



SAR Development and Challenges in the MID Region

presented by

Elie El Khoury

ICAO

Aqaba, Jordan 1-4 December 2019

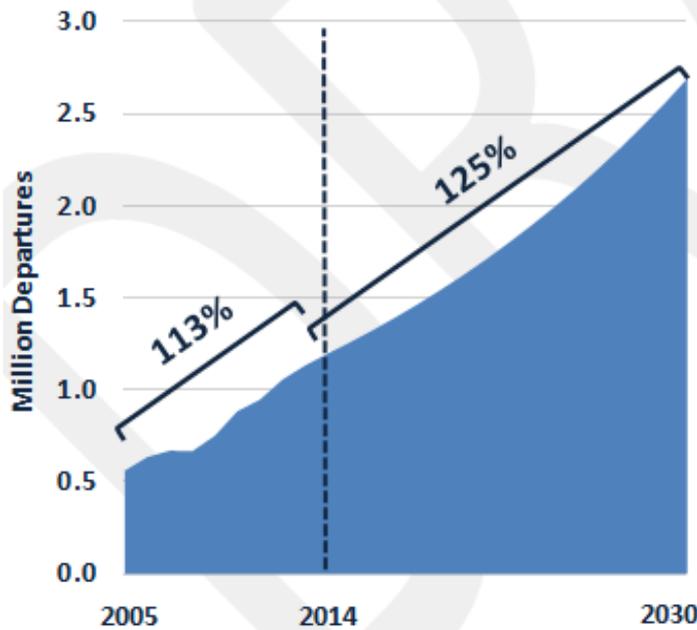


Outline

- ✓ Few Statistics
- ✓ SAR main challenges
- ✓ SAR Activities in the MID Region
- ✓ ICAO/IMO SAR GMDSS Conference
- ✓ Key points

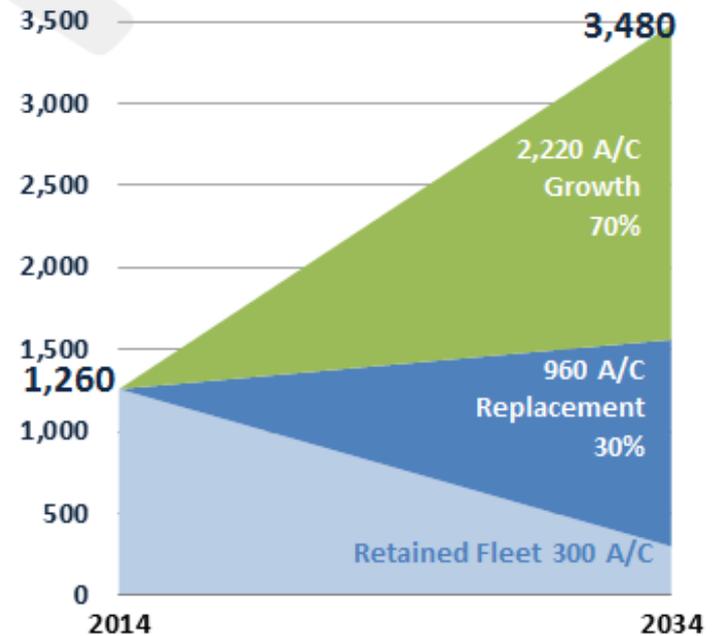
Growth in the MID Region

Middle East Aircraft Movements & Growth



Source: ICAO

Middle East Commercial Aircraft Deliveries



Source: Boeing Co.

The Middle East Region moved **14 per cent** of world Revenue Passenger-Kilometers (RPK) and recorded the highest annual growth of **12.1 per cent** in 2015

The total number of departures reached **36.7 million** in 2017, with an increase of **3.1%** compared to 2016.

Accidents

Safety Indicator

Number of accidents per million departures

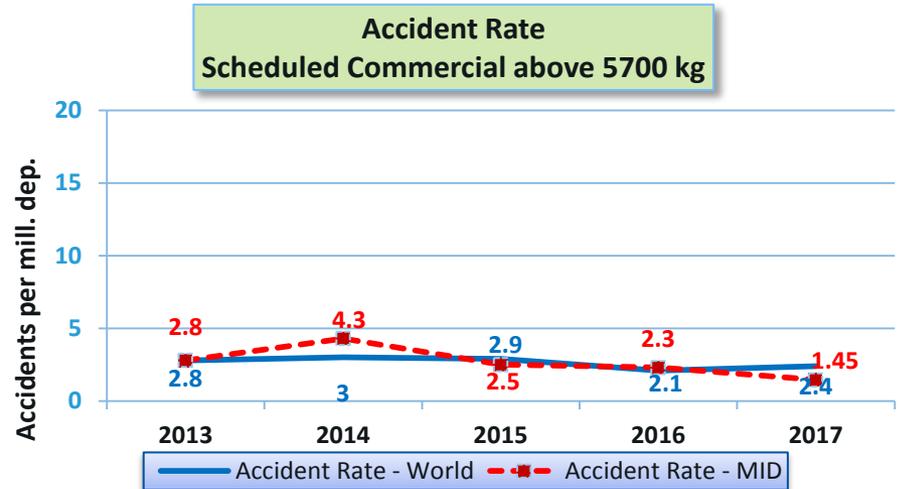
Safety Target

Reduce/Maintain the regional average rate of accidents to be in line with the global average rate by 2016

Average 2013-2017

Average MID
2.67

Average Global
2.64



Official ICAO accident statistics, used for the development of the ICAO safety reports
Scheduled commercial operations involving aircraft with MTOW above 5700 kg

Fatal Accidents

Safety Indicator

Number of fatal accidents per million departures

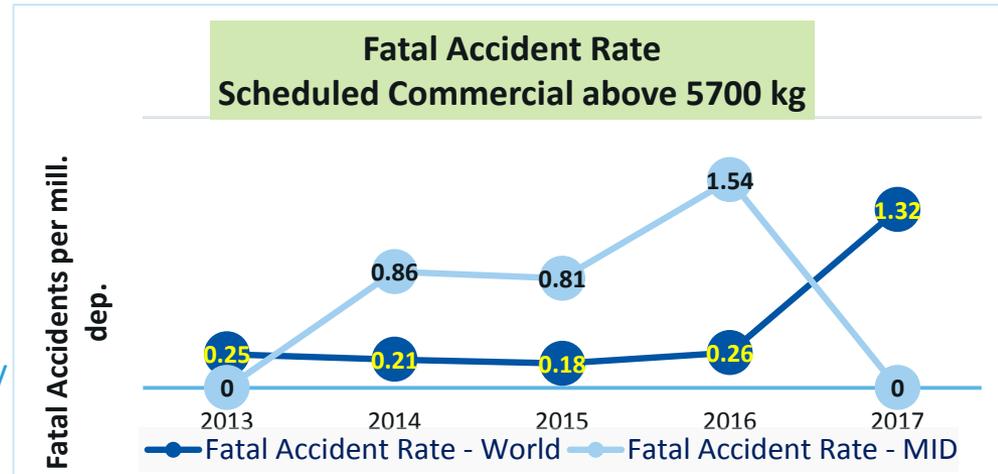
Safety Target

Reduce/Maintain the regional average rate of fatal accidents to be in line with the global average rate by 2016

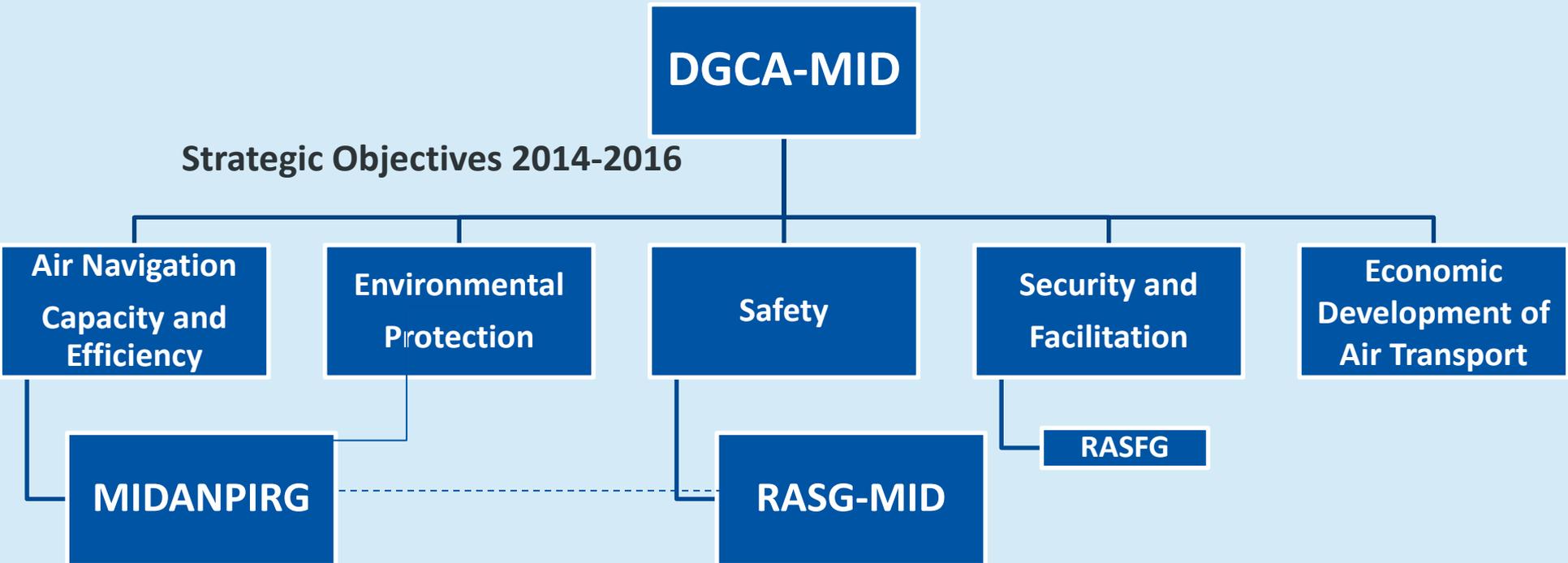
Average 2013-2017

Average MID
0.64

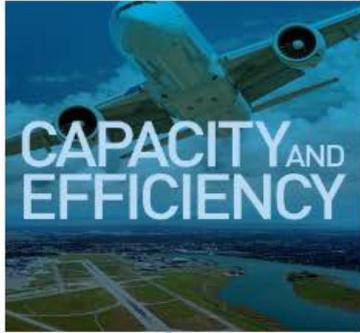
Average Global
0.44



*Official ICAO accident statistics, used for the development of the ICAO safety reports
Scheduled commercial operations involving aircraft with MTOW above 5700 kg*



ICAO Strategic Objectives



GASP

GANP

GASeP

All

Safety Strategy

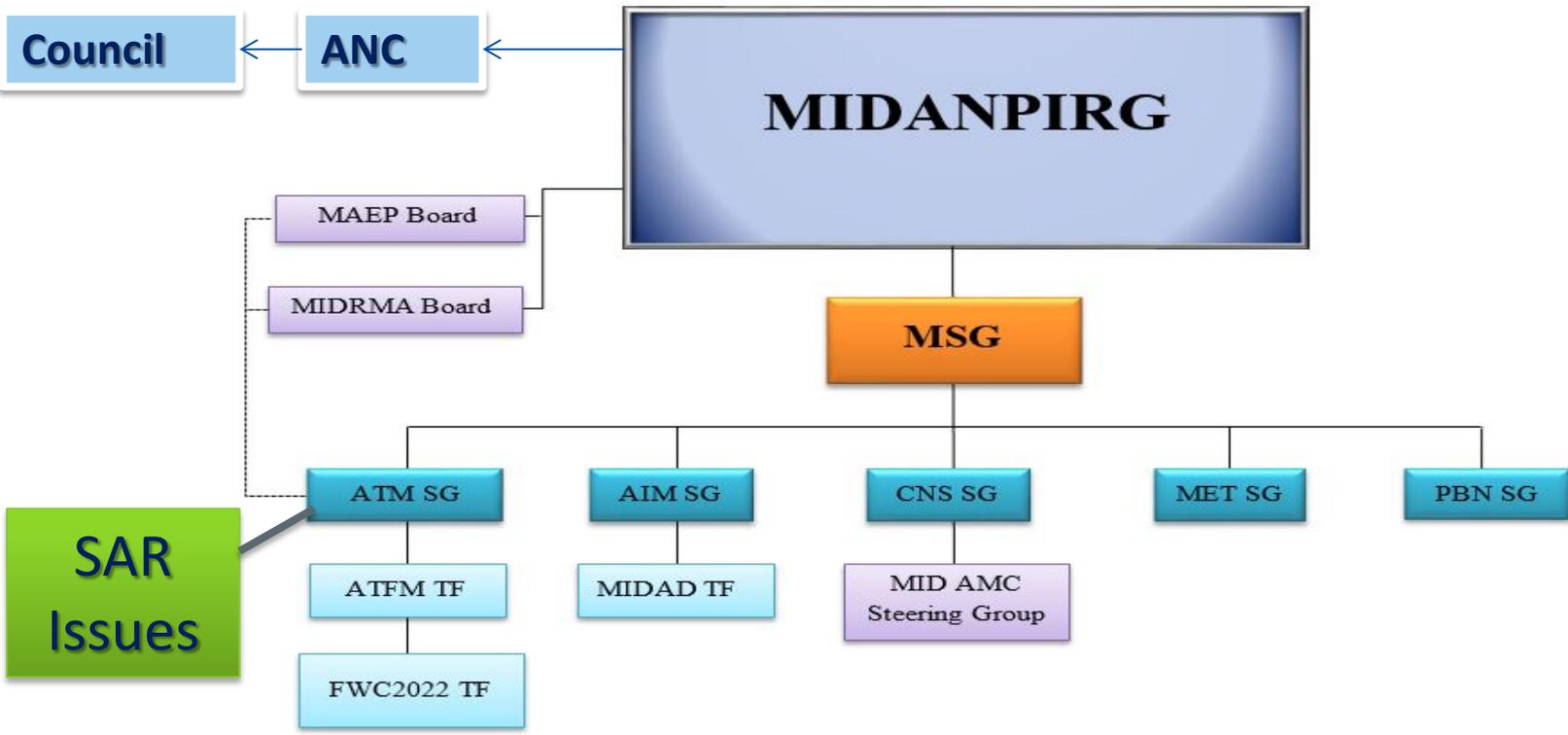
ANP & AN Strategy

AVSEC/FAL Strategy

MIDANPIRG

RASG-MID

MID-RASFG



MSG	MIDANPIRG Steering Group	ATFM TF	Air Traffic Flow Management Task Force
AIM SG	Aeronautical Information Management Sub-Group	FWC2022 TF	FIFA World Cup 2022 Task Force
ATM SG	Air Traffic Management Sub-Group	MIDAD TF	MID Region AIS Database Task-Force
CNS SG	Communication Navigation Surveillance Sub-Group	MID AMC Steering Group	MID Region ATS Message Management Centre Steering Group
MET SG	Meteorology Sub-Group	MAEP Board	MID Region ATM Enhancement Programme Board

MID electronic Air Navigation Plan (MID eANP) ICAO Doc 9708

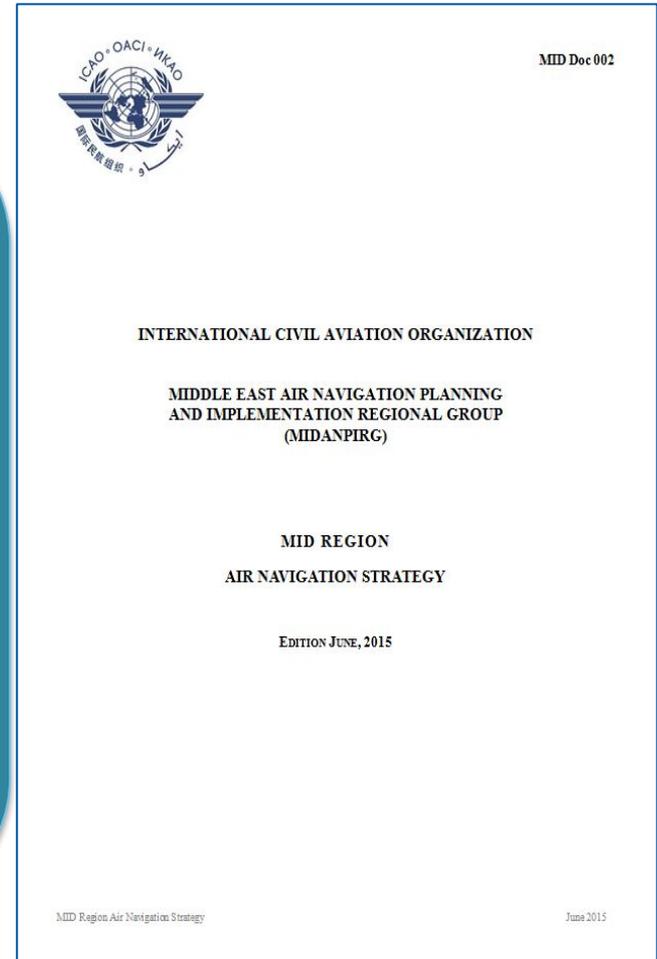
- The MID eANP (3 Volumes) approved and available on the MID Office website.
- SAR provisions are included in Volume I and II



Air Navigation Strategy

MID Doc 002

- In line with the Global Air Navigation Plan (GANP)
- Regional Priorities identified (11 ASBU B0-Modules)
- Endorsed by MSG/4 (24-26 Nov. 2014) and revised by MIDANPIRG/15 (Bahrain, 8-11 June 2015)





Performance Improvement Areas (PIA)	Module	Priority	Module Name
PIA 1: Airport Operations	APTA	1	Optimization of Approach Procedures including vertical guidance
	WAKE	2	Increased Runway Throughput through Optimized Wake Turbulence Separation
	RSEQ	2	Improved Traffic Flow through Sequencing (AMAN/DMAN)
	SURF	1	Safety and Efficiency of Surface Operations (A-SMGCS Level 1-2)
	ACDM	1	Improved Airport Operations through Airport-CDM
PIA 2: Globally Interoperable Systems and Data - Through Globally Interoperable System Wide Information Management	FICE	1	Increased Interoperability, Efficiency and Capacity through Ground-Ground Integration
	DATM	1	Service Improvement through Digital Aeronautical Information Management
	AMET	1	Meteorological information supporting enhanced operational efficiency and safety
PIA 3: Optimum Capacity and Flexible Flights – Through Global Collaborative ATM	FRTO	1	Improved Operations through Enhanced En-Route Trajectories
	NOPS	1	Improved Flow Performance through Planning based on a Network-Wide view
	ASUR	2	Initial Capability for Ground Surveillance
	ASEP	2	Air Traffic Situational Awareness (ATSA)
	OPFL	2	Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B
	ACAS	1	ACAS Improvements
	SNET	2	Increased Effectiveness of Ground-based Safety Nets
PIA 4: Efficient Flight Path – Through Trajectory-based Operations	CDO	1	Improved Flexibility and Efficiency in Descent Profiles (CDO)
	TBO	2	Improved Safety and Efficiency through the initial application of Data Link En-Route
	CCO	1	Improved Flexibility and Efficiency Departure Profiles - Continuous Climb Operations (CCO)



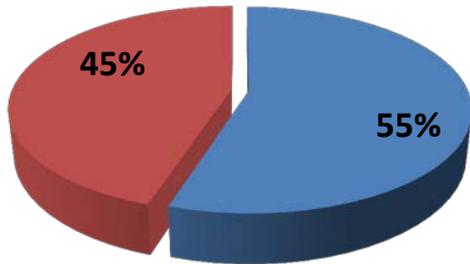
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	AMET	1	Meteorological Data Exchange enhanced operational efficiency
PIA 3: Optimum Capacity and Flexible Flights – Through Global Collaborative ATM	FRTO	1	Through Enhanced En-Route Trajectories
	NC	1	Network Performance through Planning based on a Network-Wide
		2	Initial Capability for Ground Surveillance
		2	Air Traffic Situational Awareness (ATSA)
	JPFL	2	Improved access to Optimum Flight Levels through Climb/Descent Procedures using ADS-B
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NO FOCUS ON SAR

SAR deficiencies in the MID Region

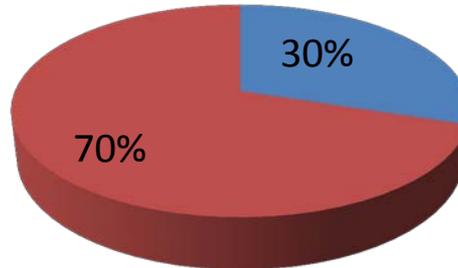
Lack of Provisions

■ Implemented ■ N/A



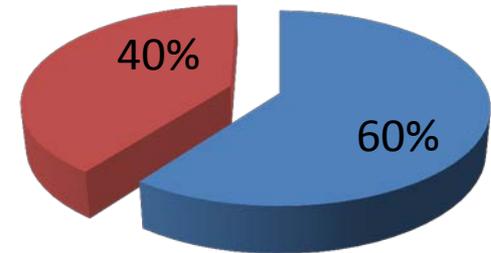
SAREX

■ Compliant ■ No SAREX

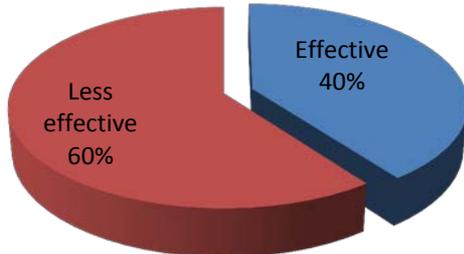


ELTs

■ Compliant ■ Non compliance



Effective SAR Oversight



Signatures of SAR Agreements

■ Not Completed



SPOC



The main Challenges are related to lack of:

- Implementation of the Regional SAR Plan and
- Lack of Comprehensive National SAR Plans
- Local cooperation among stakeholders involved in SAR
- SAR is more retro-active rather than pro-active approach
- English Language Proficiency for RCC radio operators;
- Appropriate training programmes/plans of SAR experts;
- lack of signature of SAR agreements;
- lack of plans of operations for the conduct of SAR operations and SAR exercises;
- lack of provision of required SAR services; and
- non-compliance with the carriage of Emergency Locator Transmitter (ELT) requirements.



Supporting States through the MID Region NCLB Strategy/Plan

Aligned with the ICAO NCLB campaign and Regional priorities and specific to the MID States

Based on USOAP-CMA Effective Implementation (EI)

States in the MID Region **could** be classified into four groups:

$0 \leq EI \leq 60$

$60 < EI \leq 70$

$70 < EI \leq 85$

$85 < EI \leq 100$



Taken Actions

MIDANPIRG and DGCA-MID have been encouraging MID States to:

- take necessary measures to foster their SAR services;
- enter into agreements with their adjacent States;
- organize joint SAREX;
- conduct SAR Workshops and Seminars at the national level;
- support the coordination and collaboration with the adjacent ICAO Regions and all SAR Stakeholders to ensure harmonization in the SAR developments; and
- implement the global and regional SAR requirements.



MIDANPIRG/14 tasked the ATM SG to develop:

1. a simplified template for SAR Bi-Lateral arrangements that addresses the CAA and ATS responsibilities and
2. A regional implementation Plan for SAR.





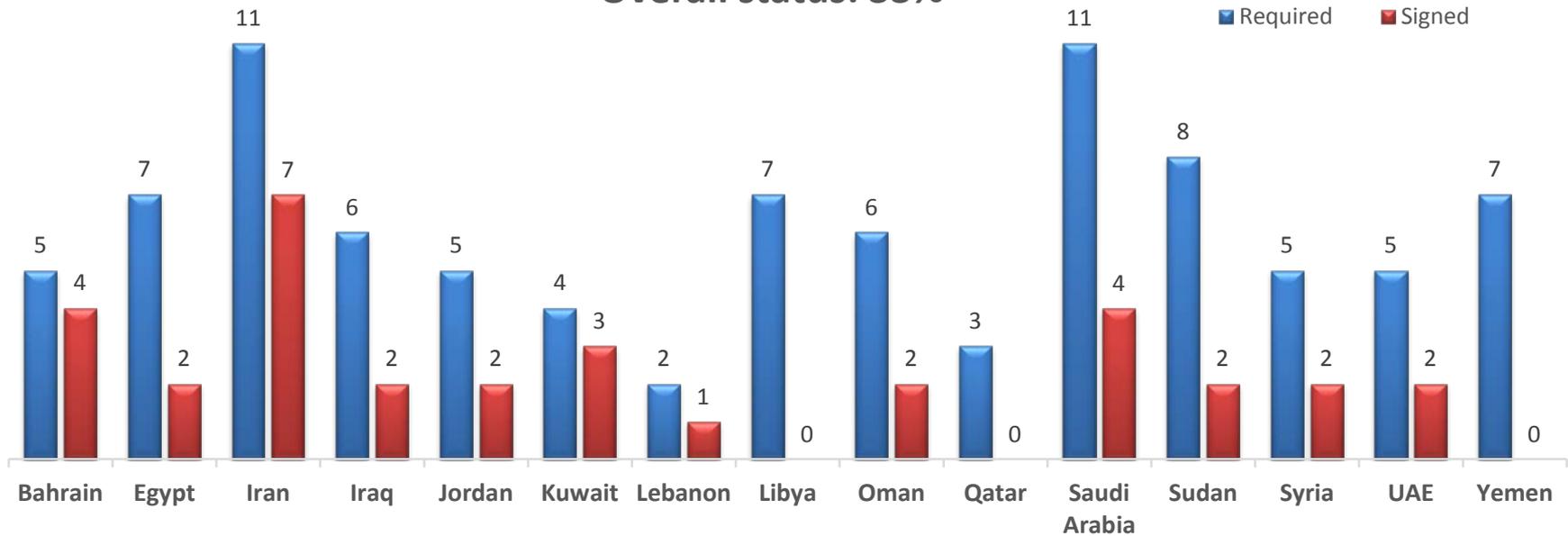
The ATM SG established a SAR Action Group composed of SAR experts from Bahrain, Egypt, Iran, Saudi Arabia, UAE and supported by the ICAO MID Office to:

- ⊕ *carry out a Gap Analysis related to the status of implementation of SAR services in the MID Region; and*
- ⊕ *develop:*
 - *a SAR Plan for the MID Region based on the Asia/Pacific experience;*
 - *an action plan for the conduct of regional/sub-regional SAR exercises;*
 - *a Template for SAR Bi-lateral arrangements as an Appendix to the MID Region ACC LoA Template; and*
 - *a Matrix to monitor SAR status in the MID Region, based on Annex 12 and DOC 9731;*



A Template for SAR Bi-lateral arrangements was developed and endorsed by MIDANPIRG/15 (Bahrain, 8-11 June 2015), which will ensure proper alerting and coordination procedures are in place between adjacent ACCs, awaiting for the signature of the States' SAR Agreement.

Status of SAR Bilateral Arrangments Overall status: 33%





- a Matrix to monitor SAR status in the MID Region, was also developed.
- The MID Region SAR Plan was developed and endorsed by MSG/6 meeting (3-5 December 2018).
- States have been urged to ensure that their SPOC sign the MCC/SPOC model agreement with their relevant MCC
- MID SAR issues were addressed in global, regional and inter-regional events such as the:
 - ICAO/IMO Search and Rescue-Global Maritime Distress and Safety System (ICAO/IMO SAR GMDSS Conference, Bahrain 21-22 October 2014)
 - General Ministerial Aviation Summit (Riyadh, 29-31 August 2016);
 - Inter-regional SAR Workshop (Seychelles, 19 - 22 July 2016);
 - Inter-regional SAR Workshop (Salalah, Oman, 26 – 29 August 2019); and
 - others

Key points

Taking into consideration that the main objective of SAR is saving lives and support in preventing future accidents through lessons learned, the DGCA-MID/5 meeting agreed that SAR should be given high priority through the allocation of adequate resources. Accordingly, the meeting urged States to ensure:

- a) the allocation of adequate resources to SAR;
- b) effective and efficient cooperation between all concerned authorities at national level (SAR Plan); and with their Adjacent and neighboring States;
- c) that SAR services are provided by qualified and well trained SAR experts; and
- d) cross-border collaboration for sharing of resources through bilateral or multilateral agreements.



Together
Everyone
Achieves
More

High level commitment and support is vital

SAR should be based on cross-border collaborative TEAM WORK





ICAO

UNITING AVIATION



ICAO

North American
Central American
and Caribbean
(NACC) Office
Mexico City

South American
(SAM) Office
Lima

ICAO
Headquarters
Montréal

Western and
Central African
(WACAF) Office
Dakar

European and
North Atlantic
(EUR/NAT) Office
Paris

Middle East
(MID) Office
Cairo

Eastern and
Southern African
(ESAF) Office
Nairobi

Asia and Pacific
(APAC) Sub-office
Beijing

Asia and Pacific
(APAC) Office
Bangkok



THANK YOU

ACTION PLAN OF THE ICAO AFI/APAC/MID INTER-REGIONAL SAR WORKSHOP

(Salalah, Oman, 26 – 29 August 2019)

	Action	Responsible	Timeline	Status / Updates
1.	Organize ICAO Inter-regional AFI/APAC/MID SAR Workshops periodically on a rotational basis between the regions. ICAO ROs to initiate the coordination for the venue and dates of the next workshop and include the workshop's venue and dates in 2021 schedule of meetings	ICAO	Dec. 2020	
2.	ICAO ROs to coordinate with ICAO HQ to provide more support to SAR through the provision of adequate resources to ensure effective follow-up and assistance regarding global SAR issues.	ICAO	Oct. 2019	
3.	Consider the reduction of the uncertainty phase timing commensurate with adequate communications and surveillance capabilities.	ICAO/IMO SAR JWG	Sep. 2020	
4.	Clearly define the division of responsibilities regarding command and control and hand over between the search and rescue function (Annex 12) and the air accident investigation search and recovery function (Annex 13).	ICAO	TBD	
5.	ICAO Regional Offices to consider the establishment of SAR Working Groups focusing on SAR issues.	ICAO ROs	TBD	
6.	Development of AFI Regional SAR Plan in a harmonized manner, taking into consideration the APAC and MID SAR Plan and experience.	ICAO AFI	June 2020	
7.	Establishment of a legal framework to support the roles and responsibilities of SAR experts to handle various SAR missions.	States	Jun. 2020	
8.	Promulgate SAR Civil Aviation Regulations, if not yet done so.	States	Jun. 2020	
9.	Development and implementation of a comprehensive National SAR Plan addressing the ICAO and IMO requirements, involving the airspace operators and ensuring effective internal and cross borders cooperation, taking into consideration the regional SAR Plans. Aerodrome and airline emergency response plans and disaster management plans should be synchronized with the SAR Plans.	States	Jun. 2020	
10.	Establishment of national SAR committee that manages aeronautical, maritime, and civil/military cooperation aspects.	States ICAO	Dec. 2020	
11.	Development of a Template for national SAR Plan.	ICAO MID	Dec. 2019	

APPENDIX A

A-2

12.	Raise public awareness related to SAR through promotional material and conduct national, regional and inter-regional SAR workshops with the support of ICAO and IMO.	States ICAO IMO	Ongoing	
13.	Negotiate and sign SAR LoAs between adjacent States	States	Dec. 2020	
14.	States at the interface with the ICAO MID Region to follow-up with their ACCs the signature of the MID SAR Bilateral Arrangements with their relevant adjacent MID ACCs to ensure that alerting and coordination procedures are in place.	States adjacent to MID States	Jun. 2020	
15.	Staff RCCs and, as appropriate, RSCs on 24 hours basis with sufficient number of adequately trained and qualified operational personnel using radiotelephony communications who are proficient in the use of the English language	States	Jun. 2020	
16.	Establish effective coordination mechanism between ACC and RCC to ensure swift triggering of the alerting and coordination process.	States	Jun. 2020	
17.	Develop a short and long term plans for training of search and rescue personnel, including those involved in the oversight of SAR, derived from comprehensive training programmes, manual, etc. in order to ensure effective training and high level of competency. Regular Visits between ATS, RCC, AOs, AIG, ADs, etc.	ICAO IMO States	Jun. 2020	
18.	Coordinate SAR Standard Operation Procedures/SAR Plans, etc. with the accident and incident investigation authorities.	States	Ongoing	
19.	Enhance SAR experts' competency through the conduct of national, regional and inter-regional SAR courses with the support of ICAO and IMO as appropriate.	States ICAO IMO	Ongoing	
20.	Alternatives means of communication to promote, coordinate, SAR issues such as social media could be used. <i>Note. Social media should not be used as an initial alerting means in lieu of formal communication mechanism</i>	States	ongoing	
21.	In case no Joint Rescue Coordinator Centre (JRCC) is established, States should ensure close coordination between aeronautical and maritime RCCs.	States	Dec. 2020	
22.	Where ARCC and MRCC are not jointly established, the assignment for receipt of COSPAS-SARSAT messages should be done in consideration of the RCC which has the capability of facilitating efficient dissemination of the messages and ensure coordination of efficient responses.	States	Jun. 2020	
23.	Sharing of resources (Human, assets, funding, etc.) through the establishment of regional and sub-regional SAR JRCC	States ICAO	Ongoing	
24.	Making available funds to ensure effective provision of SAR services, which should cover the running cost of the RCC and the SAR missions in case of incidents and accidents,	States Donors	Ongoing	

A-3

	SAREX and the provisions of services during large scale SAR responses, such as Mass Rescue Operations (MRO).	Stakeholders		
25.	Review the GADSS Concept and consider their preparedness for implementation.	States Airlines	Dec 2019	
26.	Conduct national, regional, sub-regional and inter-regional SAREX. <i>Note. To test the SAR system in place, SAREX should be effective not such a demonstration showing what in place as capabilities</i>	States ICAO IMO	Ongoing	
27.	RCCs should be notified well in advance regarding any activity that may lead to a SAR response (adventure, experimental, etc.) within their area of responsibility by their relevant authorities, for appropriate actions.	States	Ongoing	
28.	Consider the use of drones for SAR services.	States	Ongoing	
29.	Development of guidance on the use of drones for SAR.	ICAO IMO Stakeholders	Dec 2020	
30.	Urge States to ensure the signature of Memorandum of Arrangements (MoA) between SPOCs and their associated MCCs	States	June 2020	
31.	Keep up-to-date the SPOC contact details, in particular States associated with Algeria, Italy, Spain, Saudi Arabian, and South Africa MCCs and respond actively to the COSPAS-SARSAT tests. Non-compliant States to be added to the list of Air Navigation Deficiencies of relevant to each region.	States ICAO ROs	Ongoing	
32.	MCCs to provide support and raise awareness of COSPAS-SARSAT as appropriate to their associated States	MCCs		
33.	Use the GADSS ADT Phase Basic Guidance developed by ICAO APAC SAR Working Group, which would constitute the basis for more comprehensive guidance material	ICAO AFI and MID States	Jun. 2020 Ongoing	
34.	Make arrangements for a 406 MHz ELT register. Register information regarding the ELT shall be immediately available to search and rescue authorities. States shall ensure that the register is updated whenever necessary. In addition, States should ensure that ELT tests are carried out on periodic basis. Moreover, States should provide the COSPAS-SARSAT secretariat with the applicable beacon information available in their country contacting mail@cospas-sarsat.int States to use the 406MHZ register on www.	States	Ongoing To provide feedback to ICAO ROs on annual basis (Dec.)	
35.	The ELT 121.5 MHz homing capability to be maintained	ICAO	TBD	
36.	Training to interact with the media should be provided to SAR Managers or any person involved with public communications.	States	Ongoing	
37.	Development and implementation of a Protocol between	States	TBD	

APPENDIX A

	States and within States to protect the sensitive photos of fatalities from spreading on the Media.	ICAO		
38.	Consider the emerging technology such as space-based ADS-B in their planning	States	Ongoing	
39.	States are invited to consult with other States in respect of sharing experience including those related to the use of SAR Software	States	Ongoing	
40.	Establishment of internal Quality Management System (QMS) for RCCs.	States	TBD	

- END -