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EUROPEAN SEARCH AND RESCUE PLAN (EUR SAR Plan)

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This Plan was developed by the European Search and Rescue Task Force (EUR SAR/TF)

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RECORD OF AMENDMENTS

As of November 2017, the EANPG SAR Plan is published as EUR Doc 039
1st Edition, November 2017 is approved. EANPG59 RASG-EUR06 Conclusion/22 refers: a) Publish the EUR Search and Rescue Plan (EUR SAR Plan), version 1.0, as EUR Doc 039; and b) Invite States to continue providing data to populate the SAR Capability Matrix that indicates ICAO Annex 12 compliance not later than 31 March 2018 (Appendix D to the EUR SAR Plan refers)
2nd Edition, May 2019: a) Update to Section 4 "Abbreviations and Acronyms" b) Addition of a note in Appendix A, Chapter 11. c) Several Updates to Appendix D

1. SCOPE OF THE PLAN

Plan Structure

1.1 The European (EUR) Search and Rescue (SAR) Plan (hereinafter referred to as the 'Plan') references different levels. At the higher level are global requirements established by the ICAO Annex 12 to the ICAO Convention on International Civil Aviation (ICAO Doc 7300). Global guidance material is provided by the International Maritime Organization (IMO) and ICAO's joint publication, the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual. Beneath this is regional planning guidance primarily provided by this Plan and other regional guidance material, in order to enable States to define the goals and means of meeting objectives for State planning towards improving EUR States SAR System capability, such as European Air Navigation Plan (EUR ANP) objectives.

1.2 The global air navigation perspective is guided mainly by the *Global Air Navigation Plan* (GANP, Doc 9750), the *Global ATM Operational Concept* (Doc 9854) and the *Global Aviation Safety Plan* (GASP, Doc 10004).

1.3 The scope of the Plan is the identification of:

- the current status of SAR preparedness of EUR Region States and State SAR arrangements;
- recommendations for SAR planning and preparedness enhancements, in terms of compliance with Convention on International Civil Aviation, Annex 12, IAMSAR Manual guidance, and accepted best international practice; and
- recommendations to IMO for harmonised and interoperable delivery of both aeronautical and maritime SAR services

1.4 References in the Plan to 'States' are intended to include Special Administrative Regions and territories.

Plan Review

1.5 As an iterative process, the Plan requires regular updating to keep current with changes in ICAO Annexes and guidance material, the IAMSAR Manual, regional aviation activity, developments in the Air Traffic Management (ATM) system, new technology, political considerations, human performance and lessons learned from actual SAR responses. Plan updates should also focus on the SAR system being an important component of an integrated regional and global air navigation system. It is intended that EANPG and its contributory bodies conduct a complete review every three years from 2019 (or a shorter period determined by the European Air Navigation Planning Group (EANPG) of the Plan to align with the review cycle of the GANP and the IAMSAR Manual. The review should be guided by a consultative process involving States and relevant International Organisations such as the ICAO and IMO.

2. OBJECTIVES

Introduction

2.1 European States who are signatories to the Chicago Convention accept the responsibility for the provision of SAR services per the requirements of its Annex 12 - Search and Rescue. Increases in aviation traffic throughout the EUR Region places additional importance on the ability for States to be adequately prepared for potentially increased demand for aeronautical SAR services.

2.2 The world's citizens, who frequently fly over EUR region, expect a timely and adequate SAR response to be provided should it be required. States in the region need to be adequately prepared for the provision of efficient and effective SAR services to their responsible SRRs. To assist in achieving this, it is essential for States to cooperate, collaborate and in some cases assist with resources to neighbouring and sub-regional RCCs after request from the appropriate RCC.

2.3 ICAO Regional Office maintains a record, as reported to ICAO by the States themselves, of the status of individual State SAR compliance against Annex 12 requirements. There are significant variations in the level of State SAR capability across the region with significant gaps requiring urgent action, especially in high seas areas. A number of States have not reported their status at all to ICAO. The ICAO Universal Safety Oversight Audit Programme – Continuous Monitoring Approach (USOAP-CMA) also provides a useful tool to States to self-assess their individual SAR system status.

2.4 There is a high risk of negative consequences to a State which does not provide an adequate SAR response to an aircraft or vessel in distress in their area of responsibility. The primary concern is the higher probability for loss of lives which may have been saved. The ability for news to spread rapidly in today's technologically connected world also provides the opportunity to States to improve the response to quickly reach a global audience resulting in damage to that State's reputation internationally and potential economic loss to sensitive State industries such as tourism and transport. However, the benefits of an effective and reliable SAR service to States offers many advantages. Besides reduction of loss of life and human suffering, other advantages include the following aspects:

a) Safer and more secure environment for aviation related industries, commerce, recreation and travel. Increased safety may promote use and enjoyment of aviation environment, tourism and economic development. This is especially true when the SAR system is associated with programmes aimed at preventing or reducing the effects of mishaps, sometimes referred to as "Preventative SAR."

b) Availability of SAR resources often provides the initial response and relief capabilities critical to saving lives in the early stages of natural and man-made disasters. SAR services offer an integral part of local, national and regional emergency management systems.

c) Well performed SAR operations can provide positive publicity about situations which may otherwise be viewed negatively. This can lead to improved public confidence in that State's reputation and commitment to providing a safe environment, leading to increased confidence to conduct activities beneficial to that State's economy.

d) As SAR is a relatively non-controversial and humanitarian mission, it provides an excellent opportunity to enhance cooperation and communication in general between States and organisations, not only for SAR. It can also foster better working relationships between States and organisations at the local, national and international levels, including civil/military cooperation.

2.5 In 2014 Malaysia Airlines flight MH370, a Boeing 777 with 239 persons on board, disappeared when flying from Kuala Lumpur, Malaysia to Beijing, China, and Air Asia QZ8501 was lost on a flight from Surabaya to Singapore. The MH370 event resulted in probably the largest and most expensive search response for a missing aircraft in human history. Together with Air France flight AF447, which crashed into the Atlantic Ocean in 2009, these tragedies have highlighted vulnerabilities in the current air navigation system, including the SAR system, which have hampered timely identification and localisation of aircraft in distress, hindering effective response efforts. ICAO is taking measures to assist with addressing these vulnerabilities through the Global Aeronautical Distress and Safety System (GADSS) concept; however this also requires improvements in global SAR capability.

2.6 The Plan is designed to address both civil and military SAR authorities and has been developed in consultation with EUR States, SAR administrations and other technical bodies. States should consult with stakeholders nationally, regionally and internationally as appropriate and determine actions in order to commit to achieving the objectives of this Plan in order to meet the minimum SAR service requirements in accordance with ICAO Annex 12. It is noted that where a State is unable to meet minimum SAR Standards and Recommended Practices (SARPs) of ICAO Annex 12, Article 38 to the ICAO Convention requires notification to ICAO of the differences between its own practice and that established by the international standards.

2.7 States should aim to meet their obligations progressively in a strategically structured and planned manner with improvement goals set for short term, medium term and long term implementation. It may be more productive to make gains in small steps commencing with measures that are more easily achievable in the short term and have a minimal cost, progressing to measures which will take longer to implement over the medium to long term. Short term measures that may be implemented relatively easily include the establishment of a national SAR Committee and ensuring SAR Agreements[1] (**APPENDIX C** refers) are in place with neighbouring States allowing for seamless cross-border transit of search assets engaged in SAR activity. A SAR agreement can be in the form of 'Letter of Agreement' (LOA) or a Memorandum of Understanding or other acceptable term indicating a lower form of arrangement for operational matters between SAR service providers (such as RCCs and/or RSCs) or a more formal agreement for arrangements between governments concerned, according to the national legislation of every State.

2.8 A regional approach can reduce cost and improve distribution of distress alerts, coverage and services. For example, it is usually less operationally complex, and more economical and effective, for States within a region to share the use and support of long-range terrestrial and satellite communications facilities and communications registration databases to support SAR. States can sometimes support each other with SRUs to reduce the total number of units needed for adequate coverage and readiness. Training and other types of resources can be shared to everyone's benefit. Nevertheless, participation in a regional system may not be the best approach for every State.

2.9 Each SRR is associated with an RCC. Search and rescue regions should, in so far as practicable, be coincident with corresponding flight information regions and, with respect to those areas over the high seas, maritime search and rescue regions. The purpose of having an SRR is to clearly define who has primary responsibility for co-ordinating responses to distress situations in

[1] *The EUR SAT Task Force, in its second meeting, agreed to use the SAR Agreement template, presented at IAMSAR Manual, Appendix I, Edition 2016,* **APPENDIX C** *of this Plan refers.*

every area of the world and to enable rapid distribution of distress alerts to the proper RCC. For this reason SRRs shall not overlap and neighbouring regions shall be contiguous. Aeronautical SRRs often are aligned with FIRs for specific reasons but experience shows that in most areas there are operational advantages in harmonizing aeronautical and maritime SRRs.

2.10 Also a regional SAR plan is a way to provide a framework to guide national SAR authorities towards attaining this co-operation. Once a regional SAR plan is developed, high-level commitment between States can be reached by means of written agreement or through a multilateral MOU.

2.11 All States are encouraged to use the guidance provided within this Plan as a way forward, thus ensuring a timely, well-coordinated response to any aviation SAR incident within their area of responsibility, or during cooperative responses involving more than one Search and Rescue Region (SRR) and under coordination of the appropriate RCC.

Plan Objective

2.12 The objective of this SAR Plan is to provide a framework to assist EUR States to meet their SAR needs and obligations accepted under the Convention on International Civil Aviation and to improve the cooperation between aeronautical and maritime SAR services, within their area of responsibility and across other ICAO regional boundaries, where applicable.

2.13 The Plan is to be consistent with the SARPs of ICAO Annex 12 - Search and Rescue, and aligned where appropriate with the SAR technical and operational standards and guidance of the IAMSAR Manual.

2.14 The Plan recognizes that ICAO serves as the forum for the implementation of practical and achievable measures to improve SAR services for international civil aviation.

2.15 Both ICAO and IMO share the same goal of ensuring that SAR services are available globally wherever people sail or fly. The SAR services that ICAO and IMO promote are complementary and offer tangible opportunities to derive mutually beneficial efficiencies for both the aviation and maritime transportation SAR systems globally, regionally and nationally. For this reason ICAO and IMO jointly developed IAMSAR Manual and working together under ICAO/IMO Joint Working Group on SAR (ICAO/IMO JWG) to assist State authorities to economically establish effective SAR services, to promote harmonization of aeronautical and maritime SAR services, and to ensure that persons in distress will be assisted without regard to their locations, nationality, or circumstances. State authorities are encouraged to promote, where possible, harmonization of aeronautical and maritime SAR services.

2.16 The objective of this Plan includes encouraging States to take advantage of such efficiencies. States should, where practicable, align their SAR systems with the guidance provided by the IAMSAR Manual, which also provides the benefit for standardised SAR coordination between RCCs and across SRR lines of delineation.

2.17 State SAR plans describe how SAR services will be provided, organized and supported in order for States to meet their obligations under the relevant Conventions. Search and Rescue Coordinators (SC) and SAR managers oversee and implement these plans. National SAR plans should be signed by all Government agencies which can provide or support SAR services. These agencies should all be represented on the State’s Search and Rescue Coordinating Committee (SCC), which oversees these plans.

Note: The SC should not be confused with the operational nature of the SAR Mission Coordinator (SMC). The primary purpose of the national SC is to enable a whole-of-government approach to make efficient and effective use of a State's capabilities for SAR.

Plan Development

2.18 The Plan was developed as part of a suite of EUR Air Navigation Plan. In addition, the Plan should consider the European ATM Master Plan, the Air Traffic Flow Management (ATFM) Framework and the Regional Contingency Arrangements, so the Plan should not be considered in isolation.

2.19 The Plan is expected to provide guidelines and recommendations for EUR States to consider for the enhancement and improvement of national, sub-regional and regional SAR capability including:

a) compliance with ICAO Annex 12 SARPs;

b) identification and addressing of deficiencies in SAR capability;

c) continuous and coherent development of SAR capability;

d) harmonisation of aeronautical and maritime SAR services;

e) civil/military cooperation and coordination (including SAR response, information sharing and use of airspace);

f) remote high seas SAR response capability (including provision for Mass Rescue Operations (MRO);

g) establishment and review of arrangements between neighbouring States to expeditiously facilitate SAR coordination, operations and cooperation across regional boundaries including contingency procedures;

h) facilitation of the implementation of SAR systems and services including the establishment of JRCCs where suitable and practicable;

i) supporting the sharing of SAR information, data and expertise;

j) integration with ATM systems and future ATS developments, where appropriate;

k) monitoring of outcomes from EANPG Sub-Groups, other ICAO Region SAR groups, ICAO/IMO Joint Working Group on Harmonisation of Aeronautical and Maritime SAR (JWG) and related forums for issues that may affect the Plan;

l) facilitation of a continuous reporting mechanism of State SAR capability, ICAO Annex 12 compliance and SAR performance data to the EUR/NAT Regional Office through appropriated contributory groups (APPENDIX D refers);

m) implementation of a SAR System Improvement and Assessment measures, including Safety Management System, Quality Assurance programme and risk assessment;

n) coordinating the introduction of new technology affecting the regional SAR system;

o) sharing future research and development concepts;

p) seeking efficiencies, through the coordination and facilitation of concurrent regional SAR meetings, seminars, workshops and exercises, including joint ICAO and IMO, and sub-regional forums where practicable; and

q) conducting efficient SAR Exercises (SAREXs) that identify improvements and latent problems.

2.20 The Plan elements should be periodically reviewed by EANPG/COG and EANPG to ensure that they remain relevant to the SAR system, particularly for new technology developments and alignment with other relevant global SAR plans.

3. EXECUTIVE SUMMARY

3.1 ICAO reported the following statistics regarding global civil aviation in 2016:

- 3.8 billion passengers;
  - *Europe 26.2% market share (935.5 million passengers, up 6.7% over 2014)*
- 34,5 million tonnes of freight;
- over 1 000 scheduled airlines; and
- 26,000 aircraft in service.

3.2 The International Air Transport Association (IATA) confirmed full-year global passenger traffic results for 2016 showing demand (revenue passenger kilometres or RPKs) rose 6.3% compared to 2015 (or 6.0% if adjusted for the leap year). This strong performance was well ahead of the ten-year average annual growth rate of 5.5%. Capacity rose 6.2% (unadjusted) compared to 2015, pushing the load factor up 0.1 percentage points to a record full-year average high of 80.5%.

3.3 European carriers' international traffic climbed 4.8% in 2016. Capacity rose 5.0% and despite a decline of 0.1 percentage points to 82.8%, the load factor remains the highest among the regions. European carriers particularly benefitted from an improvement in the second half of the year—passenger volumes have been increasing at an average of 15% year-over-year since June, easily compensating for a slight decline over the first six months of 2016.

DECEMBER 2016 (% YEAR-ON-YEAR)	WORLD SHARE	RPK	ASK	PLF (%-PT)	PLF (LEVEL)
Total Market	100.0%	8.8%	6.6%	1.6%	80.6%
Europe	26.4%	10.7%	7.2%	2.5%	80.6%

RPK: Revenue Passenger Kilometres measures actual passenger traffic;

ASK: Available Seat Kilometres measures available passenger capacity;

PLF: Passenger Load Factor is % of ASKs used.

Source: IATA

3.4 EUR States who are signatories to the Chicago Convention accept the responsibility for the provision of SAR services to their area of responsibility per the requirements of Annex 12 - Search and Rescue. Increases in aviation traffic throughout the EUR region places additional importance on the ability for States to be adequately prepared for potentially increased demand for aeronautical SAR services.

3.5 Considering that some EUR States have the challenging responsibility for providing a SAR service over vast and remote areas, the importance for States with high seas to cooperate, collaborate and share resources with their neighbouring and regional/sub-regional RCCs is essential.

3.6 High-level support might be necessary from regional bodies that can effectively support the Plan's implementation, such as the:

- COSPAS-SARSAT
- Galileo Search and Rescue (SAR) Service;
- Search and rescue Europe – Annual Summit;
- Regional SAR Committee (Steering Board); and

SAR System Funding

3.7 The level of funding provided for effective SAR systems is a matter of concern for all senior decision-makers. The resources should be sufficient to develop and/or maintain the required SAR service per their obligations as signatories to the relevant aeronautical SAR conventions. This may require the development of business cases to governments outlining where additional funding is required.

3.8 Such business cases should include consideration of amendments to existing State SAR arrangements which may provide more efficient delivery of the SAR service by better utilisation of existing resources (for example by establishing Joint RCCs (JRCCs), or additional funding sources where required (for example charging a levy to aircraft operators for providing the SAR service or seeking company sponsorship for SRUs).

Note: States should be aware that in accordance with EUROCONTROL document "PRINCIPLES FOR ESTABLISHING THE COST-BASE FOR EN ROUTE CHARGES AND THE CALCULATION OF THE UNIT RATES" costs of SAR service provided to civil aviation could be allocated to a cost base for en-route charges.

Joint Rescue Coordination Centres (JRCCs)

3.9 Where practicable, States are encouraged to examine the potential benefits that may be derived by the establishment of JRCCs to incorporate the aeronautical and maritime SAR activities and/or facilities of ARCCs/ARSCs and MRCC/MRSCs. JRCCs have the potential to not only provide a more effective SAR service to both the aeronautical and maritime industries, but also offer potential financial efficiencies by releasing funds for improvements in other SAR areas.

Note: Where JRCCs are not practicable, development of facilities and procedures which provide and/or enhance effective SAR coordination and collaboration between the ARCCs and MRCCs in support of each other, to provide an efficient and integrated State SAR system for both aeronautical and maritime SAR incident response.

4. ABBREVIATIONS AND ACRONYMS

ACO	aircraft co-ordinator
ANSP	Air Navigation Service Provider
ARCC	Aeronautical Rescue Coordination Centre
ARSC	Aeronautical Rescue Sub-Centre
A/SMC	Assistant SMC
ASPOCS	Administrative Single Point of Contact for SAR
ATC	Air Traffic Control
ATS	Air Traffic Services
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
CAD	Civil Aviation Directorate of the Republic of Serbia
COG	EANPG Programme Coordinating Group
CONOPS	Concept of Operations
SARSAT	Search and Rescue Satellite-Aided Tracking
COSPAS-SARSAT	International Satellite System for Search and Rescue Système international de satellites pour les recherches et le sauvetage Международная Спутниковая Система Поиска и Спасания
EANPG	European Air Navigation Planning Group (PIRG)
EI	Effective Implementation
ELT	Emergency Locator Transmitters
EUR SAR TF	European Search and rescue task Force
GADSS	Global Aeronautical Distress and Safety System
GANP	Global Air Navigation Plan
GASP	Global Aviation Safety Plan
GLONASS	Global Navigation Satellite System
GPS	Global Positioning System
IAMSAR	International Aeronautical and Maritime SAR (Manual)
IMO	International Maritime Organization
iSTARS	Integrated Safety Trend Analysis and Reporting System
JRCC	Joint (aeronautical and maritime) Rescue Coordination Centre
JWG	ICAO/IMO Joint Working Group on the Harmonisation of Aeronautical and Maritime Search and Rescue
LOA	Letter of Agreement
MCC	Mission Control Centres
MEOSAR	Medium-altitude Earth Orbit Search and Rescue
MRCC	Maritime Rescue Coordination Centre
MRO	Mass Rescue Operations
MRSC	Maritime Rescue Sub-Centre
OJT	On-the-Job Training
OSC	on-scene co-ordinator
PIRG	ICAO – Planning and Implementation Regional Group
PQs	Protocol Questions
PSCS	Preferred SAR Capability Specifications
RCC	Rescue Coordination Centre
RPK	Revenue Passenger Kilometres
RPAS	Remotely Piloted Aircraft Systems
SAR	Search and Rescue
SARPs	Standards and Recommended Practices
SAREX	SAR Exercises
SCC	Search and Rescue Coordinating Committee
SMC	Search and Rescue Mission Coordinator

SMS	Safety Management System
SPOC	SAR Point of Contact
SRR	Search and Rescue Region
SRU	Search and Rescue Unit
SWIM	System Wide Information Management
USOAP-CMA	Universal Safety Oversight Audit Programme – Continuous Monitoring Approach
VSP	Variable Set Parameter

5. BACKGROUND INFORMATION

Improvement Drivers

5.1 The ICAO USOAP-CMA focuses on a State's capability in providing safety oversight by assessing whether the State has effectively and consistently implemented the critical elements of a safety oversight system and determining the State's level of implementation of ICAO's safety –related SARPs, including Annex 12 Search and Rescue, and associated procedures and guidance material.

5.2 ICAO EUR/NAT Regional Office maintains an Air Navigation Deficiencies List. This list is based on the uniform methodology for identification, assessment and reporting of such deficiencies as described in Appendix A of the EANPG Handbook. By identifying and addressing specific deficiencies, EANPG and its Sub-groups facilitate the development and implementation of action plans by States to resolve identified deficiencies, where necessary.

5.3 The ANS Deficiency information had been populated into the ICAO *iSTARS* (Integrated Safety Trend Analysis and Reporting System) database and was accessible through the ICAO Secure Portal. The intention is to merge this data with the CMA Data, and manage the deficiencies using a single web-based process.

EUR SAR System Monitoring

5.4 Significant Annex 12 compliance weaknesses had been identified within the EUR region based upon information provided (and in many cases not provided) by States to the ICAO Regional Office. This regional information status of the SAR capability and SAR agreements was recorded in tables made available to EANPG, which was expected to be enhanced with the integration of SAR elements into the Seamless ATM on-line monitoring system.

Recent ICAO SAR Initiatives

5.5 The tragedies of Malaysia Airlines flight MH370 in 2014 and Air France flight AF447 in 2009 had highlighted vulnerabilities in the current air navigation system which had hampered timely identification and location of aircraft in distress, particularly remote oceanic areas. This had significantly hindered effective SAR efforts and recovery operations.

5.6 As part of the response to the Conclusions and Recommendations from the ICAO Multi-disciplinary Meeting on Global Tracking, ICAO developed a Concept of Operations (CONOPS) for a GADSS. The implementation of this target concept will have implications for the provision of services such as air traffic control, SAR and accident investigation. It contained a large number of measures targeting improvements in SAR system response integrated within the wider ATM and aviation operations systems.

5.7 The CONOPs noted that the effectiveness of the current alerting and SAR services should be increased by addressing a number of key improvement areas. The ICAO GADSS CONOPS also included aspects which potentially involve use of different distress systems, including for example 406 MHz Emergency Locator Transmitters (ELTs) and the COSPAS-SARSAT system as part of the proposed GADSS solution.

COSPAS-SARSAT System

5.8 COSPAS-SARSAT had been developing two major enhancements to its distress-alerting System of value to all System users, including the aviation industry. One is the introduction over the period of approximately 2016 to 2018, and beyond, of a new space-segment architecture based primarily on Medium-altitude Earth Orbit Search and Rescue (MEOSAR) payloads aboard the European Commission's Galileo system, the Russian Federation's Global Navigation Satellite System (GLONASS) and the United States' Global Positioning System (GPS) satellites.

5.9 This architecture would permit determination of a distress incident location (independent of any location data transmitted in the beacon message) beginning with the first burst from the distress beacon. This could mean near real-time and very frequent delivery of distress alerts.

5.10 The SAR/Galileo and SAR Glonass space segment, and SAR/Galileo ground segment would also provide a Return Link Service (RLS) that, among other possible future uses, would provide an acknowledgment back to the beacon to confirm when the distress message has been received.

5.11 The other major development was the completion in the next couple of years of specifications for the second generation 406 MHz beacons (SGB), including ELTs. This new generation of beacons should further improve speed and accuracy in locating an activated distress beacon. The period from beacon activation to first transmission was expected to be reduced from 50 seconds to three seconds. The specification would consider a specific type of in-flight triggered ELT (ELT (DT)) designed to be activated prior to a crash when certain flight parameters were exceeded and to function in compliance with the ICAO GADSS requirements for the Location of an Aeroplane in Distress.

5.12 States needed to continue to ensure that aviators were aware that 121.5 MHz beacons cannot be detected by the global COSPAS-SARSAT System and were only intended as a final homing signal for 406 MHz beacons.

5.13 States also need to ensure the critical requirement to provide for a suitable, clear and simple means for aircraft owners to register and keep updated their 406 MHz distress beacon details.

System Operation

5.14 In 2015 provisional statistics indicate that COSPAS-SARSAT alert data assisted in 718 distress incidents (703 in 2014) and 2,185 persons were rescued (2,104 in 2014). There were 121 aviation incidents, with 233 persons rescued. Since September 1982, the COSPAS-SARSAT System has provided assistance in rescuing at least 41,750 persons in 11,788 SAR events. The final statistics for 2015 still are being collected and compiled.

406-Mhz Beacons

5.15 Based on information received from manufacturers on beacon production and a standard assumption made about beacons removed from the market at the end of an assumed ten-year service life, there were approximately 1.7 million 406-MHz beacons in use worldwide at the end of 2015, an approximate 8% increase from the prior year. Using a different method of estimation, based on registration rates reported by Administrations, the total beacon population is over two million (up 12%), with over 300,000 ELTs.

Note: Information on beacon registry is in C/S S.007 Handbook of Beacon Regulation, Information on national Beacon Registration Point of Contact is at:

http://www.cospas-sarsat.int/en/contacts-pro/contacts-details-all

Information on IBRD is at:

http://www.cospas-sarsat.int/en/beacons-pro/beacon-regulations-pro/ibrd-user-information-for-professionals

5.16 Entries in the beacon register should be available to both aeronautical and maritime RCCs on a 24 hour basis (Annex 12 – *Search and Rescue* refers, although Annex 10 establishes the registration requirement). States should note that Annex 12 should be read in conjunction with elements of the following ICAO Annexes:

Annex 6 – *Operation of Aircraft*;

Annex 10 – *Aeronautical Telecommunications*;

Annex 11 – *Air Traffic Services;* and

Annex 14 – *Aerodromes*.

6. CURRENT SITUATION

Global Situation

6.1 The ICAO USOAP Report of audit results, 3rd Edition, April 2005 to August 2010 revealed a number of SAR deficiencies during the audits of 165 Member States:

- 38% of States had not laid down provisions for entry into their territory of SAR units (SRU) of other States for the purpose of search for the site of aircraft accidents and rescuing survivors;
- 44% of States had not developed a detailed plan on operation for the conduct of SAR operations within their respective Search and Rescue Regions (SRRs); and
- 67% of States had not established the necessary coordination of their SAR organisations with those of neighbouring States, including the conclusion of bi-lateral SAR agreements in order to coordinate SAR operations; and
- regarding RCCs –
    i. about 40% of States had not developed job descriptions for their technical staff;
    ii. 45% did not ensure that RCC personnel using radiotelephony communications were proficient in the use of the English language; and
    iii. about 56% of States do not regularly train their SAR personnel, and nor did they conduct SAREXs.

EUR SAR Analysis

6.2 The last decade has seen a steady increase in air traffic in the EUR Region. An analysis of the 35 USOAP Protocol Questions (PQs) in October 2017 that involved SAR (7.003, 7.182, 7.184, 7.481, 7.483, 7.485, 7.487, 7.489, 7.491, 7.493, 7.494, 7.495, 7.497, 7.499, 7.501, 7.503, 7.505, 7.507, 7.511, 7.513, 7.515, 7.517, 7.519, 7.521, 7.523, 7.525, 7.527, 7.529, 7.531, 7.533, 7.535, 7.537, 7.539, 7.541, 7.543, 7.545) resulted in an overall Effective Implementation (EI) of **74,81%** for the EUR Region. When analysed, **08** SAR-related questions indicated EIs of below 50%:

- 50% - PQ 7.184 (SAR services are not under the authority of the ATS provider);
- 44% - PQ 7.495 (SAR inspectorate training programme);
- 44% - PQs 7.497, 7.501 (SAR inspectorate periodic training plan and OJT);
- 38% - PQ 7.499 (Training programme appropriately implemented);
- 47% - PQ 7.505 (Safety oversight over the RCC);
- 57% - PQ 7.507 (Elimination of deficiencies identified by SAR inspectors);
- 49% - PQ 7.517 (Coordination of its SAR organization with those of neighbouring States

6.3 From this analysis, it appeared that the major areas of weakness is in coordination with adjacent States and their appropriate RCCs , effective SAR oversight, and training of SAR staff that provide the SAR services in their area of responsibility. Therefore, a focus on the minimisation of barriers associated with the efficient cross-border coordination of SRU (such as pre-arranged approval) and other coordination mechanisms, including updates of SAR agreements was vital. Finally, there was a need for improved systemic approaches to training for both national SAR inspectors and personnel responsible for the provision of SAR services, including the regular organisation of effective SAR exercises that test systems and personnel.

6.4 The overall SAR capability matrix table of EUR/NAT States, ICAO Annex 12 compliance, is indicated in **APPENDIX D**. The information presented in the table should be updated regularly by the States.

EUR SAR Coordination Forums

6.5 The EUR Region will benefit from the cooperation and coordination of States and International Civil Aviation Organization involved in the EUR SAR/TF. After the EUR SAR/TF completes its tasks, the establishment of permanent joint ICAO Regional SAR Forums to enable collaboration and cooperation on high seas, including adjacent ICAO regions should be considered, such as:

a) ICAO/IMO JWG;

b) COSPAS-SARSAT; and

c) Regional SAR Advisory Committee (CAD Serbia and EUROCONTROL initiative).

6.6 There were several regional initiatives for cooperative support and development already being undertaken in the EUR Region to assist with aeronautical SAR capability enhancement. For example the Regional SAR Advisory Committee.

6.7 Such improvement programs could result from a request by a State needing assistance, or from ICAO Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA) Online Framework, or by the users of the SAR system itself (RCCs), that identifies weaknesses in the State's SAR capability. The programs can be conducted by a 'Go Team' that normally consists of external SAR experts from ICAO, or through a cooperative effort by several States or external agencies such as COSPAS-SARSAT.

Barriers

6.8 The following potential issues should be considered to ensure they do not become barriers to the achievement of the expected SAR capability:

a) absence of established appropriate legal framework designating, recognizing, supporting and giving authority to national SAR authorities, RCCs and SMCs;

b) inadequate funding and equipping of SAR authorities and in particular, resourcing of RCCs;

c) absence of an appropriate SAR organizational framework;

d) absence of a national SAR committee;

e) lack of clarity of responsibilities for each component of the SAR system;

f) absence of bilateral/multi-lateral/international SAR Agreements;

g) inadequate civil/military cooperation; and

h) complacency about, or lack of recognition of, the importance or priority given to SAR;

i) absence of alleviation for civil SAR aircraft from the 'rules of the air'.

Global and Regional SAR Issues

6.9 States should monitor outcomes from global and regional ICAO SAR forums to ensure their State SAR authorities are updated on relevant SAR developments, otherwise State planning may not be synchronized with external international expectations, including users. Such forums may include EANPG and its Sub-Groups, other ICAO Region SAR groups, the ICAO/IMO JWG, ICAO High Level Safety Conferences, etc.

6.10 The provision of sufficient resources was critical in their area of responsibility (national responsibility), including:

a) Financial:

- funding for 24 hour RCC facility and staff;
- funding for use/hire of search and rescue units; and
- Provision of a suitable administrative process enabling financial support including the ability for SAR authorities to quickly authorise payments required for emergency response aircraft, vessels and supporting logistics such as fuel or other legal issues.

b) RCC personnel- a suitable number of trained and skilled staff, supplemented by a pool of trained RCC support staff where appropriate;

c) RCC facilities:

- appropriate RCC facility space;
- minimum RCC tools (such as current charts, plotting equipment, documentation, etc.);
- identify and task available SRUs;
- Aircraft and vessel tracking information, Automatic Identification System, etc.;
- reliable and rapid H24 communications, and a suitable means to-
    - receive and communicate distress alerts
    - communicate with ATS units, other RCCs/RSCs, Coast Radio Stations, COSPAS-SARSAT Mission Control Centres (MCCs), military units, medical services, meteorological offices, etc.;
- information technology:
    - RCC workstation computers;
    - Software including basic databases, drift modelling, incident management, etc.;

d) Contingency- back-up RCC facility, or arrangement with another RCC or other national

operation centre as a contingency against inability to operate from the primary RCC due to the need to evacuate or loss of systems, etc.;

e) Search and Rescue Units (SRUs):

- available and suitable SAR units (e.g. aircraft, helicopters, vessels, land units, medic teams etc.);
- funding arrangements/agreements for hiring/payment/sharing of SRUs to permit rapid deployment; and
- Available and suitable SAR survival equipment for delivery by aircraft to survivors and to assist SAR coordination efforts (e.g.: droppable life rafts and survival supplies, etc.);

f) Training support:

- SCs, SMCs and ONCs staff – basic and ongoing;
- Operational facilities which need training include:

  - aeronautical units
  - maritime units
  - land units
  - specialized units (para-rescue, paramedical, desert rescue, mountain rescue, urban SAR teams that deploy to disasters), divers, etc.
  - supply depots; and

- RCC support staff – basic and refresher.
- SAR inspectorate staff– basic and ongoing.

7. PERFORMANCE IMPROVEMENT PLAN

Preferred SAR Capability Specifications (PSCS)

*Note: PSCS are the **non-mandatory** expectations on all EUR Region States to enhance SAR systems in order to meet a minimum level of SAR capability, with a high degree of interoperability and harmonisation, and interoperability with other ATM components such as Air Navigation Service Providers (ANSPs) and aerodrome operators. PSCS were not expected to contravene existing Annex 12 standards. The State's level of PSCS implementation will be not verified during the USOAP-CMA.*

PSCS (expected implementation by 29 November 2019)

Note: Guidance Material for the implementation and monitoring of PSCS is expected to be developed by EANPG to align with the established ICAO Strategic Objectives (Air Navigation Capacity and Efficiency) and the EUR/NAT Work Programme.

7.1 *Legal Framework and Structure Planning*: All States should develop statutes and related provisions that establish or enhance the legal foundation for a State SAR organization and its framework, resources, policies and procedures to, where appropriate to:

a) ensure that it is party to, and/or aligned with the following Conventions, Regional Agreements, Manuals as applicable:
   i. Convention on International Civil Aviation 1944 and its Annexes;
   ii. Regional Air Navigation Agreement approved by ICAO Council;
   iii. EUR SAR Regional Agreement approved by ICAO Council; and
   iv. IAMSAR Manual

b) unless delegated by written agreement between States, establish an entity that provides, on a 24-hour basis, aeronautical SAR services within its territories and designated area of responsibility/SRR;

c) when appropriate, establish a national SAR coordinating committees (SCCs) consisting of SAR system stakeholders to enable a whole-of-government approach;

d) empower SAR Mission Coordinators with the authority to adequately carry out their responsibilities;

e) establish an Administrative Single Point of Contact for SAR (ASPOCS) for non-urgent, administrative matters, such details to be submitted to the ICAO Regional Office;

f) conduct studies to check the feasibility for, and develop an implementation plan if practicable, the integration of aviation and maritime SAR activities, when applicable, and as far as practicable, civil and military activities, including joint training and familiarisation of staff and review of documentation to ensure harmonisation of procedures, and joint exercises;

g) conduct studies to align, as far as practicable, aeronautical and maritime Search and Rescue Regions (SRRs); and SRRs and Flight Information Regions (FIRs); and

h) wherever applicable establish a single State SAR Plan that:
   i. designates the responsible RCC(s), RSC(s) and 24-hour SPOC/ASPOC;
   ii. describes the relevant SRRs, including the coordinates and geographical chart depiction of the SRR and neighbouring SRRs;
   iii. details the National SAR Committee;

iv. details the governmental and non-governmental agencies with authority and responsibility for SAR coordination within its territories and designated area of responsibility;

v. details required and available SAR facilities, personnel, and equipment;

vi. details the SAR manuals, plans and procedures for national and regional cooperative SAR response arrangements;

vii. details the SAR personnel training and competency programme, qualification standards, SAR certification if applicable and SAR cooperation training;

viii. details the SAR agreements required;

ix. is electronic and accessible on the Internet, such details to be submitted to the ICAO EUR/NAT Regional Office; and

x. is monitored by quality assurance processes.

7.2 *SAR Standards and Procedures*: All States should take into consideration:

a) establish aerodrome emergency plans that provide for co-operation and co-ordination with RCCs;

b) establish SAR agreements with States having adjoining SRRS or FIRs, including trans-regional neighbours;

c) provide up to date cross-border information on SAR capability in GEN. 3.6 of Aeronautical Information Publication. (pre-arrange procedures for cross-border SAR responses (this should be included in bilateral SAR agreements);

d) establish a program for regular SAREX, which may be a desktop communications exercise, a co-ordination exercise with simulated response to a crisis based on a series of scenarios, a full exercise (this expectation may be fulfilled by participating in a sub-regional SAREX that tests the State's SAR system; and

e) adjacent RCCs should periodically execute SAR exercises together to develop and maintain efficient co-operation and co-ordination between their services. These exercises need not always be on a large scale, but at least those SAR units which are likely to operate together should engage periodically in co-ordinating exercises. Much may be learned by exchanging information on training methods (e.g., programmes, literature, and films) and visits between staff of adjacent SRRs. It's essential that these exercises be coordinated from the appropriate RCC which is responsible for the SRR.

f) establish RCC plans for response to Mass Rescue Operations (MROs) integrated with national disaster plans;

g) establish arrangements or MOUs with States or other national agencies and include in the SAR Operations Plans:

i. procedures for cooperation and deployment of foreign SRUs or other national services;

ii. provision for translators/liaison Officers/Embassy Officers for the daily tasking of the SRUs at the RCC;

iii. provision of information for logistic and administrative support (hotels, fuel, security passes, food, medicine, etc.);

iv. instructions on communication (ops normal reports, sightings, etc.) for search planning, command and control to foreign SRUs;

v. daily end of day report by SRUs to the RCC (via mobile, email, fax, etc.); and

h) establish SAR Alerting procedures which:

i. are tested and fully integrated with RCC procedures so that RCCs are rapidly notified of any SAR event 24 hours a day in their area of responsibility;

ii. include procedures for joint aeronautical and maritime distress alert notification, including reliable delivery and acknowledgement of COSPAS-SARSAT distress alerts, support and response to both aviation and maritime SAR incidents (for JRCC) or accordingly; and

iii. where applicable, include protocols for civil and military support and sharing of information.

SAR Facilities and Resources

7.3 *RCC Facility*: All States should ensure that RCCs are of sufficient size with adequate provision for operational positions designed in accordance with human factors principles (such as human machine interface) for a major search involving civil and military assets where applicable, and facilities such as:

a) Workstations, telephones (with international access), plotting tables, wall notice/status boards, computer, and communications equipment and systems, briefing/debriefing areas room for storage including incident records and recorders, RCC staff break and rest facilities;

b) computer resources which may provide support to RCCs with incident management, plotting, search planning, mapping, contact databases, web-based information, etc.;

c) charts, electronic or paper, which:

i. apply to SAR (aeronautical, nautical, topographic and hydrographic);

ii. depict SRR, neighbouring SRRs, FIR(s), SAR resources and made available for all relevant aeronautical and maritime RCCs, ATS units, aircraft operators; and

iii. provide a means of plotting;

d) ability to reliably receive and acknowledge distress alerts 24 hours a day;

e) maritime broadcast facilities, if applicable;

f) a means of recording, playback and archiving of communications;

g) shipping/vessel communications and maritime broadcast facilities such as Coast Radio Stations, RCC radio and satellite communications, marine radio networks, if applicable;

h) aircraft communications – via ATS units, aircraft operators, satellite communications or direct between RCC and aircraft;

i) access to aircraft and ship tracking data, e.g., Automatic Identification System allowing rapid identification of potential aircraft and vessels that may divert to assist if applicable;

j) a means of obtaining meteorological information – forecast, present and historical data;

k) if applicable drift modelling software;

l) if applicable, ocean data including sea temperature, currents, winds, tides, etc.;

m) if applicable, SAR Datum Buoys, preferably with satellite tracking capability; and

n) RCC documentation and reference material such as plans of operation, procedures manuals, guidance material, ICAO and IMO references, SAR agreements; and

o) COSPAS-SARSAT equipment and reference material.

7.4 *Personnel and Training* All States should, where applicable to maintain a 24 hour service:

a) provide adequate ATC resources (either an ATS supervisor or other staff) that can provide relief within Area Control Centres (ACCs) to allow timely SAR alerts and information to RCCs;

b) provide sufficient RCC staffing;

c) provide a sufficient number of trained specialist RCC officers including SMCs and Assistant SMCs (A/SMCs);

d) develop SAR personnel position descriptions that detail responsibilities and eligibility criteria for recruitment of operational staff;

e) develop a comprehensive training programme that includes SAR training for:

i. RCC SAR Mission Coordinators (SMCs) based on a competency-based assessment approach to ensure technical and English language proficiency, cyclical (periodic) instruction that provides continuous training to ensure competency is maintained, and a system for maintaining training records; and

ii. SRU staff, including military personnel.

f) facilitate RCC staff to be proficient in the English language; and

g) facilitate a programme of regular liaison visits between relevant RCCs, ATC units and airline operating centres in order to understand those organizations, facilities and capabilities (reference Annex 12, paragraph 3.1.9).

7.5 *Oceanic Capability*: Where applicable, States should establish additional oceanic SAR capability as far as practicable to ensure a timely and adequate SAR response is available to all oceanic areas of their SRRs. This may be met through cooperative arrangements with neighbouring States or other RCCs and such regions shall not overlap and shall be contiguous.

7.6 *Search and Rescue Units*: All States should establish capabilities enabling:

a) availability and deployment of suitably crewed, trained and equipped SRUs, public and/or private, civil and military, for rapid SAR response;

b) availability and deployment of SRU that may be in use for another primary purpose but made available to RCCs for SAR purposes on an as needed emergency basis (vessels, aircraft and land units);

c) protocols for civil SAR authorities to request the assistance of military assets, and similarly military SAR authorities to request civil assets;

d) a communication means and information protocols between the State's Aeronautical and Maritime SAR Authorities;

e) cooperative use and/or sharing of SAR assets with protocols incorporated within National SAR Plans and bilateral SAR Agreements;

f) pre-arranged government authority for funding of costs associated with hiring of SRUs, and payment for critical supporting logistics such as fuel, to avoid any delays in response availability, if needed;

g) aircraft with the ability and regulatory approval to safely conduct SAR missions.

Note: guidance material on SAR aircraft capability is found in the IAMSAR.

7.7 *Distress Beacons*: All States should:

a) where separate ARCCs and MRCCs exist with responsibility for coincident aviation and maritime SRRs, coordinate distress beacon alert procedures to ensure both RCCs are aware of any distress beacon activations within their areas to avoid duplication of response. For example, MRCCs should ensure their procedures alert ARCCs and ATS units to any EPIRB activations;

b) have a reliable distress beacon registration system that:

i) provides a readily-accessible mechanism (preferably one that is available by Internet as well as other conventional means) to enable distress beacon owners to fulfil their obligation to register ELTs, EPIRBs and PLBs, and update the registration data as information changes (e.g., change in ownership);

ii) is available to RCCs 24 hours a day and includes up-to-date registration details for all national civil and military ELTs, EPIRBs and PLBs;

c) take steps (including education) required to prepare for, and to implement changes related to, the introduction of next generation beacons (e.g.: update beacon registration systems to be compatible with new beacon hexadecimal identifications) and the transition to the MEOSAR satellite architecture (e.g.: update local user terminals and mission control centres to properly receive and manage MEOSAR data), in accordance with COSPAS-SARSAT specification documents (http://www.cospas-sarsat.int/en/documents-pro/system-documents); and

Note 1: Note: Information on beacon registry is in C/S S.007 Handbook of Beacon Regulation. Information on national Beacon Registration Point of Contact is at:

http://www.cospas-sarsat.int/en/contacts-pro/contacts-details-all

Information on IBRD is at:

http://www.cospas-sarsat.int/en/beacons-pro/beacon-regulations-pro/ibrd-user-information-for-professionals.

Note 2: *Incorrect disposal of distress beacons often causes the deployment of scarce and often expensive SAR resources only to have the beacon located as a non-distress event in a rubbish dump or similar location. This also creates the risk of SAR resources being diverted away from a real emergency should it arise at the time. Beacon batteries are hazardous items which should be disposed of in an environmentally friendly manner.*

7.8 *Contingency Facilities*: All States should ensure there are established contingency facilities, or when a SAR service is not able to be provided, procedures in place for the temporary delegation of the SAR responsibility to another appropriate national body or State. All States should test their contingency arrangements periodically, but not less than once every six months.

SAR Information

7.9 *Provision of Information*: All States should ensure the:

a) establishment of a centralised information source publishing all EUR State Aeronautical Information Publication (AIP) information as required by ICAO Annex 15 Appendix 1, page APP 1-8 including:

i. The agency responsible for providing SAR services;

ii. The area of SAR responsibility where SAR services are provided;

iii. The type of SAR services and facilities provided including indications where SAR aerial coverage is dependent upon significant deployment of aircraft;

iv. SAR agreements;

v. The conditions of SAR facility and service availability; and

vi. SAR procedures and signals used;

b) establishment of an Internet-based SAR information sharing system (with security protocols) to share SAR activity with States, National Authorities and key stakeholders participating in a SAR activity (the information sharing system should include a means of handling media and next of kin enquiries, and recognise the need to avoid premature media statements); and

c) maximum practicable cooperation between State entities in the provision of accurate and timely information when required, including from military sources except where national security could be adversely affected.

7.10 *SAR Facilities and Equipment Lists*: All States should maintain informed a current, comprehensive list of State SAR Facilities, SAR Equipment, and SAR Units (SRUs), including joint or shared facilities and equipment, and provide the info via AIP/SAR Section.

7.11 *SAR Library*: All States should:

a) establish a web-based SAR Library, or cooperate by contributing to an Internet-based EUR resource; and

b) ensure that each RCC and SAR Authority has ready access to a current copy (either electronic or hard copy) of the following reference documents at a minimum:

i. ICAO Annex 12;
ii. IAMSAR Manual Volumes I, II and III;
iii. International Convention on Maritime SAR (SAR Convention);
iv. EUR SAR Plan/electronic Air Navigation Plan; and
v. relevant regional, national and agency SAR documents.

SAR Improvement

7.12 *Search and Rescue Exercises (SAREX)*: All States should conduct regular SAREX (at least once every two years) to test and evaluate existing coordination procedures, data and information sharing and aeronautical SAR response arrangements involving:

a) both aeronautical and maritime SAR authorities including both civil and military agencies as applicable, and related bodies such as Air Navigation Service Providers (ANSPs) and Airline Operations Centres (AOCs);

b) where appropriate, cross-aeronautical SRR coordination; and

c) SAREX effectiveness through a post-SAREX review and written report, completed to ensure that deficient areas or latent problems are identified and remedied.

*Note 1: a SAREX template is provided at **APPENDIX A**.*

Note 2: SAREX should test the SAR system, including unannounced alerts that allow an actual search (whether it is a desktop or a physical operation), to be conducted which will indicate weaknesses in the system. SAREX should not be confused with, or take the form of, simulated crash fire exercises such as for Aerodrome Emergency Procedures that do not have a search component.

Note 3: Real SAR incident responses which include an adequate post-response review and evaluation with lessons learned may replace the need for a SAREX.

7.13 *SAR Quality Assurance*: All States should implement SAR System Improvement and Assessment measures, including Safety Management and Quality Assurance systems accordingly with ICAO standards, that:

a) provide performance and safety indicators, including post-incident/accident lessons learned and management reviews (RCC and SAR System Continuous Improvement process), and feedback from RCC staff, SAR system users or SAR stakeholders;
b) identifies risk and corrective and preventive actions that prevent or minimise risk and the possibility of substandard SAR performance;
c) establishes an internal quality assurance programme, which includes regular internal audits of the RCC, SAR operations, SAR facilities and procedures that are conducted by trained auditors;
d) ensures the person or authority responsible for internal quality assurance within the entity responsible for SAR services has direct access to report to the Head of the entity responsible for SAR services on matters of quality assurance; and
e) where appropriate, provides submissions to the ICAO to share lessons learned and experiences with other global States for the continuous improvement of the worldwide SAR system.

Note 1: Resourcing of SAR system audit arrangements could be mitigated by States entering cooperative arrangements, including sub-regional regulation, between States for auditing of each other's SAR systems to share expertise and costs.

Note 2: Provisions of Annex 19 for a Safety Management System (SMS) may apply where a SAR service is provided under the authority of an ATS provider (Annex 19, Chapter 3, 3.1.3 e refers).

Note 3: Peer review, either external or internal, may provide a useful internal quality assurance tool.

7.14 *SAR Management Review*: All States should conduct an annual or more frequent analysis of their current State SAR system to identify specific gaps in capability against the minimum requirements of Annex 12 to:

a) enable the ICAO EUR SAR data to be updated to accurately reflect the State's capability;
b) identify SAR research and development programmes, especially those which could be conducted if possible in cooperation with other States;
c) establish a common set of basic SAR system statistics, which include:
    i. number of aeronautical SAR incidents per year;
    ii. number of lives at risk versus number of lives saved;
    iii. type of aircraft in distress (light, heavy, glide, etc.);
    iv. number of electronic alert (ELT, PLB) have received / TRUE-FALSE;
    v. Number versus Distribution in SRR;
    vi. time from first alert to tasking the SRU;
    vii. time from first alert to arrival on scene of first SRU; and
    viii. time from first alert to rescue.
d) plan for any necessary improvements to gradually build and improve capability over time, which would be detailed in the State SAR Plan; and
e) regularly review and update SAR agreements as appropriate.

Note 1: The National Self-Assessment found in IAMSAR Manual Vol I Appendix H and the ICAO USOAP-CMA Protocol Questions for SAR may assist States with their reviews.

Note 2: The number of incidents should identify the type (e.g.: COSPAS-SARSAT alert, ATS alerts, etc.) and outcome of SAR incidents.

7.15 *SAR Promotion*: All States should conduct SAR promotional programs (e.g. Seminars, Workshops and public safety campaigns) to:

a) encourage higher SAR preparedness by persons that may require SAR services through public safety campaigns aimed at preventing persons getting into distress situations (i.e.: 'preventative SAR');
b) ensure the support of government decision-makers for SAR facilities and improvements, in particular adequate funding availability;
c) assist media to understand SAR operations in order to minimise the need for explanations during SAR responses;
d) recognise improvement in State SAR systems;
e) enhance cooperation between SAR services and:
    i. civil, military, police and other agencies;
    ii. ANSPs;
    iii. aerodrome and port operators (hydroplanes);
    iv. aircraft operators;
    v. meteorological agencies;
    vi. accident investigation agencies;
    vii. government and non-government agencies affected by SAR operations, in particular large scale national and international responses involving whole of government agencies; and
    viii. other States.

Note: Social media may be an effective means of SAR promotion that reduces the workload of SAR staff during major SAR responses.

8. RESEARCH AND FUTURE DEVELOPMENT

Research and Development

8.1 To develop the tools and systems required to meet foreseeable long-term requirements, there is a need for States to undertake planning and co-operation on SAR matters. This includes major efforts to define concepts, to extend knowledge and invent new solutions to future SAR challenges so these new concepts are selected and applied in an appropriate timely manner. Such efforts could be forged through collaborative partnerships between, States, ANSPs, International Organizations, institutes of higher learning and specialised technical agencies. This concept is consistent with ICAO Strategic Objectives (Air Navigation Capacity and Efficiency) and the EUR/NAT Work Programme, and may manifest itself in joint projects such as:

- ICAO and/or IMO Regional SAR training opportunities where provided to assist States that are unable to provide their own SAR training;
- Joint Sub-regional RCCs;
- Development of Training Centre of excellence that brings together civil and military SAR experts and provides a single SAR facility, cost-effective and has a level of resources and facilities that would be difficult for all States to maintain by themselves; and
- Regional online eLearning packages.

8.2 With the end goal of a globally interoperable SAR system in mind, the region will have to consider planning for a long term supporting concept and infrastructure. The following are possible areas that should be considered for future SAR research and development, in order to promote the maximum possible harmonisation and interoperability of SAR systems:

a) data sharing such as aircraft and ship tracking information;
b) automated data link communication to RCCs when an aircraft exceeds a Variable Set Parameter (VSP) in terms of its operating envelope, or activation of an emergency status (could be displayed as a symbol, and the data could include certain operating parameters such as acceleration and altitude for an aircraft) – note the ICAO GADSS includes this concept;
c) regional Remotely Piloted Aircraft Systems (RPAS) SAR capability;
d) inclusion of the SAR system and RCC access as a component of the new ICAO SWIM concept of operation and implementation;
e) on-going development of standardised SAR training objectives and advanced training systems, including the use of high fidelity simulators; and
f) enhanced technology oriented systems to improve SAR system effectiveness.

9. MILESTONES, TIMELINES, PRIORITIES AND ACTIONS

Milestones

9.1 Section 7 (*Performance Improvement Plan*) provides a scheme for the implementation of a collective set of enhancements for a number of elements in the PSCS, effective on 29 November 2019.

9.2 States should take into consideration the planning for the various PSCS elements from the approval of this Plan, to ensure a smooth transition by **29 November 2019**, and should include consideration of issues such as:

- safety/operational analysis and assessment;
- cost-effectiveness;
- budgetary issues;
- development of operational procedures; and
- training.

9.3 Section 8 (*Research and Future Development*) provides, subject to future agreement by concerned parties, possible SAR improvements beyond 2020 until 2030.

Priorities

9.4 It is a matter for each State to determine priorities in accordance with its own economic, environmental, safety and administrative drivers.

Actions

9.5 This Plan necessitates a number of implementation actions. It is expected that each EUR State report progress on each applicable element to the EANPG. All States should note the importance of SAR status monitoring, which is expected to be conducted as part of the EUR SAR TF Action Plan. Reporting of implementation progress of SAR elements from this Plan is expected to be conducted by the AFM - Activity Follow-up Manager, a reporting and monitoring tool available in the ICAO EUR/NAT Office, using the following categories:

- SAR Regulatory and Coordination Mechanisms ;
- SAR Facilities and Assets;
- SAR Information; and
- SAR Improvement.

9.6 Section 6 (*Current Situation*) provides analysis and major concerns in the region, which should be considered in the formulation of specific State plans.

9.7 SAR Coordination Forums, which are likely to be based on sub-regional development, as the Regional Advisory SAR Committee, need to be promoted, established and supported to ensure the on-going implementation work and future review of SAR expectations linked to this Plan are conducted.

SAREX

9.8 A SAREX (SAR Exercise) provides unique Search and Rescue Training experience regarding the operational, technical and planning aspects. In this regard, every State is believed to establish an annual SAREX program with other States in the EUR Region, with every second year being a desktop communications exercise, and alternate years being a full exercise, taking into consideration the operational benefits and financial aspects. The SAREX outcomes and lessons learned should be reported to the EANPG through the EANPG Programme Coordinating Group (COG).

9.9 The ICAO EUR/NAT Regional Office was responsible for taking actions that assist the implementation of SAR within its accredited States. In addition, the EUR/NAT Regional Office is responsible for coordinating with adjacent ICAO Regional Offices on an ad hoc basis or at relevant trans-regional meetings.

APPENDIX A - WORK PLAN FOR THE [[JOINT]] SAREX COORDINATION MEETING

(Paragraph 7.12 refers)

1. OBJECTIVES

State the objectives of the [joint] SAREX and what are to be achieved out of the SAREX by all participants.

1.1 The objectives of the [joint] SAREX are:

a) To provide continuation of SAR exercise and improve cooperation between …… (participating agencies or State RCC) and …….. (participating agencies or State RCC).

b) To provide continuation training for personnel of SAR organisations from both …… (participating agencies or State RCC) and ……. (participating agencies or State RCC)

c) To test the communication facilities and procedures between ……. (participating agencies or State RCC) and …… (participating agencies or State RCC); and

d) To test and determine the effectiveness of the Search and Rescue Units of …… (participating agencies or State RCC) and …… (participating agencies or State RCC).

2 DATE AND TIMING OF SAREX

State the agreed date, time and year for the [joint] SAREX. Have alternate or contingency plan in the event that the full scale SAREX cannot be conducted due to weather or any unforeseen circumstances. It is recommended that a pre-SAREX brief be conducted to ensure all participants understand their roles and the required actions to be taken. State the agreed time for a pre-SAREX brief to be carried out for all participants and States may conduct simultaneous pre-SAREX brief at their own location for their local participants. For standardization and to avoid confusion, it is recommended that all timing and dates used should be in UTC as there may be difference in time and day for different States. For the better coordination of the Joint SAREX, the coordinating RCC proposes a MILESTONE TABLE regarding the planning of the exercise that will be agreed by the participants during the first coordinating meeting. A Table Top SAREX should be held during the second coordinating meeting. After the SAREX, it is also recommended to conduct a de-briefing for all participants. An example can be seen at the ***Addendum 1****.*

3 SCENARIO

Discussion and development of exercise scenario with participating State or States and agencies involved. Scenario created should be as realistic as possible to simulate close to a real incident. A fictitious flight plan can be included to provide additional information pertaining to the distressed aircraft as required by the RCCs. Using fictitious call signs or airlines for distressed aircraft will avoid complication or confusion especially if it involves the social media.

For example:

3.1 At …… (time in UTC), a chartered ……(type of aircraft) …… (callsign of distressed aircraft) departed from …… (point of departure) to ……. (destination) with ……. (POB). At ……. (time in UTC), aircraft declared **"MAY DAY"** due to …… (nature of emergency) at …….. (location in Lat and Long or with reference to a prominent location known to all). ……..

3.2 Other information like Pilot-in-command …..... equipment carried on board ……, colour of aircraft fuselage or tail.

4 PARTICIPATING ORGANISATIONS OR UNITS

Identify and list all participating agencies or agencies from both States. Agencies should include both government and private. ANSP, Aircraft Investigation Bureau, Airlines etc should be involved in a SAREX as they are directly involved in any real air incident

For example:

4.1 From …….. (participating local agencies or States)

1) Civil Aviation Authority of ……
2) Local Air Force
3) Local Navy
4) …….
5) …….

From …….. (the other participating local or States):

1) Civil Aviation Authority of ……..
2) Local Air Force
3) Local Navy
5) ……
6) …….

5 DEPLOYMENT OF EXERCISE SAR UNITS (SRUs) AND CALLSIGNS

State all the SAR assets that will take part in the SAREX. It is recommended that the callsigns of the SRUs should be pre-fixed with the word "SAREX" to indicate that it is an exercise aircraft or surface vessel. This will not create any confusion between a SAREX and a real incident. Callsign assigned to a particular SAR asset should not be changed and to be used throughout the exercise. Different SAR asset should be assigned with an individual flight number.

5.1 SRUs from …… (participating State) and their callsigns are as follows:

Type of SRUs	Callsign	Remarks
Fokker 50	SAREX 01	Search
C130	SAREX 02	Search
Dolphin Helicopter	SAREX 03	Search and Rescue
……	SAREX……..	……..
……	SAREX……..	……..

5.2 SRUs from …… (the other participating State) and their callsigns are as follows:

Type of SRUs	Callsign	Remarks
Helicopter	SAREX 04	Search and Rescue
Ship	SAREX 05	Search and rescue
…….	SAREX….	……..

6 COMMUNICATIONS

State the agreed radio frequencies to be used in the SAREX. Make communication arrangements between the two RCCs as well as between the RCCs and the SRUs. It is recommended that a communication check be conducted between all parties before the SAREX to ensure serviceability of communication equipment. A standby day may be necessary if the communication check is found not satisfactory or unsuccessful.

6.1 The communications arrangement will be as follows:

a) Between ……. (participating agency or State RCC) and ……. (the other agencies or participating State RCC)

Primary communication - …….KHz or …..Mhz or landlines

Secondary communication - …….KHz or …..Mhz or landlines

Standby communication - …….KHz or …..Mhz or landlines

b) Between ……(participating agencies or State RCC) and SRUs)

Primary communication - ……. KHz or …….MHz

Secondary communication - ……. KHz or …….MHz

Standby communication - ……KHz or ….....MHz

6.2 A communication test between …… (participating agency or State RCC) and …… (the other participating agencies or State RCC) will be conducted prior to the SAREX. The date for the test is on ……. (date/month/year according to UTC) between …… (time in UTC) to ……..….. (time in UTC).

6.3 In the case of unsatisfactory communication test, another test will be conducted on ……. (date/month/year according to UTC) between …… (time in UTC) to ……..….. (time in UTC). .

6.4 All messages pertaining to the exercise shall be prefixed with the words "SAREX SAREX SAREX" " **or "EXERCISE EXERCISE EXERCISE".** In order to avoid confusion between SAREX and an actual SAR incident, internationally recognized Distress or Urgency Procedure words e.g. Mayday, Pan Pan and Securite, **must not be used** and should be replaced with words such as:

Mayday - replace with 'Mike Delta'
Pan, Pan - replace with 'Papa, Papa'
Securite - replace with 'Sierra, Sierra'

6.5 Prior to the exercise, a message might be broadcasted, warning other users that these frequencies are used for the SAREX **"All stations be advised that Ch-XX or XXX.XX MHz is used for a SAR exercise. Please keep this frequency clear."**

7 SEARCH OBJECT

In a Full Scale SAREX, States can consider the deployment of a search object to add realism to the exercise. This will enable participating SRUs to practice visual search from air as well as on from the surface of the sea. If the homing capability of the SRUs is desired, a beacon can be placed on the search object for electronic search. Arrangement can be made for the search object to be deployed at the proposed distress location at the activation time of the SAREX. A search object with some significant marking or markings on it will enable easier visual sighting of search target on land or on water. Specific numbering on the object/dummy can signify a certain medical condition of the casualties. This might be used for paramedic's training purposes upon the recovery of the object/dummy.

7.1 The search object will be provided by …… (one of the participating agency or State RCC) and will be deployed at ……. (time in UTC) on ……..(date of the SAREX according to UTC) at the position in which the distressed aircraft is assumed to have crashed.

7.2 Search target is marked with.…… (bright colour or with the words "SAREX" or some significant marking).

8 ALERTING AND ACTIVATION

State clearly on the alert and activation processes for the SAREX. Decide on which agency or State would initiate the distress phase and notify the other participating agencies or State or States so that [joint] SAR effort can be carried out. In a joint SAREX, if the distressed location is within the area of responsibility of a particular State, the State concern should carry out the alerting and activation phase. The other participating State or States should be notified and [joint] SAR operations can be carried out. The coordinating RCC should follow the guidelines of the IAMSAR manual (Vol II, chapter 3, para 3.7), testing the required procedures for "Requesting SAR Facilities".

8.1 Since the crash will occur in …… (location or name the State FIR) or area of responsibility, …… (State concern) RCC will notify …….. (participating State). ~~Both RCCs will coordinate the SAR Operations.~~

9 SEARCH AREA

Discuss on how to determine the search area or which State should determine the search area. In a joint SAR effort, the two RCCs can determine their own search areas within their SRRs or they will agree on a common search area under the coordination of a particular RCC. ~~*and agree on a common search area.*~~

9.1 The respective Search Mission Coordinators (SMCs) will work out a search area upon receipt of the distress location or crash report.

9.2 The two SMCs shall discuss with each other and agree on a common search area under the coordination of RCC ……. (coordinating RCC).

9.3 If there is a great difference between the two search areas, the controlling RCC shall decide on the most probable area and take the necessary action to promulgate the area as a restricted area for SAR operations accordingly.

10 DIPLOMATIC CLEARANCE

In a joint SAREX, make necessary arrangement for the application of Diplomatic Clearance required if State assets may or are required to enter into another State's territorial airspace or waters. The process for application should be made known or if there is an agreement in place between the two States, then the agreed procedure should be followed. Provide information regarding the SRUs and particulars of the personnel on board. It is recommended that particulars of the SRUs be provided to the State concern prior to the SAREX. This will assist in the Diplomatic Clearance process.

10.1 …… (State) SMC will request to …… (State) for diplomatic clearance to allow …… (State's) SRUs to enter ……. (State's) territorial airspace and waters.

10.2 To obtain diplomatic clearance for …….. (State's) SRU, …….. (State) SMC shall provide the following particulars:

a) Registration of SRU

b) Type of aircraft or vessel

c) Name of Captain/Pilot in Command

d) Names of crew on board (not required for sea asset)

e) Area of operation

f) Date and time of operation

10.3 The details of the ……. (State's) SRU shall be provided to …….. (State) one or two weeks before the exercise. Application for diplomatic clearances through the normal channel via the …… (agency for the process of the Diplomatic Clearance) is advised in order to accelerate the diplomatic clearance process.

11 SEARCH OPERATIONS

Note 1: Ensure the safe conduct of the SAREX especially with the air assets. It is recommended that there should be one controlling RCC providing instructions to SRUs prior to entering the search area. It is also recommended that an Air Coordinator (ACO) be deployed to provide instructions to SRUs the search area if the RCC personnel have no knowledge of Air Traffic Control. Assign one of the search and rescue unit as the On Scene Coordinator (OSC) in order to provide command and control of all the search assets in the search area as well as providing the important communication link between the distressed aircraft and all the SRUs.

For safety reasons the SRU's should adhere ATS until they enter the area of operations reporting to RCC. The RCC will hand over the SRUs to the ACO (usually 5 minutes before entry in order to get the clearance to enter the area). ACO would provide instructions to the aircrafts within the area of operations. The ACO should also provide information to the OSC.

Note 2: Additional guidance for roles and responsibilities of the RCC personnel can be found in the ICAO Doc 9731, IAMSAR MANUAL VOLUME II.

11.1 All air SRUs must observe and adhered to ATC instructions during transit to and from the search area reporting also to RCC. Five minutes prior their entrance within the search area, SRUs will be adhered to ACO. In the absence of the ACO, the SRUs should report to the OSC, observing ATC instructions.

11.2 Non exercise aircraft shall keep clear of the search area unless clearance has been obtained for these aircraft to transit through.

12 RESCUE OPERATIONS

Note: Discuss on how the rescue operation is to be executed. Agency or States can decide on a simulated rescue operation by taking photographs of the search object once sighted or if actual personnel are deployed at the distressed location as survivors, actual rescue operations can be conducted. Actual rescue operation will provide training for the rescue of survivors from sea or land to hospitals or landing sites. Each Search and Rescue Unit will report to the controlling RCC or On Scene Coordinator the number of survivors rescued, the state the survivors are in and the position they were found. This will assist in accounting for all the survivors on board and whether immediate evacuation is required. It will also assist the RCC to verify the calculations made during planning. The search object could be marked with a number which corresponds to a certain medical scenario so that ground units could practice their skills as well. If possible, recover the search object from the land or sea after the exercise; this will help to avoid the search object becoming an obstacle to others on land or sea. If recovering is not possible, make a general broadcast to warn others of the objects.

12.1 When the search object is sighted, the SRU shall inform the …… (State) RCC. The …… (State) RCC will disseminate the information to all other SRUs.

12.2 The SRUs to take photographs of the search object to simulate the rescue of the survivors.

12.3 Recovery of the search object will be by …….. (agency that is recovering the search object).

12.4 If the search object is unable to be recovered due to sea state or weather, an Urgent Marine Information Broadcast is provided by …….. (maritime agency responsible for the area).

13 EMERGENCY LANDING OF SEARCH AIRCRAFT

Note: In a joint SAREX, make arrangement for search aircraft to land in airport or airfield of another State in the event of an emergency encountered by the search aircraft where immediate landing is required.

13.1 …… (State's) search aircraft will be given permission to land in …….. (name of airport or airfield) if an emergency landing is required.

14 TERMINATION OF SAREX

Note: State the requirements or under what circumstances that will terminate the SAREX. Make arrangement in the event of a real incident that might occur during the SAREX. Consideration can be given to have a code word or words which are understood by all participating agencies and SRUs in the event of a real incident. Once the code word is broadcast to all concern, it will be understood by all participants and the SAREX will be converted into real SAR operations.

14.1 The SAREX will be terminated under any one of the following circumstances:

a) When the all the SRUs have returned to base.

b) When the time for the SAREX has expired and no search object is sighted.

c) When there is an actual emergency.

14.2 In the case of a real emergency, the exercise will be converted into a real SAR Operations. The code word **"NO DUFF NO DUFF"** will be broadcast and all agencies to terminate the exercise immediately and make the necessary preparation to convert it into a real SAR Operations.

15 SAREX De-brief

Note: Conduct of a SAREX de-brief is important as this is where the evaluation process of the exercise is presented by evaluation experts who observed the exercise and observations by people who actually participated in the exercise scenarios. This is the final step to identify weaknesses or best practises and develop recommendations for improvement. Agree on a date and venue to conduct a SAREX de-brief to all participants from both States.

15.1 SAREX Debrief will be held in on …….. (date/month/year according to UTC) at ……. (time in UTC).

15.2 The venue for the SAREX De-brief will be at ……. (name the venue).

15.3 The de-brief could be conducted via Video Tele – Conference (VTC) on …….. (date/month/year according to UTC) at ……. (time in UTC).

16 SAREX CONTROLLERS/EVALUTORS/OBSERVERS

Note: Name the personnel who will be involved in the SAREX as observers, evaluators and controllers. As for evaluators and controllers, they must have expertise in the areas of SAR as they will understand what is to be evaluated and how to control the exercise to maximize the training value.

16.1 Personnel involved in the SAREX will be as follows:

From SAREX Controllers/Evaluators/Observers ……. (Agency or State) …….. (name of personnel and their role)

17 INVITATION TO FOREIGN OBSERVERS

Note: Agency or States may consider inviting observers from other agencies or foreign countries or international organizations to attend and observe the SAREX. These personnel can provide valuable feedbacks for improvement to the system. Arrangement to be made as to which State will do the invitation and who should be invited to attend.

17.1 Invitation to foreign observers to observe the SAREX at …… (state the venue for the observation of the SAREX) will be provided …… (State that is providing the invitation) on behalf of ……. (the other State).

17.2 The following countries and organizations will be invited to attend:

a) ……. (name of country or organization)

b) ……. (name of country or organization)

c) ……. (name of country or organization)

d) ……. (name of country or organization)

18 PRESS COVERAGE

Note: If there provision for any press coverage for the SAREX, made the arrangement for drafting of press release.

18.1 If there is a requirement for a [joint] press release on the SAREX to be issued, ……...(Agency or State that will produce the draft) will draft the press release and forward to …… (the other participating agencies or State) for concurrence.

19 SAREX REPORT

Note: SAREX Report is important as it serve as a permanent record of the exercise. Each element of the exercise is recorded and lesson learnt during the exercise is captured. Make arrangement on who should produce the SAREX Report for dissemination to all participating agencies as well as others who may be interested. According to the Lessons Learnt, SAREX Report may include proposal for amendments of the National/Regional SAR Plans.

19.1 …….. (Agency or State) will produce the SAREX Report with assistance from ……. (the other participating agencies or State). Photographs will be made available for the SAREX Report.

19.2 A copy of the report will be sent to each of the following countries and International Organizations.

a) …….. (agency or country or International Organization)

b) …….. (agency or country or International Organization)

20 VENUE FOR THE NEXT SAREX

Note: It will be good to plan for an annual [joint] SAREX with relevant agencies or neighbouring State or States. State the tentative date and venue if possible for the next SAREX coordination meeting and SAREX.

20.1 The next SAREX Coordination Meeting will be held at ……. (venue) on …….. (date/month/year).

20.2 The next Full Scale SAREX will be held on …… (date/month/year).

Addendum 1

Milestones Table

N^{O}	TASK	ASSIGNED TO	START	END	DUR(D)
	PROJECT DURATION		**xx/xx/xx**	**xx/xx/xx**	**d**
1	Distribution of Invitations	Coordinating RCC			
2	Countries' Initial Submission for Participation	Participating Countries			
3	1st Coordination Meeting (09:00 UTC)	Planning Teams of the Participating Countries			
4	Distribution of the Final Version of the MOM	Coordinating RCC			
5	Submission Date for participation with Assets and Personnel to the SAREX	Participating Countries/Entities			
6	Preparation-Distribution of the 1st Draft of the SAREX Order to the Participating Countries/Entities Involved	Coordinating RCC			
7	Submission date of the Comments and Proposals on the 1st Draft	Participating Countries/Entities			
8	2rd Coordination meeting of the Organizing Teams at the Coordinating RCC. Execution of a "Table Top Exercise" in accordance with the scenario of the SAREX Order.	Organizing Teams of the Participating Countries			
9	Distribution of the 2nd Draft of the SAREX Order to the Participating Countries/Entities Involved.	Coordinating RCC			
10	Submission Date of the comments and proposals of the 2nd Draft.	Participating Countries/Entities			
11	Official circulation of the final SAREX Order.	Coordinating RCC			
12	Pre-Operations Briefing 16:00 UTC	Coordinating RCC & Participating Countries/Entities			
13	Live full scale SAR exercise: D 07:00 UTC – 12:00 UTC. The exercise should be shifted one day in case of poor weather conditions	Coordinating RCC & Participating Countries/Entities			
14	De - Briefing 09:00 UTC	Coordinating RCC & Participating Countries/Entities			
15	Submission Date for the Exercise Report including remarks and suggestions on the joint SAREX.	Participating Countries/Entities			
16	Distribution of the Final Report to all Countries/Entities Involved and to International Organizations	Coordinating RCC			

APPENDIX B: BENEFITS TO THE SAR SYSTEM OF STATES ASSISTING OTHER STATES

1. EUR States Face Demanding SAR Responsibilities with Few Resources.

1.1. Many EUR States have the challenging responsibility of providing SAR services over vast and remote land and also in oceanic areas and several have few resources available to meet Annex 12 requirements.

2. Taking a Regional Approach Improves Effectiveness and Efficiency

2.1. To provide an effective and efficient SAR service in the region it is important that States focus not only on meeting their own national obligations, but also take the broader view that their State SAR system is only one part of the wider regional SAR system. States therefore need to cooperate, collaborate and share resources and technical expertise with their neighbouring and regional RCCs, with the more developed SAR States in particular looking for opportunities to assist their lesser developed State neighbours.

3. When Developed SAR States Support Less Developed Neighbours, Everyone Wins

3.1 Sometimes simple measures can reduce the incidence of SAR operations in a State's Area of Responsibility.

3.2 After the Regional Search and Rescue Conference, a joint initiative of EUROCONTROL and the Civil Aviation Directorate of Serbia, the CAD of Serbia was invited to take the initiative for the establishment of a working group to examine the possible methods for the regulation of search and rescue cross-border cooperation at regional level and propose the optimal solution. For that reason, the Regional Advisory SAR Committee was created.

3.3 States who aren't compliant with Annex 12 SARP's and who are unable to meet the minimum SAR service requirements could consult and seek assistance from 'champion' States who are compliant and have well developed SAR systems in place.

3.4 Examples of assistance that could be provided by States, International Organisations (such as IMO/ICAO) or multi-lateral initiatives include:

a) conduct of a SAR Gap Analysis;

b) advice on the establishment of a SAR organisational framework;

c) advice for the establishment of a National SAR Committee;

d) technical assistance in the development of a National SAR Plan;

e) providing copies of relevant SAR documents to be used as templates;

f) technical assistance on the establishment of SAR agreements;

g) technical assistance in the development of RCC position descriptions;

h) training of SAR personnel;

i) provision of SRU where appropriate and training of SRU crews;

j) provision/sharing of computerised SAR tools including incident management systems, databases, maritime drift modelling software, etc.;

k) establishing data and information sharing agreements between RCCs;

l) the provision of operational search plan data;

m) provide advice on how to conduct a SAREX and post-SAREX analysis; and

n) set up of SAR system publicity and safety awareness campaigns.

APPENDIX C: ICAO DOC 9731, IAMSAR Manual, Vol 1, Appendix I –SAR Agreements

(Paragraph 2.7 refers)

SAR agreements

Notes regarding SAR agreements and the sample agreement that begins on the following page:

Parties may be organizations within a State, maritime and/or aeronautical SAR authorities of two or more different States (particularly with neighbouring search and rescue regions), or higher authorities of two or more States, i.e. the sample agreement can be adapted for local, national, or international use.

Each section of the sample agreement may be optionally used or adapted as the Parties agree, bearing in mind consistency with the principles of international law, and the goals of IMO, ICAO and the States and organizations concerned.

It is generally advisable to include specific information, such as phone numbers or addresses, in appendices or other documents separate from the basic signed agreement.

When SRRs are addressed in the agreements, normally only the lines separating the SRRs of the Parties are described, since other delimitation of the SRRs would normally involve States other than the Parties.

Agreements between national organizations may or may not need to address geographic areas of responsibility.

It should be recognized among the Parties that the establishment of SRRs is mainly for ensuring the availability of SAR services, and to facilitate proper distribution of distress alerts to RCCs; SRRs should not be viewed as affecting political boundaries, and do not need to align with political boundaries if the Parties so agree for the sake of improving or simplifying SAR operations. SRR delimitation over international waters is not intended to obstruct the provision of SAR services in any way. Furthermore, the provision of SAR services within an SRR shall be without regard to the nationality or circumstances of the persons in distress.

If agreements discuss territorial entry for SAR, provisions should account for a balance of concerns for sovereignty and concerns for saving lives.

The concept of "territory" is understood to include territorial land, territorial sea and the airspace above them.

It is advisable that SAR agreements address sensitive issues to the degree necessary for practical SAR cooperation between or among the Parties, while emphasizing the humanitarian nature of SAR, and avoiding topics which are unrelated to SAR, or which are both politically sensitive and unnecessary.

IMO and ICAO use the term "agreement" but many States view this as a type of legal instrument. Different terms may be used for the title of a legal instrument, such as "Agreement", "Memorandum of Understanding", "Arrangement" and other related terms. The type of instrument can be decided by the States involved as long as the document meets the intent of the international conventions to serve as the basis for cooperation and the provision of expeditious and effective SAR services.

In some cases, the term "Search and Rescue Point of Contact (SPOC)" can be used in lieu of Rescue Coordination Centre (RCC). The definition of SPOC includes the RCC and some national SAR authorities that may not have an internationally designated RCC.

This template serves as guidance for States to draft a SAR Agreement (which may take the form of an MOU or Arrangement or other) and the text to be included in this document is for the Parties to decide.

Bilateral or Regional SAR Agreement

Agreement FOR COOPERATION BETWEEN THE *[name of national agency/State]*
AND *[name of national agency/State]*

Note: The term agreement is used in order to be consistent with ICAO Annex 12 and the International Convention on Maritime Search and Rescue. State may elect to use a different term such and "Memorandum of Understanding", "Letter of understanding", "Arrangement" or others as appropriate.

This template serves as guidance for States to draft a SAR Agreement (which may take the form of an MOU or SAR Arrangement or other instrument title) and the text to be included in this document is for the Parties involved to decide.

Concerning Aeronautical [and/or] Maritime Search and Rescue

1. Introduction

1.1. The *[name of national agency/State]* and *[name of national agency/State]* (hereinafter referred to as the "Parties" in this Agreement, recognize the benefits enjoyed from previous close cooperation with regard to search and rescue SAR operations and training, and further recognize that additional benefits may be enjoyed from the cooperative arrangements detailed herein; and

1.2. The Parties have been recognized by their respective governments as having primary responsibility for coordinating and providing aeronautical and maritime SAR services in their respective aeronautical and maritime SAR regions.

1.3. The Parties recognize the great importance of cooperation in aeronautical and maritime SAR, and in the provision of expeditious and effective SAR services to save lives and reduce suffering and have assumed their respective responsibilities for SAR within the framework of the International Convention on Maritime Search and Rescue, 1979, the Convention on International Civil Aviation, 1944, and the International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual.

1.4. The Parties have accordingly reached the following understanding.

2. Objectives and Scope

2.1. This agreement establishes a framework for cooperation among the Parties in carrying out activities related to SAR within the aeronautical and/or maritime environment and sets out their various responsibilities.

2.2. The Parties should ensure close coordination with their respective national aeronautical and maritime SAR authorities to help promote common and effective SAR services under this agreement.

3. Responsibilities

3.1. *[name of national agency]* and *[name of national agency]* are each responsible for the maintenance of safety of life and within their respective aeronautical and maritime SAR regions, under their respective Rescue Coordination Centre (RCC).

3.2. Each Party, on receiving information of an incident where any person is in distress within its SAR region, should take urgent measures to provide the most appropriate assistance regardless of the nationality or status of such a person, or the circumstances in which that incident occurred or is detected.

3.3. SAR operations should normally be carried out in accordance with the relevant SAR manuals and recommendations of International Civil Aviation Organization (ICAO) and the International Maritime Organization IMO, including the IAMSAR Manual (as amended from time to time), taking into account SAR procedures established by national legislation.

3.4. The Parties should make every effort to retrieve persons in distress, provide for their initial medical or other needs and deliver them to a place of safety; additionally, when it does not involve excessive risk or cost to the units involved in SAR operations, the Parties may attempt to rescue the craft or vessel on which the persons in danger are aboard.

3.5. To ensure that SAR operations are conducted in an efficient and coordinated manner, the Parties should consult and cooperate with each other as necessary and appropriate, lending mutual assistance as their capabilities allow.

3.6. Either Party may conduct SAR operations within the SAR region of the other Party under the coordination of that other Party's RCC.

3.7. Entry of the SAR units of one Party into or over the territory of the other Party for the purpose of conducting SAR operations should be expeditiously arranged to the best of each Party's ability and via the appropriate RCCs.

3.8. Solely for the purpose of searching for the site of an accident, rescuing survivors of such accidents, rendering emergency rescue assistance to persons, vessels, or aircraft in danger or distress and when the location is reasonably well known, permission to enter its territory shall be granted by a State to another State's search and rescue unit(s), provided that a request has been transmitted to the rescue coordination centre of the concerned State or to such other authority as has been designated by the State.

3.9. The RCC of the State requesting assistance or the use of suitable SAR facilities of another State ("the requesting RCC" and "the assisting State" respectively), shall provide all pertinent details on the scope of the assistance or facilities required. The requesting RCC should provide a full briefing, directly or indirectly, to the SAR Units that have been made available by the assisting State, on the scope of the mission before the SAR units enter the SRR of the requesting RCC. If it is necessary for the SAR Units of an assisting State to land at an airfield or to make use of the facilities of the requesting RCC in the course of performing an assigned SAR task, the RCC concerned should make all necessary arrangements to facilitate the taking of such measures or actions.

3.10. To facilitate the coordination referred to in this section, the Parties should, to the best of their ability, keep each other fully and promptly informed of all relevant SAR operations. The Parties should develop appropriate procedures in accordance with the IAMSAR Manual to provide for the most effective and efficient means of communication.

4. SAR Regions

4.1. The aeronautical and maritime SAR regions of [State] and [State] are separated geographically by a continuous line as follows:

[Provide the geographic coordinates of the lines of delimitation between both States' SAR regions only. Add additional States' lines of delimitation for regional SAR Agreement.]

4.2. The establishment of SAR regions is intended only to provide an understanding concerning the regions within which a Party accepts primary responsibility for coordinating SAR operations.

4.3. The delimitation of SAR regions is not related to and does not prejudice or have any bearing on the delimitation of any boundary between States.

5. Rescue Coordination Centres (RCCs)

5.1. The primary operational points of contact under this Agreement are the internationally recognized aeronautical and maritime RCCs of the Parties.

5.1.1. [Identify national RCC]

5.1.2. [Identify national RCC]

5.2. The Parties, to the best of their ability, should provide to each other any information which might be useful in order to expedite and improve coordination.

5.3. Identification of the operational points of contact, as referred to in this Section, is not intended to preclude appropriate direct coordination between any SAR facility or organizational unit of the Parties, especially when time is of the essence in the saving of lives.

5.4. Transfer of SAR mission coordination responsibilities between the RCCs, if deemed necessary, should be conducted by consultation between RCCs.

6. Cooperation

6.1. The subordinate elements of the Parties may provide for further coordination and cooperation by the establishment of appropriate operational arrangements and procedures consistent with this Agreement.

6.2. In addition to information related to specific SAR cases, the Parties may exchange any other information that may serve to improve the effectiveness of SAR operations. This information may include, but not be limited to:

6.2.1. communication details;

6.2.2. information about SAR facilities;

6.2.3. descriptions of available airfields;

6.2.4. knowledge of fueling and medical facilities; and

6.2.5. information useful for training SAR personnel.

6.3. The Parties will endeavour to promote mutual SAR cooperation by giving due consideration to collaboration including, but not limited to:

6.3.1. exchange visits between SAR personnel;

6.3.2. joint SAR exercises and training;

6.3.3. the use of ship reporting systems for SAR purposes;

6.3.4. sharing of information systems, SAR procedures, techniques, equipment, and facilities;

6.3.5. provision of services in support of SAR operations;

6.3.6. coordination of national positions on international SAR issues of mutual interest;

6.3.7. supporting and conducting joint research and development initiatives aimed at reducing search time, improving rescue effectiveness, and minimizing risk to SAR personnel; and

6.3.8. conducting regular communications checks and exercises, including the use of alternative means of communications that would be used to handle communication overloads during major SAR operations.

7. Finances

7.1. Unless otherwise agreed by the Parties, each Party is to fund its own expenses for activities pertinent to this Agreement.

7.2. The provisions of the Agreement are contingent upon the availability of SAR personnel, facilities and funding.

7.3. SAR services provided by the Parties to persons in danger or distress are to be without subsequent cost recovery from the person(s) assisted.

8. Application of this Agreement

8.1. Nothing in this Agreement is intended to affect in any way rights and duties based on international agreements or other arrangements between the Parties or their respective governments.

8.2. All activities conducted under this Agreement should be in conformity with national legislation of the Parties, as well as with the relevant international conventions in force.

8.3. No provision of this Agreement should be construed as an obstacle to prompt and effective action by any Party to relieve distress whenever and wherever found.

8.4. Any dispute regarding the interpretation or implementation of this Agreement is to be resolved by consultation between the Parties and is not to be referred to any international body, court or third party for settlement.

9. Modification

9.1. This Agreement may be modified in writing by the Parties.

10. Duration, Withdrawal and Discontinuation

10.1. Cooperation under this Agreement may commence from the date of signature and may continue indefinitely.

10.2. Either Party may withdraw from this Agreement at any time, upon giving not less than six (6) months' notice in writing to the other Party.

10.3. Cooperation under this Agreement may be discontinued mutually by the Parties in writing, or by any superseding arrangement.

10.4. The Parties should ensure that such discontinuation does not adversely impact any SAR operations or other cooperation in progress at the time that such discontinuation takes effect and should consult each other closely for this purpose.

Signed in duplicate at *[City, State]*, this _____ day of _____, 2016.

For the *[national agency]*: _____

Signature of Authorized Signatory

Name: _____

Designation: _____

Organization: _____

Signed in duplicate at *[City, State]*, this _____ day of _____, 2016.

For the *[national agency]*: _____

Signature of Authorized Signatory

Name: _____

Designation: _____

Organization: _____

APPENDIX D: SAR CAPABILITY MATRIX TABLE

(Paragraph 6.4 refers)

Last update: 2016

	Training	Alerting	Legislative	SAR Committee	SAR Agreements	Relationships	Communications	Quality Control	Civil Military	Resources	SAREX	Library	Computerization	SAR Programme	Supply Dropping	Special Equipment	SAR Aircraft	Navigation	ELTs	COSPAS-SARSAT Alerts
Albania																				
Algeria																				
Andorra																				
Armenia																				
Austria																				
Azerbaijan	E	E	E	E	D	D	D	B	-	E	C	E	E	E	D	D	E	E	E	E
Belarus																				
Belgium																				
Bosnia and Herzegovina																				
Bulgaria																				
Croatia																				
Cyprus	E	E	E	E	D	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Czech Republic	E	E	E	E	A	D	E	B	E	E	C	E	E	E	E	E	E	E	E	E
Denmark	E	E	E	E	D	E	E	E	E	E	E	E	E	E	D	D	E	E	E	E
Estonia	C	D	C	A	D	D	E	C	D	D	D	C	D	C	D	D	D	E	D	D
Finland																				
France	D	E	E	B	D	E	E	E	E	E	E	E	E	E	E	D	E	E	E	E
Georgia	C	D	E	B	C	D	D	B	B	C	C	E	E	C	C	C	A	E	D	E
Germany	E	E	E	E	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Greece	E	E	E	E	D	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

Hungary	D	D	D	B	A	C	D	C	D	D	C	D	D	C	C	D	D	D	C	E
Iceland																				
Ireland	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Israel	?	E	B	A	E	?	E	A	E	C	C	A	E	E	A	A	A	?	E	E
Italy																				
Kazakhstan	E	E	E	E	E	B	E	A	B	B	E	E	A	A	A	B	E	B	E	E
Kyrgyzstan	E	E	B	E	E	E	E	A	E	E	C	E	E	E	E	E	E	E	E	E
Latvia																				
Lithuania																				
Luxembourg	A	E	A	A	A	C	D	B	A	C	A	E	A	A	A	A	C	A	E	E
Malta	D	E	E	A	E	E	E	E	E	E	C	E	E	E	E	E	E	E	E	E
Monaco																				
Montenegro	C	D	D	C	C	D	D	A	D	D	C	C	D	C	C	D	D	D	D	D
Morocco																				
Netherlands																				
Norway	E	E	E	E	E	E	D	D	E	E	E	E	D	E	D	D	E	E	E	E
Poland	E	E	E	D	D	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Portugal	E	E	E	E	C	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Republic of Moldova	A	B	A	A	A	B	C	A	A	B	A	B	A	A	A	A	C	C	E	D
Romania																				
Russian Federation	E	E	E	E	D	D	D	B	E	E	C	E	E	E	E	E	E	E	E	E
San Marino																				
Serbia	C	E	E	D	B	E	E	C	E	E	D	D	D	E	D	E	E	D	E	E
Slovakia	D	E	E	D	B	E	E	E	E	E	D	E	E	D	E	E	E	E	E	E
Slovenia	D	D	D	D	C	D	D	C	D	D	D	D	D	D	D	D	D	D	D	D
Spain																				
Sweden																				
Switzerland	E	E	E	E	E	E	E	E	E	D	E	D	D	D	A	D	D	E	E	E
Tajikistan																				
The former Yugoslav Republic of Macedonia	C	D	D	B	B	D	D	B	D	D	B	C	C	B	A	D	D	D	C	E
Tunisia																				
Turkey																				

Turkmenistan																				
Ukraine	C	D	D	B	D	D	D	B	E	E	C	D	D	D	D	D	E	C	E	E
United Kingdom																				
Uzbekistan																				

Legend:

A = Not implemented

B = Initial implementation

C = Meets ICAO Annex 12 requirements in some areas

D = Meets ICAO Annex 12 requirements in most areas

E = Fully meets ICAO Annex 12 requirements

Blank = No response