

AERODROME ASSESSMENT

MOSUL AIRPORT

IRAQ

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EXECUTIVE SUMMARY

SkyLink Team 3, conducted an assessment of Mosul Airport between 6th and 9th June 2003. The assessment was conducted in accordance with ICAO adopted standards and the requirements of CLIN 001.

Mosul Airport is by Western standards a medium sized regional airport, capable of handling approximately 550,000 passengers per annum but with limited cargo capabilities. It operates with a single North/South Runway (15/33 and 2400m in length), and a single level terminal building, which is situated at the southern end of the runway, on the western side. To the north, there is a dedicated cargo hardstand with a destroyed cargo hangar. Currently the entire airport is controlled by, and the centre for operations of the US Army, 101st Airborne Division.

Prior to 1991, the airport was primarily operated by the military with an unknown number of civil movements. The current passenger terminal was built in 1992 but was not commissioned until Iraqi Airways began a Baghdad – Mosul service (twice per day) in 2001, utilising mostly Boeing 727 aircraft.

Within the boundaries of the airfield, the US Army conducts helicopter operations. They also operate a large communications centre (within the terminal building) and provide accommodation and administrative facilities in support of over 6,000 military personnel. They also provide a limited air traffic service from a control tower located on the eastern side of the airfield. A helicopter maintenance unit is housed within the old cargo hangar complex (structure only), which sustained substantial damage during the recent conflict. Looting during the post conflict period resulted in the removal of large quantities of sheet metal cladding. Once repaired, the hangar would offer ideal cargo handling facilities as it is serviced by a large apron area at the northeastern end of the airfield adjoining the threshold of Runway 15.

The runways, taxiways, and terminal building did not sustain any damage during the recent conflict. USAID operations (passenger and cargo) could commence relatively quickly provided the US Army relocated some of their operational and support assets to alternate locations away from Mosul Airport. The size and scope of civilian operations would then be dependent upon US Army policy on the use of the airport. The commencement of passenger services, however, would be delayed due to the number and complexity of various issues that will require resolution prior to the airport receiving ICAO accreditation. The nature of the recommendations made in this assessment assumes the airport would not operate as an international point-of-entry. This assumption is made based on the requirement for customs and immigration facilities at all approved international points-of-entry, and added ICAO and ATC compliance requirements.

Air Traffic Control services and facilities are basic and limited. All civil operations in the short to medium term would need to be conducted in Visual Meteorological Conditions

(VMC) by day only. Any classification of the airspace surrounding Mosul Airport should be considered as part of the national ATC strategy and not looked at in isolation. The team concluded that any runway extension would be difficult due to the close proximity of residential housing at the northern end of the runway, with river and terrain severely restricting any extension to the south. It is important to note that fog forms in the river valley to the south of the airfield and regularly effects operations in the mornings during the period November to February each year and occurs for approximately 60 days of that period.

Electricity appears reliable, with water and sewerage functioning at the terminal building. The assessment team could not ascertain the water quality, however, the Army utilises bottled drinking water for their personnel.

Person's unknown removed Ground Service Equipment (GSE) owned by Iraqi Airways that had been situated at the airport prior to the recent conflict. Despite arrangements being made, the GSE was not sighted by the assessment team (refer detailed report), although anecdotal evidence suggests that the equipment is in reasonable condition. The US Army has indicated that they may obtain this equipment and relocate it to support operations at Baghdad International Airport. Should this occur replacement equipment would be required as GSE currently operated by the US Army is very limited in its capability to service commercial aircraft.

The largest impediment to Mosul Airport being utilised for the flow of USAID relief materials, supplies, and personnel is the occupation by the US Army. The US Army is undertaking extensive development of their camp and appears to be preparing for a medium to long-term deployment in the area. Brigadier General Sinclair, the Commanding General of the 101st Airborne Division stated to the assessment team that he will not allow any aircraft larger than a Boeing 737 or C-130 Cargo aircraft to land in Mosul. He believes that due to the close proximity of the airport to the centre of Mosul, and US assets that are located close to the runway, heavy lift operations pose risks to both civil and military personnel.

It should also be noted, that as the team could not identify the airfield Pavement Concession Number (PCN); all operations should be restricted to those aircraft with low ACN's until the issue is clarified. Failure to do so could lead to medium to long-term pavement damage. The team was advised that the US Army Engineers were in the process of engaging an external contractor to carry out the required investigation to determine the PCN's. The team could not obtain survey data of the airfield and runways during the inspection, however, we have been advised by Sgt Cliff Adaire, US Army Engineer, that the survey is currently being carried out by the US Army and should be complete before the end of the month.

The US Army plans to divert all cargo operations to Qayyarah West (pron. Key~ara), a large military airfield located 60km to the southwest of Mosul. General Sinclair's concept calls for all military, UN and commercial cargo flights to use the airfield and that cargo to

be distributed via road to final destinations. The airfield is currently under repair after extensive bombing and could be operational within weeks.

The assessment team recommends USAID liaise with the US Army to confirm their intentions, reference the extent of future aircraft operations at Mosul. This plan will confirm Mosul's short to medium term role, i.e. domestic passenger only or a multi use passenger/cargo facility. Notwithstanding the above comments, it is the assessment team's opinion that due to the close proximity of the civilian population, limited Fire Fighting & Rescue Services, and the current congestion on the airport, any cargo aircraft should be limited to C130 specifications. Passenger aircraft should be limited to Class 4C aircraft such as Boeing 737 or smaller. It should be noted that the bituminous taxiways are only able to accept light to medium turbo prop aircraft, due to the potential FOD from the deteriorating bituminous pavement.

INTRODUCTION

General

Since the construction of the aerodrome, (hereon referred to as Mosul Airport) the war and UN sanctions have caused a continual degradation of infrastructure and system. Up until 1992, the airfield was utilised predominately by the Iraqi Air force with a small civilian presence supporting Iraqi Airways domestic services. In 1992, a new civilian passenger terminal was constructed but not opened until 2001. The Iraqi Air force provided all services to the airfield except the operation of the passenger terminal and the handling of Iraqi Airways flights. These functions were undertaken by the Iraqi Civil Aviation Authority (ICAA) and Iraqi Airways, which provided all passenger and aircraft handling services. What was once a functional airport is now non-compliant with standards required of a modern airport.

Currently the airport is operated by the US Army, predominately for helicopter operations. The US Army has over 6 000 men on the airport and is in the process of developing the site for a medium to long-term stay. The US Army has set the current airfield operating procedures, including allowable aircraft types. Consequently, the airports ability to handle the flow of rehabilitation cargoes including food and medical assistance and materials for reconstruction is limited

Statement of Work

The Statement of Work issued by USAID comprises the following three tasks for Mosul Airport:

- CLIN 001: Initial Aerodrome Management Assessments.
- CLIN 002: Planning Implementation of Aerodrome Improvements.
- CLIN 003: Direct Operation of Aerodromes

Initial Assessment

An initial management assessment of Mosul Airport in accordance with CLIN 001, as well as a thorough assessment of air traffic management was conducted during the period June 2003. The assessment was carried out by the following personnel:

- Leon Smith – Team Leader.
- Mal Sandford – Airport Logistics/Operations Specialist.
- Rod Clarke – Air Traffic Control Specialist.
- Brendan Dinnar – Civil Engineer.

Aim

The aim of this report is to present the outcomes of the assessment of airfield resources, systems, utilities and facilities in place for the control, safety, service and security of civil aircraft at Mosul Airport.

Scope

The scope of the assessment includes all elements associated with the approach, arrival, turn-around, and departure of aircraft from Mosul Airport. The following airport elements are addressed herein:

- Air Operations.
- Emergency.
- Ground handling.
- Aerodrome infrastructure.
- Cargo handling.
- Passenger handling.
- General infrastructure.
- Utilities.
- Military operations and reconstruction activities.
- Environmental considerations.
- Airport requirements, ordinances, leases, agreements, laws and regulations.

Recommendations for improvements based upon the following timescales are made:

- Short term (up to 6 months).
- Medium term (6-18 months).
- Long term (beyond 18 months).

Assumptions

The following assumptions were made:

Information gathered during interviews with Iraqi nationals responsible for the above airfield elements was accurate.

- Where it was impossible to examine items of infrastructure and equipment, it was assumed that these items were in a similar state of serviceability to like items inspected.

- The air traffic management problem must be approached on a national rather than individual airport requirement.
- Iraqi Subject Matter Experts (SME) will play a crucial role in achieving the recommendations detailed herein.

Limitations

The limitations of the assessment were as follow:

- Access to records, plans and diagrams.
- Access to legislation, leases, agreements, laws, regulations and extant contracts, and MOUs.
- Ready access to Iraqi SMEs.
- Access to off-field facilities.
- Inability to examine or investigate structure concealed behind fixtures and fittings or in sensitive military areas where access was restricted.
- Access to the marketplace for costing analysis.

Authorities Consulted

A list of authorities consulted throughout the assessment is at Annex A. US Army Engineer Survey Teams are currently undertaking a survey of the airfield for obstacles and reference points. As at the time of writing this assessment, this survey was not complete. The team could not locate any assessment reports conducted by coalition military units or any Iraqi Air force/ICAA airfield technical data. In May 03, a UN Joint Logistics Centre Airport Brief was undertaken, which found the airport suitable for aircraft up to AN- 124. Team 3 does not support this recommendation.

BACKGROUND

Development of Mosul Airport

Prior to 1991, Mosul Airport comprised a military airfield with a small commercial operation with Iraqi Airways operating regional flights to and from Baghdad. In 1992, a new Passenger Terminal was completed but due to the Gulf War it was not commissioned until 2001. From 2001 to early 2003, the airfield was utilised by the Iraqi Air force and Iraqi Airways, which flew two Boeing 727 aircraft daily to and from Baghdad

The Iraqi Air force managed all airport functions except the passenger terminal operations. These functions were undertaken by the ICAA and Iraqi Airways, who were responsible for their own requirements, including ramp, passenger handling and security services. Anecdotal evidence suggests that ICAA in Baghdad had significant oversight in the airfields operations.

Since Coalition Forces arrived in Mosul, the US Army has based the 101st Airborne Division at the airport. Currently all airport operations and support is provided by this unit. The majority of flights are helicopter operations with occasional C130 cargo and UN Boeing 737 (WFP) passenger flights.

The airport equipment has not been supported by through-life integrated support including configuration control, training, maintenance management, and spare parts. The serviceability and reliability of key airfield elements suffered due to the inactivity between 1991 and 2000, and minimal operations between 2001 and 2003.

Description of Mosul Airport

Mosul Airport is located approximately four km to the south of Mosul. It covers an area of approximately 3 square kilometres, and is 225.5 metres above sea level. The airport is ringed by housing and public land, which limits any future expansion. A two lane sealed main access highway connects the city with the airport from the south. The road surface appears in sound condition with debris and refuge scattered along its length. To the north of the airport, a narrow road threads its way through residential housing to a main through road.

The airport consists of:

- Runway: 15/33 – 2400 meter concrete paved runway.
- Taxiways: one.
- Aprons: two.
- Passenger Terminals: one.
- Cargo terminal: destroyed, hard standing could be used.
- Catering building: nil.

- ATC facilities: one tower and office, both in disrepair.
- Hangar and maintenance building: to the north of the airfield but both completely destroyed.
- Fuel farm: nil.
- Fire station: two garages and hardstand but no office.
- Medical centre: nil.
- Weather station: nil.
- Administrative buildings: small old facility beside new terminal.
- Car parks: small site beside terminal.

Data taken from a United Nations Joint Logistics Centre Airport Brief dated 26-05-2003 is at Annex B.

Known airfield obstacles located at:

- Major obstacle at 1065ft (324.6m) AGL bearing 070 at 5nm
- Other obstacle at 320ft (97.5m) AGL bearing 070 at 3nm

AIR OPERATIONS

References

ICAO Annex 3 – Meteorological Service for International Air Navigation
ICAO Annex 4 – Aeronautical Charts
ICAO Annex 10 – Aeronautical Communications
ICAO Annex 11 – Air Traffic Services
ICAO Annex 14 – Aerodrome Design and Operations.
ICAO Annex 15 - Aeronautical Information Services
ICAO Doc 4444 – Air Traffic Management
WMO Volume 1 – General Meteorological Standards and Recommended Practices
WMO Volume 2 – Meteorological Services for International Air Navigation
WMO Weather Reporting Volumes A, B and C
United Nations Joint Logistics Centre Airport Brief dated 26-05-2003

Overview

Air operations are defined as the delivery of Air Traffic Management (ATM) services to arriving and departing aircraft. A number of supporting elements, all of which are essential and inter-dependent for the delivery of this service, have been considered when making an assessment of Mosul Airport's Air Traffic Control (ATC) capability.

The type of ATC service provided to users of Mosul Airport will be determined by airspace design. Each level of airspace classification requires an appropriate level of technical and personnel support and should be determined by various factors including current and anticipated traffic density levels.

Coalition forces are currently providing all ATM services, including air space architecture and control for the Iraqi Flight Information Region (FIR). The United States Army is providing Class F Airspace control services (or similar) at Mosul.

Control Tower, Approach & Area Control Centre – Mosul ATC

There is no evidence to indicate the presence of any form of civil ATC service being provided at Mosul Airport during recent times. Some documentation located at Baghdad suggests that Baghdad ATC provided a control service but this could not be confirmed. The Mosul Airport Manager indicated that the Iraqi military provided a local ATC service, probably aerodrome control only.

There is no comprehensive Manual of Air Traffic Services (ATS), local operating instructions or any evidence of an ATS safety oversight program. No ATC personnel, if any existed, were available for interview.

ATC infrastructure consisted of a building with four levels. It was located on the eastern side of the airfield, abeam the midpoint of the runway. Levels one to three appeared

