International Civil Aviation Organization

MIDANPIRG/23 & RASG-MID/13 Meetings

(Cairo, Egypt, 14 – 18 June 2026)

Agenda Item 5.6: ATM-SAR

ROLE OF THE GENERAL DIRECTORATE OF AVIATION OPERATION AND SERVICES DURING THE REGIONAL CRISIS SITUATION

(Presented by the State of Qatar)

SUMMARY

This paper presents the operational measures, contingency arrangements, and coordination mechanisms implemented by the Qatar Civil Aviation Authority (QCAA), represented by the General Directorate of Aviation Operations and Services, during the regional crisis situation affecting the Middle East airspace and Doha Flight Information Region (FIR). The paper highlights the actions taken to ensure safety, continuity, and resilience of aviation operations through enhanced air navigation services, emergency preparedness, civil-military coordination, and airport emergency response measures. It further addresses the regulatory compliance framework maintained throughout all phases of the contingency, including measures to preserve the validity of ATCO licenses and ratings, competency assurance, and continuous alignment with national, regional, and international standards. The paper also presents the State of Qatar's responses to the ICAO MID Region Recovery Checklist (Part B) regarding Letters of Agreement, separation minima, and ATFM arrangements with adjacent FIRs, as well as QCAA's active participation in the Crisis Coordination Team (CCT) meetings for regional contingency alignment. It outlines the key operational challenges encountered, mitigation actions adopted, lessons learned, and improvements introduced to strengthen operational readiness and crisis management capabilities. The paper further emphasizes the importance of regional cooperation, It also outlines the key operational challenges encountered, mitigation actions adopted, lessons learned, and improvements introduced to strengthen operational readiness and crisis management capabilities. The paper further emphasizes the importance of regional cooperation, stakeholder coordination, and flexible contingency planning in maintaining safe and orderly aviation operations under constrained regional conditions.

Action by the meeting is at paragraph 3.

REFERENCES

- ICAO Annex 11 – Air Traffic Services, Fifteenth Edition, 2018.
- ICAO Doc 4444 – Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM), Sixteenth Edition, 2016.
- ICAO MID Doc 003 – MID Region ATM Contingency Plan, Version 5.0, March 2024.
- ICAO MID Doc 014 – MID Region ATFM Plan, Version 2.0.

1. INTRODUCTION

1.1 During the regional security developments affecting the Middle East airspace and Flight Information Regions (FIRs), the State of Qatar, represented by the Qatar Civil Aviation Authority (QCAA), activated a comprehensive crisis-management framework to ensure the continuity, safety, and resilience of aviation operations.

1.2 The General Directorate of Aviation Operations and Services played a central role in coordinating operational, technical, emergency, and safety-related activities among all concerned departments and stakeholders, including Air Navigation Services, Airport Operations, Fire and Rescue Services, the National Command Centre (NCC), security authorities, airlines, and regional air navigation partners.

1.3 This paper highlights the operational measures, contingency arrangements, coordination mechanisms, challenges encountered, lessons learned, and performance outcomes implemented during the crisis period.

2. DISCUSSION

2.1 Operational Measures Implemented

2.1.1 Air Navigation Services

The Air Navigation Department implemented several operational and contingency measures to maintain safe and orderly air traffic services within Doha FIR, including:

- Activation of contingency ATM procedures;
- Implementation of Emergency Security Control of Air Traffic (ESCAT);
- Continuous coordination with adjacent FIRs and military authorities;
- Development of temporary routing structures and contingency corridors;
- Tactical traffic flow management during restricted operations;
- Flexible sectorization and staffing arrangements;
- Enhanced controller briefings and operational coordination procedures;
- Evacuation and relocation readiness for operational units;
- Maintenance of minimum ATS staffing levels at all operational units; and
- Continuous NOTAM publication and operational updates.

These measures enabled the continuation of controlled arrivals and departures despite significant regional airspace restrictions.

2.1.2 Fire and Rescue Services

The Fire and Rescue Department implemented enhanced emergency readiness measures to ensure airport operational continuity and emergency response capability, including:

- Raising operational readiness levels across all fire stations;
- Strategic redistribution of firefighting vehicles and personnel;

- Reinforcement of technical inspections and equipment readiness;
- Continuous coordination with the NCC, airport security, and military authorities;
- Ensuring sufficient stock levels of firefighting materials;
- Updating airport emergency response plans;
- Enhancing shift management and manpower allocation; and
- Monitoring operational developments and implementing preventive actions based on risk assessments.

These measures ensured uninterrupted emergency response capability throughout the crisis period.

2.1.3 Virtual Tower Control

As part of the contingency measures implemented during the regional crisis, QCAA assessed and activated Virtual Tower Control capabilities as an alternative and supplementary means of providing aerodrome control services. The Virtual Tower system, leveraging high-definition camera networks, real-time data integration, and digital display technologies, provided controllers with a comprehensive situational awareness picture of aerodrome surface and traffic movements without requiring physical presence in the traditional control tower cab. Key aspects of the Virtual Tower deployment included:

- Activation of the remote/virtual tower operational position at a designated safe location, enabling uninterrupted aerodrome control services in the event of primary tower evacuation or inaccessibility;
- Integration of multi-sensor feeds, including CCTV, panoramic cameras, and Surface Movement Radar (SMR) data, to replicate the visual and situational awareness environment of the physical tower cab;
- Coordination with approach and area control units to ensure seamless handover procedures and compatibility with contingency ATM arrangements active during the crisis period;
- Delivery of targeted familiarization and operational readiness training to aerodrome controllers on Virtual Tower procedures, human-machine interface operation, and degraded mode contingency protocols;
- Establishment of technical redundancy measures for the Virtual Tower system, including backup communication links, power supply continuity, and cybersecurity safeguards; and
- Compliance with applicable ICAO standards and national regulatory requirements governing the provision of aerodrome control services through remote and virtual tower technologies.

The deployment of Virtual Tower Control capabilities significantly enhanced aerodrome operational resilience by providing a viable and operationally validated fallback arrangement for tower services, reducing the dependency on physical tower infrastructure during contingency operations.

2.2 Contingency and Emergency Arrangements

2.2.1 Air Navigation Services

QCAA implemented structured contingency arrangements, including:

- ESCAT operational framework;
- Temporary ATS contingency routes;
- Civil-military operational coordination procedures
- Emergency evacuation procedures for ATS units
- Standby staffing systems
- Tactical rerouting and holding procedures
- Operational fallback arrangements between operational units.

Additional contingency routing through neighbouring `FIRs significantly improved operational resilience.

2.2.2 Fire and Rescue Services

Emergency contingency arrangements included:

- Activation of airport emergency plans;
- Establishment of reserve deployment positions;
- Rapid manpower recall procedures;
- Alternative operational locations for firefighting units;
- Reinforced communication channels with all stakeholders;
- Emergency evacuation procedures for critical airport facilities; and
- Continuous operational monitoring and reassessment.

2.3 Key Challenges and Mitigation Actions

The crisis created several operational challenges, which were addressed through the following mitigation actions:

Challenge	Mitigation Action
Closure of several regional airspaces	Implementation of alternative routing structures and intensive regional coordination.
Increased operational workload	Enhanced shift management and redistribution of operational resources.
Requirement for continuous civil-military coordination	Establishment of direct and continuous coordination channels.
Potential evacuation of operational facilities	Activation of alternative evacuation and contingency plans.
Risks associated with proximity of some facilities to fuel storage areas	Redistribution of operational and emergency response resources to safer locations.

2.4 Regional and International Coordination

QCAA maintained continuous coordination with regional and international stakeholders, including:

- Adjacent FIRs;
- ICAO MID Region partners
- Saudi Arabia ACC
- Emirates ACC
- Military coordination authorities.

This coordination contributed significantly to maintaining safe and controlled operations during the crisis.

2.5 Compliance and Regulatory Assurance

A fundamental strategic objective of the General Directorate of Aviation Operations and Services throughout all phases of the contingency was to ensure continuous compliance with applicable national regulations, international standards, and regional arrangements. This commitment was embedded in the planning and execution of all contingency measures from the outset of the crisis.

2.5.1 Compliance with National and International Standards

All operational and contingency measures were implemented in strict accordance with:

- Qatar's national civil aviation regulations and applicable QCAA directives;
- ICAO Standards and Recommended Practices (SARPs), including Annex 11 and the provisions of PANS-ATM (Doc 4444);
- ICAO MID Region ATM Contingency Plan (MID Doc 003, Version 5.0); and
- Regional arrangements and Letters of Agreement with adjacent FIRs.

This compliance framework ensured that all contingency procedures remained within agreed safety parameters and that no measures were introduced that could compromise service integrity or create unacceptable risks to aviation safety.

2.5.2 ATCO Licensing, Ratings, and Competency Maintenance

A critical element of the compliance strategy was the continuous preservation of the validity of Air Traffic Controller (ATCO) licences and ratings throughout the crisis period. Specific measures implemented included:

- Systematic monitoring of the validity status of all ATCO licences and unit endorsements;
- Scheduling and conduct of competency checks and proficiency assessments in accordance with ICAO requirements and national licensing regulations, including for controllers in reduced or modified operational roles during ESCAT;
- Application of simulator-based training sessions to maintain controller proficiency where active operational exposure was reduced due to traffic restrictions;
- Ensuring the continuity of On-the-Job Training Instructor (OJTI) activities and assessor functions where operationally feasible;
- Coordination with the QCAA Licensing Authority to address any time-limited licensing obligations arising from constrained operations; and

- Documentation and record-keeping of all training, checking, and assessment activities conducted during the contingency period.

These measures ensured that upon resumption of normal operations, all ATCOs remained fully qualified and authorized to provide ATS services without interruption, thereby avoiding any post-crisis operational gaps attributable to licence or rating lapses.

2.6 Participation in the Crisis Coordination Team (CCT) and Regional Contingency Alignment

The State of Qatar, through QCAA, actively participated in the ICAO MID Region Crisis Coordination Team (CCT) meetings throughout the contingency period. This participation was a key mechanism for aligning national contingency measures with the evolving regional situation and ensuring coherent, harmonized responses across the MID Region.

Key activities conducted through CCT engagement included:

- Regular attendance at CCT coordination meetings and briefings, both at senior management and operational levels;
- Exchange of real-time operational information, traffic data, and status updates with ICAO MID Office and neighbouring States;
- Alignment of national NOTAM publications and ESCAT activation/deactivation timelines with regionally agreed coordination;
- Contribution to the development and refinement of regional recovery planning criteria;
- Coordination with IATA and airline stakeholders through the CCT framework to manage traffic demand expectations;
- Review and endorsement of CCT recommendations regarding phased resumption of operations, separation standards, and ATFM measures; and
- Feedback provision on national-level implementation challenges and best practices for regional lessons-learned processes.

This engagement ensured that the State of Qatar's contingency actions remained harmonized with those of adjacent FIRs and were consistent with the overarching MID Region ATM Contingency Plan objectives.

2.7 MID Region ATM Recovery Checklist – Part B: Regional Coordination Arrangements

In accordance with the ICAO MID Region ATM Contingency Plan recovery phase requirements, QCAA provided the following responses to the ICAO MID Office under Part B of the "MID Political Tension Contingency. ATM Recovery Checklist and Regional Arrangements":

Item	State of Qatar Response
Validity of current Letters of Agreement (LoAs) with adjacent ACCs.	The current Letters of Agreement remain valid. Any additional temporary measures required during the resumption phase will be coordinated with adjacent units, and operational procedures will be defined and implemented accordingly through agreed coordination mechanisms and operational instructions.
Type and minima of agreed separation for traffic exchange.	Upon reopening of Doha FIR, lateral separation within Doha FIR shall revert to five (5) nautical miles. Longitudinal separation with adjacent units shall be applied in accordance with existing LoAs.

	Doha ACC applies both time-based and distance-based separation depending on the adjacent ACC and, in some cases, the specific ATS route concerned. Distance-based minima range from 8NM (constant or increasing) to 80NM (following aircraft more than M0.04 faster). Time-based separation includes, for example, 5 minutes at specified waypoints, in accordance with applicable LoA conditions.
Level restrictions on inbound/outbound traffic.	The currently applied ESCAT procedure limits certain flights to specified flight levels, more restrictive than existing LoA arrangements. Upon reopening of Doha FIR, vertical limits shall revert to normal in accordance with existing LoAs. No additional restrictions shall be required other than those imposed by military authorities or agreed with adjacent units.
ATFM measures provisions in current LoAs.	ATFM measures are covered in the LoAs with all adjacent ACCs, as follows: **Bahrain:** Only tactical ATFM operations will be implemented (Annex G, G.1.2). **Emirates:** Only tactical ATFM operations will be implemented (Appendix G, G.1.2). **Iran:** If required, the affected ACC shall advise the implementation of ATFM measures (Annex H, H.2 & H.3). **Saudi Arabia:** If required, the affected ATC Unit would advise the implementation of ATFM measures (Appendix G, G.2.5 & G.3.5).

QCAA has taken note of the CCT recommendations regarding the application of wider longitudinal separation (preferably 15 minutes, not less than 10 minutes) during initial resumption, the implementation of a Flight Level Allocation Scheme (FLAS) at transfer points, and the progressive relaxation of constraints in coordination with the CCT. These recommendations will be incorporated into the national recovery plan and implemented in close coordination with adjacent FIRs and the ICAO MID Office.

2.8 Lessons Learned and Improvements

2.8.1 Key Lessons Learned

The following key lessons were identified:

- Importance of structured civil-military coordination
- Value of pre-established contingency procedures
- Need for operational flexibility during rapidly changing situations
- Importance of resilient staffing and evacuation readiness
- Critical role of regional cooperation and information sharing
- Necessity of continuous risk assessment; and
- Importance of infrastructure resilience and redundancy.

2.8.2 Improvements Implemented

The following improvements were introduced:

- Enhancement of contingency routing structures
- Review and update of emergency response procedures
- Additional training for operational and emergency personnel
- Development of additional firefighting infrastructure plans
- Improvement of water distribution and emergency support systems
- Strengthening of staff wellbeing and psychological support initiatives.

2.9 Performance Indicators and Outcomes

2.9.1 Operational Outcomes

The following operational outcomes were achieved:

- Successful continuation of critical ATS services
- Progressive increase in managed air traffic during ESCAT operations
- Maintenance of emergency response readiness throughout the crisis
- Zero major operational disruptions affecting airport safety
- Improved coordination effectiveness with stakeholders
- Enhanced operational resilience under constrained conditions.

2.9.2 Traffic Statistics

During the ESCAT operational period, the following traffic was handled:

- Total movements handled: 1,982
- Departures: 989
- Arrivals: 993.

The gradual increase in traffic demonstrated the effectiveness of the implemented contingency measures and coordination mechanisms.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information presented in this paper;

b) recognize the operational coordination efforts implemented by QCAA during the regional crisis period; and

c) encourage continued regional cooperation and exchange of lessons learned to strengthen aviation resilience within the MID Region.

— END —