its planning and designing problems, its conflicting requirements, and its multiple services, etc. Consequently, this area of the airport is the scope of work for architects and

⁴topic134⁴<http://gacaksa.forumarabia.com/t>

⁵Airport Passenger Terminal , Planning and Design, ACRP,REPORT, Volume 1: Guidebook, p.25

engineers for(acoustics, lighting, ventilation, air-conditioning, different treatments, and other various disciplines).

2-5-2-1 The importance of the terminal building (1):

A- The terminal building is the contact point between the airside and the landside. Thus it contains gates and loading bridges connected to the plane.

B- The terminal building is the one that achieves the concept, processes and procedures for separating travelers and arrivals.

C- The terminal building is the one that receives the travelers` relatives, and provides them with all means and services.

D- The terminal is the airport building through which travel and immigration processes are controlled.

E- As a result of the modern services provided by the terminal building including restaurants, hotels, business centers, etc., the importance of these buildings increases even for non-travelers themselves who may use these services.

2-5-2-2 Terminal buildings at Cairo International Airport: Cairo International Airport consists of more than one terminal building as follows: terminals No. 1, 2, 3, 4 for VIPs (very important persons) and the seasonal terminal for Hajj and Umrah trips. Each building will be explained in detail with its components and services from its inception until the present time.

2-5-2-3 Terminal Building No. (1) :

The construction history of the building dates back to 1963, which is the oldest terminal in the airport, and Egyptian citizens call it the "old airport", which includes three halls as follows: the internal hall No. (1), the international travel hall No. (2), the international arrival hall No. (3) and the hall No. (4) that was dedicated to Egypt Air Company for its flights to the cities of Hurgada and Sharm El-Sheikh, in addition to a hall for air services for catering aircraft. The landside of Terminal No. (1) contains an open car garage with a capacity of more than 5,000 cars and connects to Terminal 2 and 3 through a train with a top bridge and access to it directly from Al-Oruba - Salah Salem Road, and next to the building there is a large commercial market called "Air Mall". The following figure shows Terminal 1 at Cairo Airport.



Figure No. (4) shows terminal building No. (1) at Cairo before development



Figure No. (5) shows terminal building No. (1) at Cairo Airport after development

2-5-2-3 Terminal Building No. (2)⁶:

Terminal (2) was opened in 1986, Egyptian citizens call it the "new airport", and it is primarily dedicated to European, Gulf and Far East airlines such as Korean Air, Italian Airlines and Saudi Arabian Airlines. The building contains only 7 bridges to move passengers to the planes, and when more than four trips are met at one time, the terminal becomes in a marked congestion; that's why the Cairo Air Port Company announced a project to develop the terminal in July 2008. The terminal development project aims to increase the building area and modify an area Loading the aircraft, which are bridges, to double it to 14 instead of only 7 in order to receive the largest number of passengers during peak times⁷. The officials expected that the building capacity will increase from 3.5 million passengers annually to 7 million passengers, so that the airport capacity after completing that development will reach 23 million passengers annually, as well as that terminal will be linked to terminal No. (3) by a bridge in order to facilitate the movement of transportation between the two terminals. The terminal development process has already started in February 2010, and it has been declared that the building was closed for a period of three years. During that period, all terminal (2) airlines have been operated in terminal (1).

On September 28, 2016, the Ministry of Civil Aviation celebrated the first actual operation of the terminal after its development and its increased capacity to 7.5 million passengers annually, which raised the total capacity of Cairo International Airport to more than 30 million passengers annually. The terminal contained 28 loading bridges, and the number of passport counters reached 78 counters. It also contained 11 hotel rooms inside the customs department highly equipped and used by transit passengers without the need to obtain entry visas to Egypt. the following figure shows terminal 2 before and after the development.



Figure No. (6) shows terminal building No. (2) at Cairo before development



Figure No. (7) shows terminal building No. (2) at Cairo Airport after development

The two previous figures show the impact of the terminal No(3) construction at Cairo Airport upon terminal No. (2), whereas the terminal building hall has been modified and a new wing for the old terminal has been built to increase the building capacity and the numbers of travelers; so that it has used the parking area located near the new terminal, which represents a remedial adjustment for the concept of the airport growth. That remedial amendment is an additional economic burden, resulting from the failure to study the concept of the terminal capacity and the way in which these buildings grow in an integrated manner with the previous and future stages of growth, and through this it becomes clear to us that the parameters of the remedial adjustment are unclear and not planned. Consequently, the parameters for future growth are unobvious

¹Eng. Ahmed Ibrahim - Safety Standards in Terminal Buildings - Master Thesis - Ain Shams University - 2013, p. 257.

² Dr.Nafisa Mahmoud Al-Nasharti Transfer Airports - A case study of Cairo International Airport and the problem of transferred passengers - 2006 - p. 168

2 - 5 - 2 - 4 - Terminal Building No. (3)

Building No. (3) is the latest building to be constructed at the Airport, which is allocated primarily to Egypt Air flights and Star Alliance's Members Airlines. The idea of constructing the third terminal building started in the early nineties of the last century after the growing need to construct a building to accommodate the expected increase in the number of passengers during the next twenty years. However, the idea did not come into effect, especially since whenever one of the studies concludes the importance of the building to accommodate the increasing movement during the coming years, some incidents that affect the volume of traffic in the region, such as the second Gulf War and the events of September eleventh, after which the rates of passenger flights decreased. However, the establishment of the Ministry of Civil Aviation in March 2002, and the establishment of the Egyptian Holding Company for Airports and Air Navigation, and the Egyptian Airports Company in addition to converting the Cairo Air Port Authority into a commercial company created the motivation to realize that idea. Work began on the building in 2005, with an area of 190,000 m².

The building consists of a basement, three main floors, and two mezzanine floors, with a maximum height of 122.6 meters above sea level, as follows: Basement which includes the building's services such as workshops, maintenance, warehouses, and planes supplies, etc.; the first floor serves international arrival flights; the second floor serves international departure flights; the third floor serves domestic arrivals and departure flights; as for the mezzanine floor, it includes administration offices, Airlines Offices and Air Traffic Services, in addition to parking lots, and 63 airplanes parking areas. The building can accommodate 15 large model aircraft at one time, and it is equipped with 23 loading bridges for landing and boarding of passengers from and to airplanes serving thus 23 parking lots adjacent to the building. As for the 40 remote parking lots, passengers will be transported thereto by bus. The Departure and Arrival terminals are also designed to accommodate all aircraft models through 15 waiting halls, passenger security devices, in addition to follow-up and security systems that are consistent with the highest standards of the global code. The building includes five commercial areas and restaurants with an area of 3300 square meters, in addition to the equipped waiting areas and VIP halls. The Landside of Terminal Building No. 3 contains a parking area that serves the building to accommodate 2360 private cars and 200 buses. There is also the Meridian Hotel, which is connected directly with Terminal 3 by a bridge



Figure No. (8) shows linking of terminal building No. (2) to terminal building No. (3)

2 - 5 - 2 - 5 - Services Inside the Terminal Building

The research sheds light on the concept of the terminal building as a means of generating income for the airport, as well as a building for public and social facilities, since the relative balance between the two functions is what directly affects the personality of the terminal. In airports designed to generate

the maximum possible income, passengers are directed to banks, shops, and customs exemption areas (free zones) while aviation offices take a secondary role. On the other hand, in other airports such as John Kennedy Airport in New York, which is primarily concerned with public and social service, it contains organized spaces and uncrowded lobbies that give priority to passengers and their needs for comfort and relief from the hassle of traveling. One of the significant trends in the design of passenger terminals is the exploitation of the time factor in activities that entertain passengers once they arrive at the airport until the moment the plane takes off.

Considering the Cairo International Airport and the services provided therein, we did not find any kind of integration between the design and planning of spaces in the terminal buildings, so that the passengers are intentionally directed to the commercial areas and are encouraged to wait and spend some time between the check period and leaving the terminal building (waiting hall). Some airports also provide some services, as "USA today" newspaper listed a number of the strangest activities provided by airports for passengers to ease waiting times.

For example, "Munich" Airport in Germany includes a covered "Surf & Style" unit that provides passengers with the opportunity to surf, as the unit produces a set of the highest artificial waves in the world. The following figure shows surfing at Munich Airport.



Figure No. (9) shows linking of terminal building No. (2) to terminal building No. (3)



Figure (10) shows the oxygen sessions at Tokyo Airport

In Japan, Narita Airport in Tokyo offers oxygen sessions, during which the passenger inhales the oxygen with different scents and flavors on demand, such as cinnamon, menthol and other smells that help relax and calm the nerves. The session lasts ten minutes and costs 7 dollars.

In the United States of America, "Pittsburgh" Airport offers a unique service that allows passengers to hunt wild deer in the early morning. The airport raises deer on a plot of land estimated at 906 acres, and issues 60 hunting licenses.



Figure (11) Forest Airport "Pittsburgh"

Those wishing to get a license submit applications at the airport's website that draws lots to choose winners. Applicants are not allowed to attend the lottery, but winners are notified via email. Hunting tools are limited to arrows because the airport law does not allow carrying or using firearms.

Also, Istanbul Airport offers massage service, food, beverages and various games in addition to cinematic shows for free at the frequent passenger suite.

2 - 5 - 2 - 6 Shopping Services inside the Terminal:

In some airports, such as Paris airports, passengers who reside in a country that is not a member in the European Union are entitled for leisure purpose to the privilege of deduction of value-added tax on purchases bought from France. **In Cairo Airport, however, the prices are increased for the passenger with the addition of value-added tax and thus the prices are exaggerated significantly resulting in limiting shopping process except for necessity, not to mention that there are no major suites inside the waiting hall for shopping or entertainment to amuse passengers as mentioned in the previous examples.**

2 - 5 - 2 - 7 How to Connect Terminals Together:⁸

Terminal 2 is near Terminal 3 and they connect through a hanging aisle. The two suites of Terminal 3 in which the travel or departure gates are located extend near the aircraft aisles, and they are also located near the aircraft parking spaces. Terminal 2, Terminal 3 and Terminal 1 are connected via the Automated People Mover- (APM)



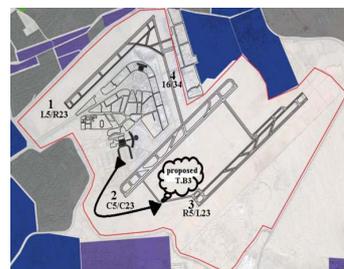
Figure No. (12) shows connection of terminal No. (1) with terminal Nos. 3&2



Figure No. (13) shows connection of terminal No. (2) with terminal No. (3)

By studying the terminal buildings at Cairo International Airport, we notice that terminal building 2 and 3 are close and are connected through a covered corridor. It would have been better to keep more distance between terminal building no. 3 and terminal building no. 2 to avoid congestion, especially in the parking lots outside the building. If we take a look at the airport as a whole and review the location of the

terminal building No. 3 at the left side of C23 / C05 and L23 / R05 passageways, while it would have been better for terminal 3 building to be located between the C23 / C05 Airfield and L23 / R05 Airfield as in the following figure in order for the C23 / C05 Airfield not to be interrupted. In which case



⁸ Eng. Ahmed Nabil – (الأسس التصميمية لمباني الركاب) Foundations of Designing Passenger Terminals - Master Thesis - Al-Azhar University - 2014, p. 235.

Figure No. (14) shows the ideal location for the terminal 3

the Cairo airport buildings distribution is as follows Terminal 1 and 4 for R23 / L05 Airfield, terminal 2 for C23 / C05 Airfield, and terminal 3, and the seasonal hall for L23 / R05 Airfield.

2 - 5 - 3 - The Air Side:⁹

The air side is the area extending from the exit phase of the terminal building to the boarding of the plane and is divided into two sections: The Airfield, referring to the movement of the plane on the ground (waiting yards, parking, airstrips, aisles, maintenance, supplies, control tower and hangars); and the Airspace that refers to the plane and its field of movement in the air during taking off and landing. The Air side of Cairo Airport includes four runways for takeoff and landing of aircraft, the first runway is R23 / L05 with length of 3300 meters and width of 60 meters, located in the north area of the airport; while the second runway C23 / C05, is 3500 meters long and 60 meters wide as well, located in the south area of the airport; the third runway L23 / R05 has a length of 4000 meters and a width of 60 meters, and this runway is able to accommodate giant Airbus A382 aircraft, and is located in the south area of the airport next to runway 2; and the fourth runway (16/34) is currently suspended due to some contraindications. The following figure shows the runways at Cairo International Airport.

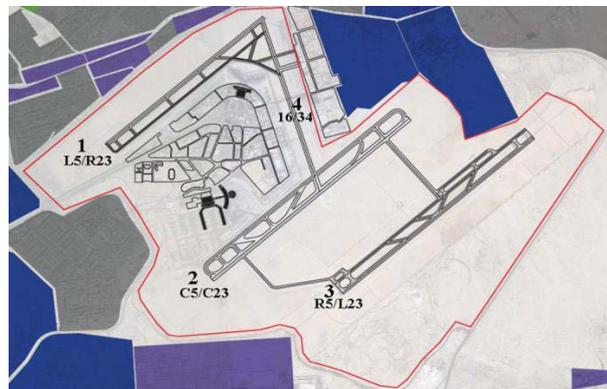


Figure No. (15) shows the number of runways at Cairo International Airport

Having studied the Air Side of Cairo Airport, it is clear to us that there are four runways, as previously mentioned, one of them is closed due to some barriers, and the reason for this is the absence of applying the legislation for airports by allowing the residents near the airport to increase the height of buildings, especially the new Nozha area and Al Salam area, which led to closing the runway and reliance on the three other runways 5/23. Terminal 3 is located to the left of runways C23 / C05 and R23 / L05 and it would have been better to increase the length of runway C23 / C05 to 4 km instead of constructing a new runway, especially that in case of using runway R23 / L05 runway C23 / C05 shall be interrupted which comes in violation of runway specifications according to the requirements of the International Civil Aviation Organization.

3 - Cairo Airport Development to be an Airport City

When aiming at developing Cairo Airport to be an Airport City, the following should be studied:

- A - The vacant spaces in Cairo Airport and the extent of the possibility of expanding the airport buildings.
- B - Studying the current components, mentioned above, i.e. the Landside, Terminals, and the Air Side.
- C - Studying the components of the Airport City and how to develop the airport through these components.

⁹ Dr. Nafisa Mahmoud Al-Nasharti - (مطارات التحويل - دراسة حالة مطار القاهرة الدولي ومشكلة الركاب المحولين) Transfer Airports - A case study of Cairo International Airport and the problem of transferred passengers - 2006 - p. 19.

A detailed explanation will be provided regarding Cairo International Airport, a study of the buildings at the airport, and identification of places that can be expanded. The following figure indicates the use of land at Cairo International Airport, including the basic buildings, which are terminal buildings 1, 2 and 3, in front of which the Air Side appears, which consists of aircraft parking lots and then airstrips to arrive at the runways as the cargo village appears in the area between Terminals 1 and 2. There is also a hotel area near Terminal 1, such as Airport Movenpick Hotel and the Meridian Hotel connected to Terminals 2 and 3. There is also a manufacturing area used as aircraft maintenance workshops in the eastern area. All these elements are shown in the following figure with keys to read the details



Figure No. (16) shows land use at Cairo International Airport

3 - 1 Aims of Developing Cairo International Airport

- Taking full advantage of the land areas (plots) at the airport
- Enhancement of the aesthetic appearance of the State.
- Revitalization of tourism.
- Increasing foreign investment in our country.
- Reducing unemployment and creating job opportunities for youth
- Expanding resource development as a result of job opportunities created by the project.
- Airports around the world directly support the economic movement by providing access to global markets and supporting trade. The global air traffic increases significantly, which directly and greatly affects the economy¹⁰

2 - 3 Cairo Airport City:

The airport city may be defined as "the final form or configuration that gives a picture of the entire airport area", that is, what relates to aviation affairs such as the land runways and airspace over this area, as well as what is not related to aviation affairs meaning (what is related to the airport buildings itself, along with its



Figure No. (17) shows the components of the airport city

¹⁰ Dr. Sahl Abdullah Saad EddinWaheeb - The possibility of benefiting from the concepts of sustainability in the future of airport design in the Kingdom of Saudi Arabia - Umm Al-Qura University, Makkah Al-Mukarramah, Saudi Arabia - 2015 - pp. 12 and 13.

facilities, services, roads, parking lots, and the rest of the region within the area or cordon of the airport itself). Future airports, which some countries have begun to work on their designs and study their application, depend on the so-called small cities, which are an independent and self-sufficient entity that includes all the services that include shopping centers, retail, entertainment, gardens, and restaurants, and making it available to passengers, and that is what we refer to by Airport City. The city also includes different models of housing, schools, universities, hospitals¹¹ and business administrative and residential areas, conference centers, exhibitions and logistics areas. Figure no. 13 on your right illustrates the airport area and the surrounding services that helps to upgrade the airport into an airport city.

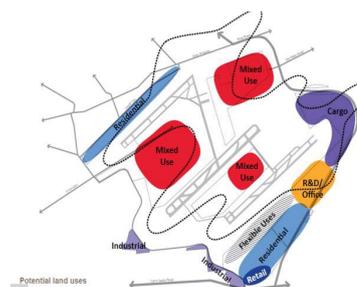
Having considered the use of lands in the airport area, we find some areas where there are no buildings or facilities and therefore these areas must be defined and its area to be measured and a study shall be made concerning the possibility of adding activities to the airport to help the growth and improvement of airport revenues, how to integrate these elements with the current airport components, and how to link these components with each other. These components are a set of services presented at the airport for passengers and non-passengers, including (logistical - commercial - administrative - medical - entertainment - ... etc.) services.

After mentioning the elements of the airport city, the vacant areas in Cairo International Airport were identified and divided into 4 main areas, and proposals for each area were made separately regarding how to benefit therefrom through the activity that is appropriate to the site. The following figure indicates areas that can be used at Cairo International Airport without obstacles.



Having studied the unused areas at Cairo International Airport, Figure No. (18) shows the vacant areas in Cairo International Airport

a proposal is put in place to use each region in a way that suits it and that accomplishes the primary goal of developing the airport, which is to bring in revenues to improve the economy. These regions were identified, and they are represented in five main regions. We start with the first area, which is the airport entrance area from Al-Oruba Road. This region is one of the best areas in terms of location, it is at the front of the airport, and thus it is considered the interface of Egypt. Thus, it is possible to take advantage of the site by using this area as administrative, commercial, medical and educational complexes with exhibition and conference centers. The second area is the area adjacent to the New Nozha neighborhood on the side of Joseph Teto Street. And that region is preferable to establish a commercial residential area to be used to attract tourists and provide commercial malls near it. The third region is the area next to Wadi Degla Club, which is the area between the Suez Road and the Autostrad Road. It is better to use it as a sports recreational area. The fourth zone is the area above Runway 3, which is the area between the Ring Road and the Suez Road. This area from the research point of view should be made a cargo village, especially



¹¹ Global Airport Cities-- London –2009- p no 39 - John D. Kasarda

because of its connection to the ring road, where a new entrance is created from the ring road to the cargo village directly. This village has been linked to a logistical area next to it in the area between the Ring Road and the Suez Road. The following figure shows a sketch of the areas proposed for use at Cairo International Airport.

Figure No. (19) shows a proposed sketch of land use at Cairo International Airport¹²

Conclusion:

This study, entitled (Cairo Airports Between Creation and Future Vision), dealt with a simplified explanation of the concept of airports, with a historical overview of the establishment of Cairo International Airport and its components, starting from the Landside, through the Terminal buildings, a stage study reaching the Air side. The study also examined the design criteria for the components of the airport, and the concept that development at the airport creates a new term for us, which is the city of the airport, which consists of several complex components, through which, through its components, attracts investments and competes with transcontinental services. And, as many economists say, without strong regional airports, a comprehensive civilization renaissance will not be achieved in countries. In order to achieve effective planning, there must be a framework for the development of areas near Cairo Airport based on the (economic) dimensions. Cairo airport should be linked with the surrounding areas

and take advantage of its distinctive geographical location and link it with new cities such as New Cairo, the city of transit, the city of sunrise and the administrative capital, and that by linking it to the logistical areas near Ain Sukhna, with the aim of achieving comprehensive economic development through developing the airport internally, with the elements that supports the economy, and externally with other countries.

Findings:

A - Cairo Airport is considered Egypt's international interface, and therefore management must be improved to achieve the required good reputation.

B - The entire area of the airport land should be used in order to achieve comprehensive development in the area around the airport and create new job opportunities.

C - The airport has a civilizational, economic, commercial and environmental impact through its location in the middle of the world.

D - In the event that Cairo Airport is converted into an Airport city, the Cairo Airport City after development shall be considered an independent and self-sufficient entity that includes all commercial, administrative, residential, recreational, logistical services ... etc. Thus, a noticeable change will occur in the airport's revenues, whether from aviation or non-aviation business.

E - There is randomness in choosing the locations of the terminal buildings and their connection to each other, which causes problems for visitors in moving from one terminal to another.

F- Lack of sufficient number of car parks, which creates a crisis in the official seasons.

¹² Cairo Aerotropolis | Interim Report Masterplan Report November 2012 | 2 May 2013 pp 167

G - A strategic plan for the growth of the airport and the terminal buildings has not been developed yet. Development must be carried out according to a previously studied and determined plan, with the aim of avoiding the process of developing the passenger buildings in a preventive manner, as happened in the plan to develop terminal 2 at Cairo Airport after the construction of the terminal building 3.

Recommendations

A - A future plan for the development of Cairo International Airport should be established until the completion of all phases of development, explaining the use of the airport's lands and traffic paths for visitors, and it shall be implemented within specific time plans and schedules without prejudice to the general location of the airport.

B - Overcoming bureaucratic obstacles in developing the airport.

C - Taking into consideration the principles of airport planning and its relationship with cities when selecting new airport sites.

D - Taking into account the principles of the environmentally compatible architectural design for airport buildings.

E - Taking into consideration that the size and quality of services and facilities provided by the airport (commercial, tourism, businessmen services, etc.) ... are commensurate with the quality of passengers through the building, and are closely related to the general activity of the state and its strategic location.

F - Using the help of international offices with expertise in airport science to study the modernization and development of the airport.

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