



**World Food
Programme**

**Flight Operations Challenges
from Air Traffic Management (ATM)
Perspective in Remote Areas
during Humanitarian Crisis**

**Presented by
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Agenda

- ❖ **Overview**
- ❖ **Type of events generating humanitarian crisis**
- ❖ **Impact on ATM**
- ❖ **Flight operations challenges**
- ❖ **Preventive and recovery measures**

Overview

❖ Humanitarian Crisis

- is an event or series of events that represents a critical threat to the health, safety, security or wellbeing of a community or other large group of people, usually over a wide area (<https://www.humanitariancoalition.ca>)
- is a situation with high levels of human suffering in which basic human welfare is in danger on a large scale. (Internews Humanitarian Media Unit)
- **Humanitarian:** Concerned with or seeking to promote human welfare
Crisis: A time of intense difficulty or danger. (Oxford Dictionary)



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Overview

❖ Air Traffic Management

- The dynamic, integrated management of air traffic and airspace including *air traffic services, airspace management and air traffic flow management* — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.



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Types of Events Generating Humanitarian Crisis

❖ Natural disasters

➤ Natural hazards

- Geophysical (tsunami, earthquakes)
- Hydrological (avalanches and floods)
- Climatological (droughts, wildfires)
- Meteorological (cyclones, storm waves)
- Biological (disease epidemics)

➤ Technological or Man-made hazards

- Armed conflict
- Plane and train accidents
- Fire and industrial accidents
- Nuclear event

❖ Complex emergencies

- Food insecurity
- Armed conflict
- Displaced populations



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Impact on ATM (1/2)

- ❖ General impact analysis of type of events on ATM
 - ATS
 - ASM
 - ATFM
- ❖ Criteria
 - Safe, orderly and expeditious of flow of traffic in providing ATM services
 - ATC capacity modification
 - Airspace restrictions
 - Infrastructure/systems supporting ATM services

A detailed image of a flight plan form, likely a JOPREP or similar document. It contains various fields for flight information, including aircraft type, route, altitude, and communication frequencies. The form is filled out with handwritten and printed text.

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Impact on ATM (2/2)

❖ General impact analysis on ATM/ANS:

- ATS:
 - ☐ ATCOs increased workload
 - ☐ ATC capacity utilized to the maximum extent possible
 - ☐ Infrastructure affected
- ASM:
 - ☐ Airspace unavailable due to:
 - Reserved, restricted airspace for military operations
 - No COM or NAVAIDS coverage
- ATFM:
 - ☐ Flight cancellation
 - ☐ Flight re-routing
 - ☐ Flight re-scheduling
 - ☐ Flight diversion
 - ☐ Flight delay



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Flight Operations Challenges

❖ Flight operations challenges from ATM perspective

➤ ATS:

❑ ATS Units

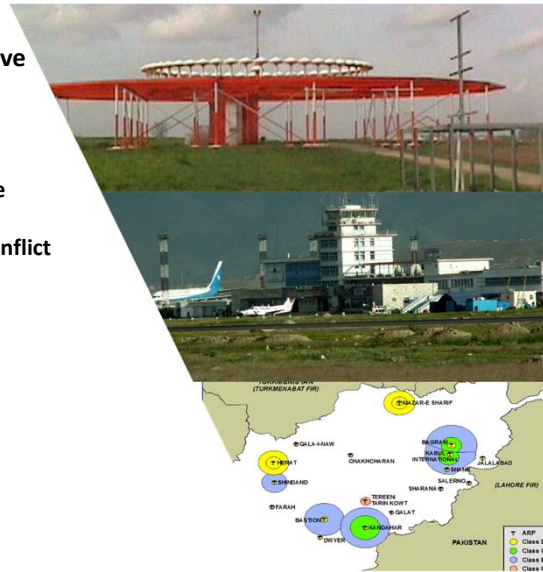
- Procedural area control service
- Procedural approach control service and aerodrome control service provided by TWR
- ATS procedures not fully ICAO compliant– armed conflict

❑ CNS

- Limited coverage or degraded of radio COM
- Basic NAV systems (NDB, VOR/DME)
- Possible no radar coverage

❑ ATCO personnel

- Language barrier
- Reduced level of competency for:
 - handling heavy traffic
 - conducting abnormal situations / emergency procedures



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Flight Operations Challenges

❖ Flight operations challenges from ATM perspective

➤ Airspace Management:

❑ Control Areas

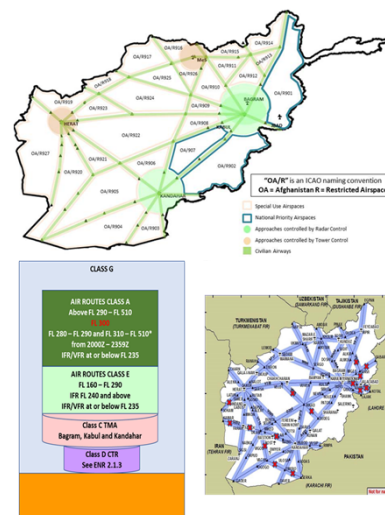
- Possible Non RNAV routes (A,B,G,R 1-999)
- Strict adherence to air routes
- Possible air routes restrictions

❑ Terminal Areas

- Limited or unavailable STARs, IAPs and SIDs
- Expect approach as a VFR flight
- Possible no entry points

❑ Airspace Reservation, Airspace Restriction (D, R, P Areas)

- Located in CTAs, TMAs and CTRs
- Flexible Use of Airspace (FUA) might not be implemented



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Flight Operations Challenges

❖ Flight operations challenges from ATM perspective

➤ Air Traffic Flow Management

- ❑ Might not be implemented
- ❑ AIP and Regional Supplementary Procedures might publish ATFM measures
- ❑ ATFM centre - crisis management coordination position
- ❑ Flight plan:
 - Submit ICAO flight plan format; expect AFIL
 - Roundtrip flight plan might be required
 - Prior Permission Request for armed conflict zones
 - Insert in *Field Type 18 of FPL – Other information of FPL: STS/HUM*

ATFM measures			
	Strategic	Pre-tactical	Tactical
Vertical			Re-routing (level capping scenarios)
Lateral			Fix balancing Re-routing (mandatory or alternative) Level capping scenarios Collaborative trajectory options
Longitudinal		Collaborative trajectory options	Collaborative trajectory options Miles-in-trail Minutes-in-trail Minimum departure intervals
Time	Ground delay programme Airborne holding	Ground delay programme	Slot swapping Ground delay programme Ground stop Airborne holding

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Preventive and Recovery Measures

❖ ATM Preventive measures

Develop Contingency Plans/Procedures

- Establish contacts
- Define Operational Instructions (responsibilities, initiation of procedures, actions)
- Make available tools

Allocate resources

- Budget
- People
- Facilities

Building partnership

- Relevant stakeholders at national, regional level for the preparation of crisis

Training/Exercises

- Procedures
- Internal and external communication
- Adequate tools

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Preventive and Recovery Measures

❖ ATM recovery measures

- Remediate and put into function the affected ATM systems
- Inform relevant stakeholders
- Conduct an evaluation
 - ❑ Lessons learned
 - ❑ Corrective action plan



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Preventive and Recovery Measures

❖ Pilots/Air operators preventive measures

- Pilots should do an adequate flight planning
 - ❑ Collect aeronautical information (AIP, NOTAM, ATFM messages):
 - Airspace structure (routes, STARs, IAPs and SIDs)
 - ATS procedures
 - Availability of CNS systems
- Air Operators should:
 - ❑ Be involved in ATFM execution (strategic, pre-tactical and tactical phases)
 - ❑ Contact ATS authority



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Preventive and Recovery Measures

❖ UN/ICAO potential preventive measures

- Developing a “Global Concept of Operations (CONOPS) for aviation domains during humanitarian crisis”
- Analyzing the potential concept:

“UN Humanitarian Aviation Rapid Deployable Cell”

 - ❑ Expertise
 - ❑ Technical support
 - ❑ Limited operational services

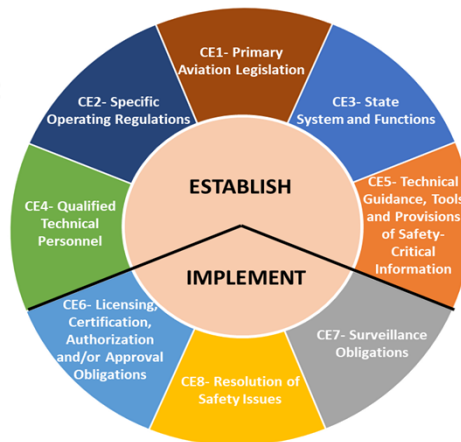


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Preventive and Recovery Measures

❖ UN/ICAO Potential recovery measures during/after international armed conflict

- ICAO cell provide expertise/assistance
- Re-build State Safety Oversight System



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Thank You!



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