

A STUDY ON AL MAKTOUM INTERNATIONAL AIRPORT

Dr. K. Chandramouli^{*1}, J. Sree Naga Chaitanya^{*2}, Sk. Sahera^{*3}, V. Tarun^{*4}

^{*1}Professor & HOD, Department of Civil Engineering, NRI Institute of Technology, Guntur, Andhra Pradesh, INDIA

^{*2,3}Assistant Professor, Department of Civil Engineering, NRI Institute of Technology, Guntur, Andhra Pradesh, INDIA

^{*4}B. Tech Scholar, Department of Civil Engineering, NRI Institute of Technology, Guntur, Andhra Pradesh, INDIA.

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ABSTRACT

The first runway at Al Maktoum International Airport, a 4.5-kilometer A380-compatible Cat III built by Al Naboodah Contracting for AED1 billion, has been completed, according to the Dubai Department of Civil Aviation. The new runways must pass a series of tests over the course of the following six to eight months in order to satisfy Cat III-C specifications for precise instrument approach and landing in visibility less than zero meters. The first passenger terminal at Al Maktoum International, which is intended for low-cost, regional, and charter carriers, is currently 40% complete, according to the government. The AED278 million freight terminal and the AED143 million 92-meter ATC tower are two additional Al Maktoum International facilities now under construction.

Keywords: Al Maktoum International airport, civil aviation, and international facilities.

I. INTRODUCTION

The airport will house several forms of transportation, logistics, and value-added services, including manufacturing and assembly, in a single free economic zone when it is fully finished (originally anticipated in 2027). It will occupy 14,000 hectares of space (35,000 acres). The airport's anticipated yearly capacity for passengers and freight is between 160 million and 260 million, or 12 million long tons and 13 million short tons. Only a small number of airlines focused mostly on freight activity ran passenger services out of Al Maktoum International Airport as of 2021. The project has not yet been officially declared finished.

A \$32 billion expansion at Al Maktoum, which could take up to eight years, will make it possible for 220 million passengers annually to fly out of the desert. The sheer size of a 21 square mile airport will allow for the simultaneous use of 100 Airbus A380 planes.



Fig-1: Satellite view of airport

II. CHARACTERISTICS OF AIRPORT

- Five 4.5 km long Code F parallel runways that are far enough apart to allow for simultaneous quadruple parallel aircraft approaches.

- The first Cat IIIB all-weather instrument landing system, which enables operations in low-visibility situations.
- In addition to the two runways on either side of the main terminal area, there is a triple Code F parallel taxiway system. To save taxiing distances and time, the central terminal area has triple Code F cross field taxiways.
- Apron design incorporating twin Code F push back taxi lanes for each contact stand.
- Crucial aircraft box dimensions of 85m x 85m that accommodate new generation extended aircraft versions from the main manufacturers of Airbus and Boeing.
- A total of more than 50 million O/D passengers can be accommodated by the two terminal facilities on either side of the airport site, west and east. Modern constructions at the international hub's access points will allow access to the two terminals.
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- Over 220 million passengers can be accommodated in the airport's concourses, each of which has 100 wide-body aircraft contact stands and a 65 million passenger capacity.
- Innovative concourse functional design aiming to raise passenger experience to new levels, never before experienced at any airport.
- An exceptional six-track automated people mover system, connecting the airport's two terminals with its four satellite concourses, was built to enable arriving and departing passengers to reach their destinations on a quick travel route and to allow transfer passengers to move between concourses in a set minimum connect time, enabling them to board their next flight efficiently, timely, and comfortably with the added benefit of taking in the state-of-the-art facilities.
- All commuter travelers and workers will find it convenient to get to their workplace at the airport thanks to the municipal rail network.
- The operational spine of the airport is a giant 40 km multilane subterranean road network that connects the cargo sector to the south, the main terminal area to the north, and the vast support facilities area in between.
- The biggest scale baggage handling system ever utilized in an airport, with the most cutting-edge automated worldwide logistics system. a system with a network designed to enable high-speed, responsive delivery of goods, cargo, baggage, food, spare parts, etc. between the four corners of the airport's expansive land.
- A sizable 8 square km cargo facility area, supported by rapid cargo transfer capabilities, is located to the south of the site.
- A modern maintenance facility and airport support infrastructure area, covering more than 5 square kilometers, offers all the facilities required to maintain and run the airport.
- A sizable landside commercial area is available for the construction of hotels and shopping centers to support airport operations.

III. CONSTRUCTION OF AIRPORT

The airport, which only has one runway as of 2020, is due to undergo a US\$ 32 billion expansion, which will allow it to handle more than 240 million passengers annually. The expansion will be built in two phases over six to eight years.

The first phase is scheduled to complete in 2030 and includes:

- Two more parallel Code F, CAT III B, 4.5 Km runways each with a capability of simultaneous operation (bringing the total to three)
- An additional, West, Terminal with a 165,000 sqm footprint and capable of handling 35 million passengers annually
- 2 Satellite concourses each with a 385,000 sq. m footprint and each capable of handling 65 million passengers a year, 200 wide-body aircraft contact stands, comprising 100 stands each for Code E and Code F aircraft

- Six train links between terminals and concourses (2 tracks each for departure, arrivals and transfers), 3 stations at each concourse and 1 at the West terminal
- Express train on the Dubai Metro connecting the city to the West terminal
- Extension to the Metro Red Line and a new Purple Line.

The second phase does not yet have a delivery date but will include:

- Two more parallel Code F, CAT III B, 4.5 Km runways each with a capability of simultaneous operation (bringing the total to five)
- An additional East Terminal with annual capacity of 15 million passengers
- 2 more satellite concourses each capable of handling 65 million passengers a year raising the airport's total annual capacity to 260 million passengers, and 200 more wide-body aircraft contact stands, raising the total to 200 stands each for Code E and Code F aircraft
- Six extra train links between terminals and concourses (2 tracks each for departure, arrivals and transfers), 3 stations at each concourse and 1 at the West terminal bringing the total to 14 stations (12 at the concourses, 1 at the West Terminal and 1 at the East Terminal)
- Cargo facilities increased to 16 million tonnes per year.

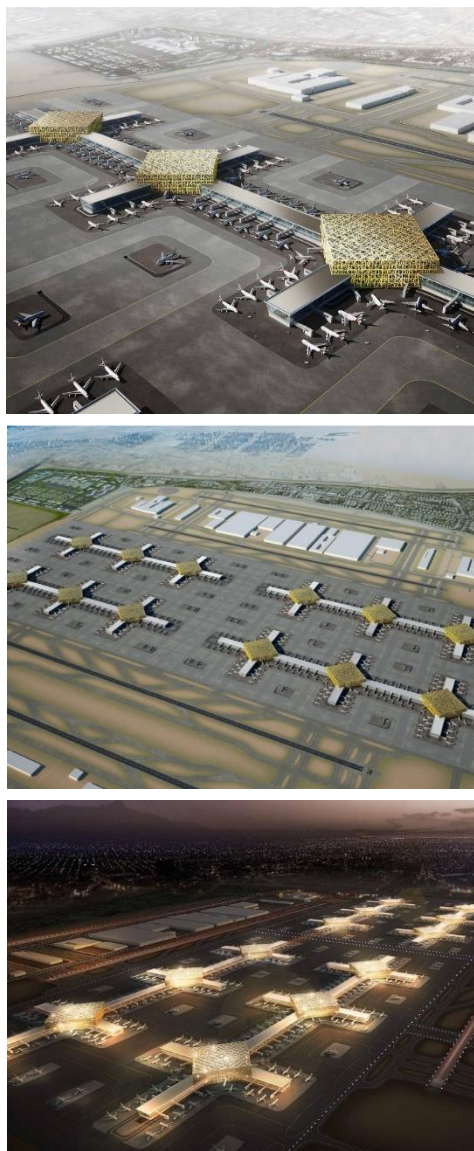


Fig-2: Cargo facilities in future and night view of airport

IV. CONCLUSION

One of the most renowned airports in the world is Dubai International Airport. Prince Rashid bin Saeed Al Maktoum gave the order for its construction in 1969, and it has since undergone substantial growth in every area. The airport has seen a sharp rise in both profits and passengers, and it has won numerous accolades from other nations and organizations, which has significantly boosted its economy and tourism. The Airport Medical Centre, special needs services, Dubai International Airport Hotel, transportation, lounges, a kids' play area, smoking rooms, Al Majlis services, executive flight services, Ahlan services, a contemporary baggage-handling system, and Dubai Duty Free are just a few of the distinctive services and amenities that Dubai International Airport provides to travelers. In a multinational company's top priority, including Dubai International Airport, is service quality because it has a positive impact on the business in terms of both customer happiness and income.

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