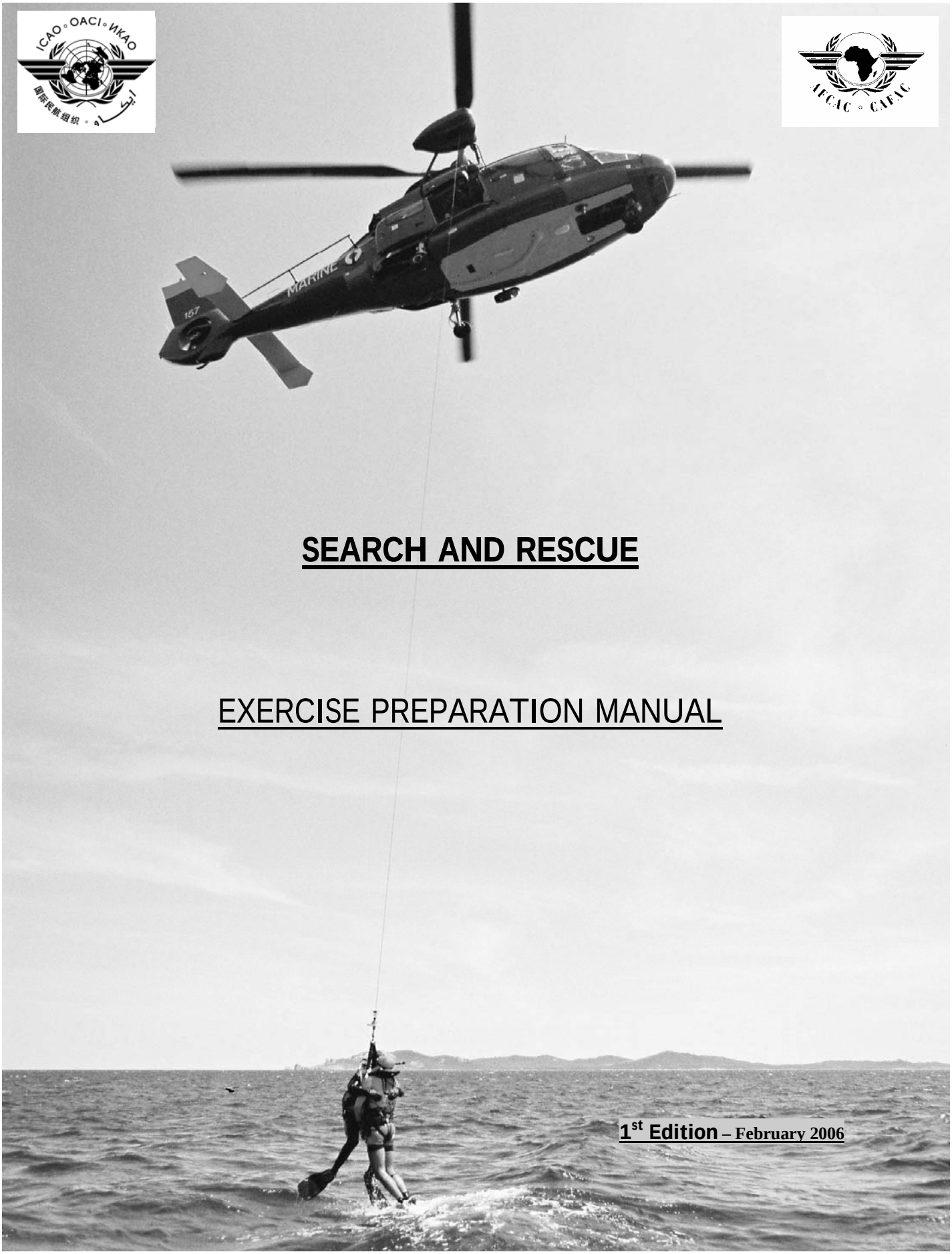
Conference on Search And Rescue (SAR)

(Saint Denis de La Réunion, 3 – 7 September 2007)

WP/12 – SAREX Manual



SEARCH AND RESCUE

EXERCISE PREPARATION MANUAL

1st Edition – February 2006

ICAO / AFCAC – SAR PROJECT

PREPARING A SAR EXERCISE

1. CONTENTS

2. INTRODUCTION

States that are party to the Chicago Convention are obliged to provide assistance to any aircraft in distress and to its occupants. Article 25 of and Annex 12 to the Convention set out the nature and scope of this obligation. Annex 12, Chapter 4 – '*Preparatory Measures'*, section 4 – '*Training and exercises'*, states that 'to achieve and maintain maximum efficiency in search and rescue, Contracting States shall provide for regular training of their search and rescue personnel and arrange appropriate search and rescue exercises.'

Each of the 189 Contracting States of the International Civil Aviation Organization (ICAO) which has not notified the ICAO Council of a difference between its national practices and the provisions of this standard, has therefore undertaken to comply with this obligation.

However, a number of States do not organize SAR exercises because they lack the necessary technical expertise, despite a real political will to comply with standard 4.4 of Annex 12, as well as sufficient financial, material and human resources to organize SAR exercises in good conditions. For the officers in charge of SAR operations, this manual provides specific technical instructions for conducting SAR exercises that can significantly improve the performance of the national SAR system.

When better trained and prepared , the SAR personnel of those States will be able to cope more effectively with an air disaster. Statistics show that, although air traffic is increasing steadily, accident rates are tending to stabilize. It is therefore, statistically probable that international air transport will continue to suffer accidents.. Therefore, it is vital to organize regular SAR exercises of all types to ensure that SAR personnel maintain an adequate level of expertise.

Users of this manual are invited to contact ICAO or AFCAC if they have questions about its content, or to make suggestions to improve the relevance of the manual and ensure that it is well adapted to the needs of SAR personnel.

3. PREPARING A SAR EXERCISE: TIME LINE

Step 1

Define the objectives and identify the functions to be evaluated

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Step 2

Define the appropriate type of exercise

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Step 3

Choose the exercise area

↓

Step 4

Identify parties to the exercise and initiate co-ordination:
define resources, date, time frame, responsibilities and location

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Step 5

Set up the exercise preparation team

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Step 6

Draft the exercise scenario

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Step 7

Funding for the exercise

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Step 8

Prepare exercise material

↓

Step 9

Brief operational participants

↓

Step 10

CONDUCT THE EXERCISE

↓

Step 11

Debriefing process

↓

Step 12

Write a final report on the exercise, and send it to participants involved

↓

Step 13

Implement and promulgate lessons learnt

4. IDENTIFY THE FUNCTIONS TO BE EVALUATED AND CHOOSE THE TYPE OF EXERCISE (STEP 1 AND 2)

4.1. Principal Functions of a SAR System

The purpose of the SAR exercise is to evaluate the effectiveness of all or part of the SAR system. Thus, before the type of exercise to be organized is defined, the functions that will be tested during the exercise must be identified. This will determine the subsequent preparations for the exercise. Each exercise should be part of a yearly or multi-year programme of exercises which, when completed, will have tested the entire system. Ideally, several partial exercises should be organized each year and a full national or international exercise should be organized at least every two years.

Eventually, it will be possible to refine the frequency and type of exercise, based on feedback from exercises, live incidents and other information, to ensure that the quality of the search and rescue system is maintained.

The table below shows the principal SAR system functions, set out in chronological order and by agency. To simplify things, only the three main agencies are represented:

- Rescue co-ordination centre (RCC)
- Air traffic control (ATC) services
- SAR units (SRU)

No distinction is made between sea, land or air units, nor on the status of these units (military, public safety, private…).

THREE FUNDAMENTAL SAR SYSTEM WORK DOMAINS
AND ASSOCIATED FUNCTIONAL ACTIVITIES : RCC, ATC UNIT, SAR UNITS

PREPARATORY MEASURES	→	**AWARENESS**		
Update SAR check and contact lists and operational plans	RCC	Receive notification of SAR phase (from ATC)	Record information	Understand / analyze information
Update asset register		Receive report of concern, reasonable certainty or awareness of a distress event (from witnesses or other alerting post)		
Update quick reference forms for phase declaration, action and alerting	ATC	Initiate SAR phase action and transmit information regarding the distress event to RCC		
Update in-flight emergency assistance procedures				
Maintain state of alert and operational monitoring	SRU			

<table>
<tr><th colspan="7">INITIAL ACTION</th></tr>
<tr><td rowspan="5">RCC</td><td>Determine which RCC will co-ordinate</td><td>Appoint an SMC and support staff</td><td>Evaluate extent of emergency and declare phase as appropriate</td><td>Gather and verify flight information and initiate communication search</td><td>Mark the aircraft’s flight progress on an appropriate map (known track made good and planned track)</td><td>Estimate fuel expiry time; collect and check information on on-board communication and navigation equipment and aircraft performance in existing flight conditions</td></tr>
<tr><td colspan="6">Re-evaluate extent of emergency</td></tr>
<tr><td colspan="6">Record information</td></tr>
<tr><td colspan="6">Pre-alert SRUs</td></tr>
<tr><td colspan="6">Notify concerned parties</td></tr>
<tr><td>ATC</td><td colspan="6">Transmit information about the distress event to the RCC (e.g. flight plan data, eye-witness accounts, any reported reception of an ELT signal etc.)</td></tr>
<tr><td>SRU</td><td colspan="6">Upon reception of pre-alert from RCC, increase the level of readiness</td></tr>
</table>

PLANNING STAGE										
RCC	Estimate area of incident / accident	Assess environment (including weather conditions and topography)	Estimate any survivor motion after the accident (e.g. drift)	Analyze search conditions	Draw search areas	Identify, select and alert SAR units	Decide search patterns	Allocate search areas to SAR units (assignment and briefing covered at a later stage)	Plan on-scene coordination	Develop and transmit search plans
	Record information									
	Re-evaluate extent of emergency									
	Notify and keep informed appropriate Parties and all services									
	Manage media									
ATC	Continually update distress event information to the RCC (including witness reports, any reports of reception of an ELT signal etc.)									
SRU						Accurately note information from RCC		Evaluate the situation, prepare the mission(s)	Organise and coordinate units in the field, working closely with RCC	

OPERATIONAL STAGE							
Operations Stage – Search							
RCC	Execute the search plans	Assign search areas to SAR units / Brief SAR units	Coordinate search	Conduct and analyse personnel debriefings	Re-evaluate datum	Re-evaluate overall situation	Update search plans
					Select rescue method and choose resources to be used		
	Record information						
	Re-evaluate extent of emergency						
	Inform appropriate Parties and services						
	Provide assistance at sea, if necessary						
	Manage media						
ATC	Manage airspace / Assist the SAR air traffic						
SRU		Receive detailed briefing from RCC / Query any uncertainties		Debrief RCC regarding search results from assigned areas			
			Coordinate operations in the field as required and arranged with the RCC				
			Provide assistance at sea, if necessary				
			Maintain continuous contact with RCC				
					In cooperation with RCC, select rescue strategy and resources to be used.		

OPERATIONAL STAGE			
Operational Stage – Rescue			
RCC	Activate appropriate emergency plans, direct and delegate rescue operations to competent authorities		
	If not delegated, make plans for accounting of survivors	If not delegated, activate appropriate medical units (fixed and mobile)	If not delegated, coordinate evacuation operations to a place of safety
	Decide whether and what kind of survival equipment to drop		
	Record information		
	Re-evaluate extent of emergency		
	Inform appropriate parties and services including accident investigators, medical services, police and coast guard as appropriate		
	Provide assistance at sea, if necessary		
	Manage media		
ATC	Manage airspace / Assist the SAR air traffic		
SRU	Drop survival equipment under instruction from RCC and / or on-scene coordinator	Provide rescue personnel and equipment under instruction from RCC	
	Coordinate operations in the field as appropriate and arranged with the RCC		
	Provide assistance at sea, if necessary		

CONCLUSION STAGE			
RCC	Cancel emergency phase	Terminate / Suspend SAR operation[1]	Produce report
ATC			Produce report, if necessary (may not be necessary in case of Incerfa / Alerfa)
SRU		Upon receipt of instructions from the RCC, terminate / Suspend search and rescue operations	Produce report

[1] Extract from Annex 12, Eighth Edition, July 2004 : "5.5.2 The responsible rescue coordination centre shall normally be responsible for determining when to discontinue search and rescue operations. *Note.— Contracting States may require input from other appropriate State authorities in the decision-making process leading to termination of SAR operations*."

4.2. Define the functional block to be tested and choose the type of exercise (Steps 1 and 2)

The purpose of an exercise is to evaluate the effectiveness of a single functional element, a number of elements or, in the case of a full-scale SAREX , the entire SAR system. The nature and extent of a SAR exercise will, therefore, depend on the functions of the system to be tested.

A preliminary step in preparing a SAR exercise involves defining the purpose and objectives as precisely as possible. Based on the exercise objectives, the preparation team should choose the type of exercise to be conducted. This decision will have an impact on which parties will be involved, the time required to prepare the exercise and its cost.

The choice of exercise may also be determined by regulatory requirements, which may specify a minimal frequency for conducting each type of exercise.

The Exercise Director should determine other vital aspects such as whether the exercise will be held during the day or at night and whether searches will be made over land or water. In the case of full-scale exercises, the director should determine whether specific types of SAR units will be involved.

4.2.1. Three types of SAR exercises

The IAMSAR manual defines three levels of SAR exercises[2]:

(a) The most simple type of exercise, a Communications Exercise, requires the least planning. It consists of periodic use of all means of communications between all potential users to ensure capability for actual emergencies.

(b) A Co-ordination Exercise involves simulated response to a crisis based on a series of scenarios. All levels of the SAR service are involved but do not deploy. This type of exercise requires considerable planning, and usually one to three days to execute.

[Note: Co-ordination Exercises may be conducted as table top exercises (in a table top exercise, no SRU is deployed and operational communications are not used).]

(c) The third type, a Full-Scale Exercise or a Field Exercise, differs from the previous types in that actual SAR facilities are deployed. This increases the scope of SAR system-testing and adds realistic constraints due to times involved in launching, transit and activities of the SRUs.

These exercises may be national or international in their scope.

4.2.2. Example of a Communications Exercise

[2] Volume 1, § 3.3.2

In the following example, the aspects being tested are the receipt of information and recording of information in and from the RCC. The goal of the exercise is to:

- test the RCC's capability to accurately receive information, (involving the testing of various communication circuits and whether RCC personnel can effectively use the existing communication equipment),
- verify the 24-hour operability of the RCC, and
- check whether the information received is systematically and correctly recorded in the log book kept for that purpose etc.

This type of exercise can be repeated regularly, without advance notice, at minimal cost.

These exercises are generally initiated by information being injected to the RCC via several channels. For example: the Area Control Centre (ACC) may notify that it has lost visual contact with an aircraft on its screens. This type of exercise should be conducted frequently, at different times of the day.

From the moment the first communication is received, the RCC actions are evaluated, in particular, its:

- ability to properly use the centre's communication resources;
- ability to extract the maximum amount of information from each critical report;
- systematic recording of all information in the log book.

As soon as all the information is received and recorded by the RCC, the Exercise Director may terminate the exercise.

Note: This type of exercise may be based on other initiating events, such as an airline pilot notifying receipt of a distress signal at a given altitude and at a particular position ; or a flying club may call to report that one of its aircraft is "failing to respond"; or a person may call to report the sighting of an aircraft apparently in difficulty; or an alert may be received from Cospas-Sarsat etc.

AWARENESS			
	Receive notification of SAR phase (from ATC)	Record information	Understand / analyse information
RCC	Receive report of concern, reasonable certainty or awareness of a distress event (from witnesses or other alerting post)		
ATC	Initiate SAR phase and transmit information regarding distress event to		

	RCC		
SRU			

4.2.3. Example of a Co-ordination Exercise

An exercise may also test a more complex range of functions and points of interface between various parties, as in the following scenario.

To return to the previous example in which the ACC announced that it had lost radar contact with an aircraft, the exercise could focus on testing the interface between air traffic control (ATC) and the RCC. In addition to monitoring the information being received from ATC at the RCC, the goal of the exercise could be to monitor how the RCC comprehends and analyses the information, and to monitor the information exchanges between the RCC and ATC.

The Exercise Director may terminate the exercise before the initial action stage is engaged.

AWARENESS			
RCC	Receive notification of SAR phase (from ATC)	Record information	Understand / analyse information
	Receive report of concern, reasonable certainty or awareness of a distress event (from witnesses or other alerting post)		
ATC	Initiate SAR phase and transmit information regarding distress event to RCC		
SRU			

4.2.4. Example of a Full-Scale Exercise

A Full-Scale exercise tests the functionality of the entire SAR system. Such an exercise is very complex. The goal is to test the efficiency of all participants in the SAR chain within their work domains and at points of interface between them.

In this case, the coordination and communications between the RCC and all external agencies and SRUs is tested. Operational effectiveness of SRUs, and all other responding units and services, may also be evaluated.

Obviously, such an exercise may be very comprehensive and, as a result, very complex. It requires detailed preparation, a large number of participants and a fairly significant budget.

The value of major full-scale SAREXs is that they can demonstrate the degree of effectiveness of many of a SAR system's components and do so with a degree of veracity only possible when, realistic time constraints and unforeseen contingencies intervene as they do in real SAR events. This is particularly the case with respect to the effectiveness of SAR Units that do not exercise on a frequent basis and are subject to communication difficulties.

5. CHOOSE THE EXERCISE AREA (STEP 3)

5.1. Plan the Exercise and Select the Area

Customarily, the National SARCo-ordinating Committee determines, on a long-term basis, the intervals at which exercises will be organized. Normally, the SAR system should be tested by means of a full-scale exercise at least every two years.

5.2. Choice of Area

It is the responsibility of the Exercise Director to choose the exercise area. His decisions will usually be based on directives from the National SAR Coordinator or the SAR Co-ordinating Committee, and, when necessary, after coordination with appropriate local authorities.

The selection of an exercise area should be guided by its impact on SAR operations (mountainous area, inhospitable or sparsely populated areas, sea, desert, tropical forests and swamps etc.). The Exercise Director should ensure that a risk assessment of the proposed site is conducted

Once the area is chosen, the Exercise Director should ensure that a suitable NOTAM is promulgated for the exercise area.

6. INTER-AGENCY CO-ORDINATION: DEFINE REQUIRED RESOURCES, DATE, TIME FRAME AND LOCATION (STEP 4)

It is the responsibility of the National SAR Committee to define, on an annual basis, the calendar for full-scale exercises.

However, it may be desirable to institute, for full-scale exercises that require the deployment of operational units, an Exercise Committee. Such a Committee should normally be headed by the National SAR Coordinator, with representation from whatever authority has power to engage all Parties that could be involved. The advantage of such a Committeeis that it could involve, from the very start and without dispute, all the Parties able to make a technical, financial or administrative contribution.

This Committee could include representatives of local authorities, as well as senior-level health, public safety, police and customs authorities, and national or international sponsors..

Where such a Committee exists, it may confirm the nature, scope and goals of the exercise and ensure that appropriate financial and logistical support is available.

If there is a perceived need to maintain confidentiality, some or all of these prerogatives may be delegated to the Exercise Director.

Regardless of the exercise scope and type, one of the first and most important actions, even before planning begins, is to assign responsibility for exercise planning to a competent person or group. To ensure that the exercise is properly controlled, advance planning is vital. Without it, there is a risk that an exercise could quickly become chaotic and its usefulness be seriously prejudiced.

There are two groups of persons who should work on preparing either a communication or a full-scale exercise:

- the exercise preparation team (EPT);
- the persons responsible for the operational aspects. This second group, the composition of which cannot be fully determined until after the scenario has been developed, is further sub-divided into personnel responsible for supervising the exercise, and personnel involved in an operational role.

7. SET UP THE EXERCISE PREPARATION TEAM (STEP 5)

Defining and setting up the team responsible for preparing a SAR exercise can have a critical impact on the success of the operation. The selection process should satisfy two objectives:

- the agreement of all authorities and agencies likely to be involved in the activities related to the exercise.

- involve only SAR professionals in exercise preparation; without them, optimum usefulness will be compromised.

Members of the exercise preparation team should therefore be present for the entire period of the preparation, organisation, conduct and evaluation of the exercise. A typical EPT is usually comprised of the following:

- Exercise Director
- Scenario team
- Logistical support team

7.1. Exercise Director

The person appointed to this position is usually a fairly high-level representative of the main agency involved in the exercise, or a representative of the National SAR Coordinator (SC). The person may also be the head of the RCC/RSC.

Assistant Exercise Directors may also be appointed.

The Exercise Director should assume responsibility for all aspects of the entire exercise from start to finish.

The Exercise Director should:

- direct and approve the work of the scenario team during the planning stage, ensuring the application of the directives of the SAR Coordinating Committee or the National SAR Coordinator;
- chair preparatory information meetings;
- take operational control and command during the exercise;
- when so delegated by the National SAR Coordinator, plan and conduct post-exercise evaluation meetings;
- prepare the report at the end of the exercise.

7.2. Scenario Team

The scenario team's responsibility is to assist the Exercise Director in drafting the exercise scenario, based on the goals of the exercise and taking into account the identified resources.
Members of the scenario team should be selected on the basis of their personal qualifications (ability to write clearly and succinctly, for example) and/or professional qualifications (knowledge of airspace and air and/or ground operations, RCC activity, the procedures to be evaluated, for example). This will ensure that all or most of the goals of the exercise will be accomplished.

The members of the scenario team should agree to keep all of their preparatory work strictly confidential. To this end, it is desirable to keep the team as small as possible.

Once the scenario has been approved, the team should organise the logistics and prepare all the documents required for the exercise.

7.3. Logistical Support Team

The logistical support team is responsible for making logistical arrangements that are required for the exercise to run smoothly. It reports directly to the Exercise Director and carries out actions based on the scenario.

This team's mission is twofold: firstly, to help execute the scenario by, for example properly placing dummy objects, wreckage or a beacon and preparing victim identification cards; secondly, to make supporting logistical arrangements by, for example, arranging meals, transportation and accommodation as required. In doing so, it will be guided by the administrative and financial decisions made previously by the SAR Coordinator or the Exercise Committee.

Note: Those persons providing logistical support for the exercise should be careful not to interfere with the operational services involved in the exercise.

As with the members on the scenario team, the logistical support team should keep their work strictly confidential.

Note: Access into certain restricted areas (e.g. RCC) for persons involved in the conduct of the exercise should be pre-arranged before the exercise. Necessary accreditations should be provided by the appropriate authority.

8. DRAFTING THE EXERCISE SCENARIO (STEP 6)

The scenario should be based on the purpose and objectives of the exercise [cf. 4.2 – Define the functional block to be tested and choose the type of exercise (Steps 1 and 2)].

When the exercise goals, objectives, type and area (cf. 5.2 – Choice of Area) have been decided upon, the EPT should write the scenario for the exercise.

It is at this stage that the EPT should give consideration to any operational difficulties that are to be included in the exercise. For instance, the scenario could include the following challenges :

- bad weather conditions;
- inaccurate eye-witness accounts;
- absence of a flight plan;
- pilot navigation error;
- a critical period or time frame (night, weekend, holidays / statutory holidays);
- a critical location (sea, mountain, desert, swamp);
- technical communication problems.

9. FUNDING THE EXERCISE (STEP 7)

The extent of financial input required for the conduct of the exercise depends largely on the type of exercise, and, more particularly, on whether or not field operational resources are to be deployed.

For communication and co-ordination exercises, the costs are minimal or nonexistent, given the fact that no resources are deployed.

For a full-scale exercise, a number of expenses should be taken into account:

- operating cost of resources to be deployed;
- insurance for volunteers;
- acquisition of dummy object (s);
- transportation of dummy object(s), participants, visitors etc.;
- video equipment and operators;
- administrative overheads (e.g. office equipment, telecommunication);
- meals for participants;
- honorarium for amateur radio associations.

Usually, these costs, (including operational unit costs), are borne by the departments responsible for the resources deployed. However, in some States, other provisions related to funding the operational costs of SAR units are specifically documented.

During preparatory meetings, some specific provisions may be agreed upon by the participating agencies, based on the particular circumstances of the exercise.

The EPT should make appropriate arrangements regarding financial liability for any damage that may occur during an exercise.

10. PERSONNEL PARTICIPATING IN THE EXERCISE

There are seven types of participants:

1) Exercise Director and exercise preparation team (EPT)
2) Coordinators
3) Observers
4) Operatives (actors)
5) Visitors
6) Media
7) Video operators

Even though they are not participants as such, dummy objects may be used to simulate wreckage or survivors as realistically as possible.

10.1. Exercise Coordinators

The coordinators should determine and control the pace and direction of the exercise by transmitting messages to operatives and observing their responses. They should work in the exercise control room and the field, under the direction of the Exercise Director, with whom they should be in constant contact.

The coordinators should help to maintain a safe exercise area and inform the Exercise Director of any incidents or accidents that occur during the exercise. They should enter pertinent information in the logbooks opened for the exercise.

The coordinators should not play an active operational role in the exercise scenario, but may, as much as possible, assist observers.

10.2. Observers

Observers should be present at the various locations where the operatives are engaged. They should observe and assess the conduct of the exercise, the transmission of messages and the responses of the various operatives. Observers should fill in the evaluation forms developed during the preparation phase and should be a key source of information at evaluation meetings and at the time of compilation of the final exercise report.

Observers should not play an active operational role in the exercise scenario. They should note all observations including any incident or accident that occurs during the exercise. The number of observers is not generally governed by set rules but depends on the scope of the exercise, the number of participants, and the locations and agencies involved.

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10.3. Operatives

There are two types of operatives:

- those who generate events and play a formulative role as specifically directed: e.g. witnesses, victims, passengers etc.;

- those reacting to events and taking operational initiatives who are generally not given any instructions beforehand. They customarily perform their day-by-day roles as air traffic controllers, police, SAR mission coordinators etc. and act during the exercise in the manner they would do in live circumstances.

The planned sequence of events should be followed as closely as possible and coordinators should verify that operatives react realistically, that is, as if they were involved in a real incident. Operatives should be aware of safety aspects during the exercise and the need to guard against damage to equipment.

10.4. Officials and Visitors

It is important to prepare for the presence of certain officials (government ministers, department heads and other dignitaries) and visitors who may wish to attend all or part of the exercise. All officials and visitors should:

- give the Exercise Director advance notice of their plans to attend, so that the Exercise Director can take appropriate measures;
- be welcomed and escorted at all times by a designated coordinator;
- wear exercise identifying items (badge, armband, scarf or jacket);
- have attended a specific information meeting before the exercise.

Officials and visitors should not:

- be left in the exercise area without an escort;
- interfere in the scenario;
- make contact with or talk with operatives; or
- be in possession of confidential exercise documents before or during the exercise.

Some officials and visitors may wish to move about during the exercise. The organisation and any limitations on their movement should be carefully planned and prepared in advance.

10.5. Media

Any exercise of this type may, wittingly or unwittingly, attract media attention. As during a real search and rescue effort, a plan and methods for dealing with media pressure should be prepared in advance to ensure that all contacts with the media are properly managed.

In preparation for the exercise, a media/press liaison person may be designated from the exercise preparation team to promote the event to selected media.

10.6. Video Operators

Exercise organisers may wish to video the exercise to prepare a teaching aid for further training by the various departments involved. To that end, cameras may be placed in the accident area, in the RCC or at the control centre.

However, it is important to carefully prepare and monitor video activities by preparing a specific schedule, conducting a special information meeting, making provision for mandatory escort, specifying identifying markers and giving advance information to all operatives so that the filming does not interfere with the exercise.

It should also be ensured, before video recording begins, that provisions regarding image copyright are respected and that video operators maintain strict confidentiality.

10.7. Dummy Object

A dummy may be used to simulate wreckage or survivors as realistically as possible. For example, during a search for survivors at sea, a buoy may be used to simulate an individual or a barrel to simulate a life boat. During an aerial search exercise, a scrapped bus or car can be used to represent aircraft wreckage.

The dummy object plays a critical role in the success of the exercise. It should be correctly placed, marked and protected so that it:

- does not impede or present a hazard to normal activities in the area;
- is not subject to vandalism by people not involved in the exercise.

11. DRAFTING THE DOCUMENTATION OF THE EXERCISE (STEP 8)

11.1. Exercise Documents

To be effective and achieve its purpose and objectives, an exercise should be comprehensively prepared in writing and directed with care. The purpose is not only to simulate an incident and observe how operatives react but to do so at a controlled pace and according to a specific scenario.

The content of exercise documentation varies from one exercise to another. However, for full-scale exercises, the content may include the following:

- general instructions and appendices;
- introductory narrative;
- specific narrative inputs;
- specific messages;
- an orderly sequence of events;
- evaluation forms;
- instructions to exercise coordinators (chronology of specific messages and sequence of events);
- a pre- and post-meeting schedule.

11.2. Document Colour Coding

The different types of documents used in preparing and conducting a SAREX have different purposes and target various persons and agencies. To eliminate any confusion and avoid the risk of a participant receiving inappropriate documentation, material may be printed on paper of different colours and thus be easily recognised and differentiated.

Although the choice of colours is not standardized, the following codes are offered as guidance:

- general instructions and appendices – WHITE
- meeting schedule – WHITE
- introductory narrative – WHITE
- specific narrative inputs – BLUE
- specific messages – PINK

- instructions to control personnel – GREEN
  - sequence of events;
  - chronology of specific messages;
  - evaluation forms.

The GREEN, PINK and BLUE documents may be classified "EXERCISE – CONFIDENTIAL."

11.3. General Instructions (WHITE)

This SAREX reference document contains everything that participants should know including exercise type, theme, objectives, list of participants, safety guidelines, logistics and limits of the exercise. It may contain the following sections:

- Introduction including exercise name, time frame, type of exercise, references and intended recipients
- Purpose and objectives
- Introductory narrative
- List of Participants in the exercise (EPT, operatives, coordinators, observers, video operators)
- List of visitors
- General information (risk of damage, ID requirements/dress code, transportation, meal services, restrictions, aeronautical information, working language of exercise)
- Exercise assumptions (specific provisions assumed at the onset of the exercise; e.g. "after three hours of fruitless search, it is assumed that the dummy object has been located", "if the wind velocity is over a given figure, there will be no winching activities")
- Meetings of coordinators, observers, operatives generating events/reacting to events, video operators
- Instructions for protecting documents (exercise and confidential documents)
- Communication methods
- Safety rules
- Relations with the media
- Post-exercise reports and final report
- End of exercise
- Appendices

Refer Annex 2 for an example of general instructions for a SAR exercise.

11.4. Meeting Schedule (WHITE)

A schedule of the various meetings (WHITE) may be drawn up to give participants appropriate notice of meeting times. The schedule should state the dates, locations, target audience, parties required to attend and documentation required.

11.5. Introductory narrative (WHITE)

The introductory narrative (WHITE) is issued along with the general instructions and describes the framework of the exercise.

There are no particular principles for writing scenarios. However, it is recommended that the names of real people, groups and companies not be used, to avoid any unnecessary confusion or embarrassment.

It is also recommended that the exercise be given an explicit name, to distinguish it from any other activity or national exercise. One convention is to use the title "SAREX …", to include a code identifying the week and year of the exercise, e.g. SAREX 50-07. Other information may also appear in the name, such as the State or region where the SAREX is held.

It is also important to allocate an identification (usually a call-sign) for the "distressed" aircraft that will not create confusion. In the event of a simulated collision between two aircraft, a second identification should also be allocated.

The EPT should write the introductory narrative after it has determined the purpose and goals of the exercise. The text should give participants enough information to allow correct interpretation of exercise messages and appropriate responses.

It is important that the "white notes", which will be distributed to all participants before the exercise, do not give too much information to participants. If they contain too much information, operatives may be able to act in advance of the messages and push the pace of the exercise faster than the EPT intends.

Refer to Annex 3 for an example of a scenario.

11.6. Specific Narrative inputs (BLUE)

Specific narrative inputs are issued to certain operatives at the onset of the exercise. They contain instructions that should be implemented at calculated intervals, either on request from operatives, at a predefined time or after a linked sequence of events.

Specific narrative inputs should not be included in the introductory narrative.

Refer to Annex 4 for examples of specific narrative inputs.

11.7. Specific Messages (PINK)

Specific messages may be used to control the pace of the exercise by providing information as the exercise progresses. The content of specific messages is similar to that of specific narrative inputs, except that they are not given out at the start of the exercise.

Specific messages generate actions. Thus, the operatives to whom the messages are issued are event generators.

Some of the messages may be drafted during the preparatory phase and the EPT knows when they will be disclosed. Other messages may not be planned or even foreseeable at the start of the exercise, and should be written and distributed by coordinators during the exercise as appropriate. If, for example, the RCC staff was to proceed incorrectly after receiving information from a witness, a specific message based on Cospas-Sarsat information could be passed to the mission control centre (MCC) for forwarding to the RCC that could redirect the conduct of the search operations.

The timing of the transmission of scheduled messages should be planned in advance to ensure the smooth and regular unfolding of events. In general, the messages may be issued sequentially to make it easier to analyse responses during the evaluation of the exercise. Nevertheless, coordinators, with the agreement or at the initiative of the Exercise Director, may alter the timing of the input of messages to intensify the stress level imposed on key operatives, particularly the SAR mission coordinator (SMC).

In most cases, the messages will comprise written information transmitted by coordinators. They could, however, also be radio or telephone messages. In all cases the messages should be preceded by the phrase "EXERCISE – EXERCISE – EXERCISE" to guard against any confusion regarding the status of the action. There is always the possibility that a real event will occur during the conduct of an exercise.

When the specific messages are developed, they may each be assigned a serial number. The EPT may prepare the messages following a standard format, which could include the following elements:

- Message number
- Date and time
- Recipient
- Mode of transmission
- The phrase "EXERCISE – EXERCISE – EXERCISE" at the start and end of the text
- Main text of the message
- Possible notes from exercise coordinators

Refer to Annex 4 for examples of specific messages.

11.8. Instructions for Exercice coordinators and observers (GREEN)

Exercise coordinators should be given precise and detailed information in order to control and direct the exercise in close coordination with the Exercise Director.
Exercise coordinators and observers should have a complete set of all documentation for the exercise, including the confidential green documents reserved specifically for them. These comprise the sequence of events, a chronology of specific messages and evaluation forms.

11.8.1. Sequence of events (GREEN)

The sequence of events sets out the basic plan for the exercise and provides details on the various events, execution times and expected response of participants. It is an important green paper document that may only be read by the Exercise Director, coordinators and observers.

The sequence of events is presented in a slightly different format than the specific messages; the messages are briefly described with the expected events and their possible repercussions (cf. 11.8.2). The Exercise Director, coordinators and observers can thus determine whether participants are reacting as expected.

See Annex 5 for an excerpt of a sequence of events.

11.8.2. Chronology of specific messages (GREEN)

When all the planned specific messages (PINK) have been prepared and approved, they may be arranged in chronological order and filed in a green cover (GREEN).

It is important to distinguish between each individual PINK specific message, distributed to operatives, from the complete set of messages, in a GREEN folder, which may only be read by exercise coordinators and observers.

11.8.3. Evaluation forms (GREEN)

Evaluation forms, as detailed in section 13.4, are prepared by the EPT and distributed to observers. These forms are tools used by observers to document if and how well the objectives of the exercise are met.

Refer to Annex 6 for an example of an evaluation form.

11.9. Distribution of Exercise Documents

Once the exercise documents are prepared and printed, they should be kept secure until the time for the exercise approaches. The general instructions and introductory narrative (WHITE) may be issued to all participants on the day of the general information meeting that precedes the exercise. The instructions for exercise coordinators and observers, as well as the sequence of events (GREEN), may be issued to the appropriate participants at their final information meeting before the exercise begins.

It is always preferable to limit to a minimum the number of people who are aware of the exercise details. This is to ensure that the exercise environment is as real as possible. However, it may be that the authorities involved in the exercise need to be notified several months in advance.

12. OCCURRENCE OF REAL EMERGENCY DURING SAREX

It is always possible for a real incident to occur during an exercise. The exercise should then be interrupted (either suspended or terminated).

When the real accident or incident information is received at the RCC, the Exercise Coordinator positioned at the RCC should immediately inform the Exercise Director who, based on the information received and in cooperation with the competent authorities, will decide whether to suspend or terminate the exercise.

The Exercise Director shall then send messages to indicate suspension or termination of the exercise.

The following are examples of messages to suspend or terminate an exercise:

EXERCISE – EXERCISE – EXERCISE
SAREX 50-05 TERMINATED DUE TO REAL SAR ACTION.

EXERCISE – EXERCISE – EXERCISE
SAREX 50-05 TEMPORARILY SUSPENDED DUE TO REAL SAR ACTION.
REMAIN IN POSITION AND AWAIT FURTHER INSTRUCTIONS.

13. EXERCISE EVALUATION (STEPS 11, 12)

13.1. Principle

Evaluation is an integral part of any exercise and the EPT should take it into account when defining the purpose and objectives of the exercise, choosing the site and drafting the scenario.

In this regard, it is worth noting that most expedient objectives are those that are observable and which can be easily reported upon by observers.

When the EPT prepares the exercise documents, it should also prepare observers' evaluation forms, to standardize the evaluation process. A sample of an evaluation form is in Annex 5.

13.2. Exercise Evaluation Process

The evaluation process may be divided into three stages:

- ***Before the exercise***
  - Select the evaluation team
  - Establish the evaluation methodology
  - Brief and assign tasks to evaluation team

- ***During the exercise***
  - Observe the actions of participants
  - Record activities
  - Analyse the actions of participants

- ***After the exercise***
  - Convene an evaluation meeting
  - Compile reports
  - Conduct preliminary analysis of the exercise to determine whether objectives have been met
  - Convene further evaluation meetings as required
  - Conduct final analysis of the exercise
  - Plan corrective actions
  - Determine the cost-benefit of the exercise

The committee that prepares the evaluation report should be supervised by the Exercise Director, who may, therefore, personally perform the tasks related to the evaluation or delegate them. The observations may be compiled by one of the observers for analysis and summary.

13.3. Evaluation Operatives

13.3.1. Exercise Director

The Exercise Director is responsible for:

- ***Before the exercise***

- Finalizing the evaluation methodology
- Selecting observers
- Briefing observers and assigning them their tasks

- ***During the exercise***, making sure that observers:
  - Are deployed to the designated locations
  - Have appropriate documents and equipment
  - Observe and record the actions of participants, without intervening in or disturbing the conduct of the operations
  - If necessary, are supported by additional observers.

- ***After the exercise***:
  - Ensuring that Exercise Coordinators and Observers evaluate the achievement of objectives
  - Coordinating the participation of observers at evaluation meetings
  - Coordinating and reviewing reports from Exercise Coordinators and Observers
  - Compiling all reports, accounts and prepare the final report

13.3.2. Observers

The evaluation process is based primarily on the work of the observers. It is essential that they be properly briefed and that their involvement be purposefully oriented. To achieve this, the following issues should be addressed at the observer information meetings:

- Precautions for minimizing observer errors and influence
- Safety rules
- Familiarization with the evaluation forms
- Non-interference

The main function of the observers is to evaluate the exercise and complete the evaluation forms. The observers can add comments to elaborate on the quality of operatives' response and that of the system overall.

13.4. Evaluation Forms

13.4.1. Purpose of the evaluation forms

Evaluation forms are a key component of the evaluation process. The purpose of the forms is to:

- Guide observers during the information-gathering process
- Assist observers gather specific information in an organized manner
- Organise means of documenting written data for efficient analysis and evaluation

The evaluation forms should be used to evaluate objectives and be designed to closely reflect those objectives.

The forms in themselves cannot compensate for lack of observer skill, knowledge, and competence , nor do they eliminate the need for information meetings. Even though it is essential

that evaluation forms be carefully designed, the success of an evaluation is mainly dependent on the level of observer skills, knowledge, competence and information provided.

13.4.2. Evaluation form content

The forms should provide for documentation of certain information, including the following:

- Observer identification
- Observation location
- Observation time frame
- An assessment framework that shows, for each event, (from the sequence of events), the time and nature of the event, the expected action, the action observed and the time it took
- A blank space where the observer can write observations / comments / suggestions.

Refer to Annex 6 for an example of an evaluation form.

13.5. Meetings

After the exercise, the information gathered by observers should be analysed and the evaluation meetings held. This information should be used to prepare the final report.

Three evaluation meetings may be held:

- Immediate meeting
- Mid-evaluation meeting
- Final meeting

13.5.1. Immediate meeting

By holding a meeting immediately after the exercise with all participants (EPT, coordinators, observers, operatives and others), information can be obtained while it is still fresh in their memory. This need not be a meeting where observers present their specific observations on the achievement of exercise objectives or on system responses that could be improved. It is intended to give operatives an opportunity to describe their perception of the exercise, its conduct and usefulness. The EPT may note the comments, which could provide supplementary information for their own reports.

This immediate meeting may be conducted in a location selected during the preparatory phase and identified in the general instructions. The meeting may be taped to ensure that no information is lost or omitted from formal reports.

13.5.2. Mid-evaluation meeting(s)

A mid-evaluation meeting may be organized shortly after the exercise. It could include the EPT, coordinators and observers. The purpose of this meeting is to identify the extent to which the objectives of the exercise were met.

Note: At the discretion of the Exercise Director, other persons may be invited to attend the mid-evaluation meeting.

In addition to this meeting, other participants may organize debriefing meetings within their own departments or agencies and the reports from these meetings be sent to the Exercise Director before the final meeting.

13.5.3. Final meeting

The Exercise Director should use the reports received to organise a formal debriefing session with all participants, in which all of the objectives of the exercise will be analysed in depth.

The sequence of events may be used to review the highlights of the exercise and the reasons for success or failure. The Exercise Director will also review the conclusions of the evaluation team (observers), based on their reports. The proceedings may be taped to assist the Exercise Director in compiling the final report of the exercise.

14. POST-EXERCISE ACTIVITIES

14.1. Final Report on the Exercise (Step 12)

The final report on the exercise will analyse the extent to which each objective was achieved.

In particular, the report should identify the strengths and weaknesses revealed by the exercise and contain recommendations to improve SAR operational procedures, elements of the SAR system and the content of the National SAR plan as required.

It can also be used to improve the organisation of future exercises and the evaluation method employed.

Refer to Annex 7 for an example of a final exercise report.

The recommendations in the final report can be used by the national SAR coordinator to suggest a plan for corrective action to the SAR Co-ordinating Committee.

14.2. Action Plan to Correct Deficiencies (Step 13)

This plan should contain the following elements:

- Findings (strengths, weaknesses)
- Proposed corrective measures
- Time lines
- Authorities responsible for implementation.

15. ANNEXES

Annex 1. EXCERPT FROM ICAO ANNEX 12, SECTION 4.4

4.4 Training and exercises

To achieve and maintain efficiency in search and rescue, Contracting States shall provide for regular training of their search and rescue personnel and arrange appropriate search and rescue exercises.

Annex 2. EXAMPLE OF GENERAL INSTRUCTIONS
(WHITE Document)

Conventional name : SAREX 50-05

Period : from “dd/mm/yyyy” to “dd/mm/yyyy” (the period in which the exercise takes place)

Type of exercise : “Communication”, “Coordination” or “Full-Scale”

Reference : In accordance with the planned calendar

RECIPIENTS

- Local administration
- National SAR Coordinator
- Participating government departments
- Air traffic control agencies
- Participating SAR units
- Associated COSPAS-SARSAT MCC
- RCC archive office

GENERAL

“The SAREX 50-05 search and rescue exercise is scheduled for the period from “dd/mm/yyyy” to “dd/mm/yyyy” in the XXX district / area.

The whole SAR system will be evaluated in accordance with the requirements of RCC and/or the XXX local administration standing orders.

The procedures applied will be those defined in the following documents:

- National SAR manual
- National Emergency plan

- Regional / local Emergency plan
- Any other relevant legislation / regulation

[use appropriate nomenclature of relevant documents]

N.B.: All times are expressed in coordinated universal time (UTC)

PURPOSE AND OBJECTIVES

The purpose of the SAREX 50-05 exercise is:

- **To confirm the appropriateness of** the provisions of Emergency plans in effect and to modify them as necessary
- **To train** participants, local administration services, aerial resources and the rescue co-ordination centre (RCC), in the execution of a search and rescue operation following an air accident
- **To assess** the quality and prompt communication to/from the responsible RCC, of all relevant information, and
- **To test** procedures and means of communication.

The exercise scenario will involve:

- Declaration of emergency phases
- Gradual implementation of SAR operations plans
- Implementation of an aerial search system
- Implementation of the rescue phase

INTRODUCTORY NARRATIVE

A light civil aircraft disappears while flying over the XXX region.

Note: Other examples of introductory narratives are provided in Annex 3.

PARTICIPANTS

Exercise Preparation Team (EPT)
Exercise Director, [SAR office / civil aviation (if different from SAR office),
RCC head, operators – to be completed / specified as appropriate].

Operatives
RCC staff
Local administrative personnel
Public Safety officers
Health officers
Law enforcement officers
Defence (land, air and /or maritime resources) personnel,
Air traffic control staff

Associated COSPAS-SARSAT MCC officers
Amateur radio operators

Other Operatives
Actors
Witnesses…

Coordinators
[List of coordinators and their respective positions – examples: coordinator in the RCC, coordinator on the scene of the accident]

Observers
[List of observers and their respective positions – examples: observers positioned in RCC or at rescue command post]

Video Operators
[List of video operators and their respective positions]

Dummy Object
[Examples: the wreckage will be simulated by a white streamer, with the registration code of the distressed aircraft in black letters (X-XXSAR), and a tricolour parachute symbolising the aircraft.]

A 406 MHz ELT (identification: XXXX), will also radiate on 121.5 MHz and 243 MHz and will be set up by RCC personnel. It is to be considered as that of the accident aircraft

CONDUCT OF THE EXERCISE

Exercise Area

Land searches: The entire XXX region in which the emergency is declared.

Aerial searches:
Vertical limits : surface / 2000 FT surface.
Horizontal limits : see NOTAM **NN50-05.**

Air crew are required to obey the rules of the air, particularly those for controlled air space.

Responsibility for damage
Responsibility for any damage that occurs during the exercise is, unless otherwise stipulated, to be accepted by the agency causing the damage, whether the person, the administration with which the person is associated or its insurer.

Visitors
To date, the following persons have indicated they plan to attend the exercise as visitors:

Person 1
Person 2 …

Escort of visitors is to be co-ordinated by Ms / Mr X.

Identification/ Dress code
The following identification will be used [for example]:

- Exercise Director and control team: [green] colour armbands
- Exercise staff: a photo and a description or a badge / armband issued by the EPT, as applicable
- Visitors: a badge / armband issued by the EPT
- Video operators: a badge / armband issued by the EPT
- Logistical support personnel: a badge / armband issued by the EPT.

Transportation
[Provide concrete details about transportation services (locations, schedules, routes, coordinator).]

Meal services (if required)
[Provide specific details about locations, schedules, coordinator for meals.]

Aeronautical information / other restrictions
Refer to NOTAM **NN50-05**, issued on "dd/mm/yyyy" and to "XXX" area restriction message issued on "dd/mm/yyyy" by the XXX local administration.

Working language of exercise
The working language of the exercise is "XXX." The operational operatives will use their usual working language.

Note: If the working language of some operatives is different from the working language of the exercise administration, the use of different working languages will be specifically evaluated.

Other instructions (examples)
Land searches: instructions regarding the maps / types of coordinates used.

Aerial searches: the search areas will be defined by characteristic geographic features and possibly a preferred entry point.

The pilots will announce the "dummy object discovered," and communicate its coordinates to the RCC on the appropriate frequency. The aspects of landing and winching will be left to the discretion of the pilots. Exercise coordinators will activate smoke markers to assist them.

An on-scene aircraft may be requested to mark the distress position.

EXERCISE ASSUMPTIONS

Example 1: The distress beacon transmission will be stopped after the arrival of the last aerial search resource or, in the event of a real operation, by exercise personnel in the field.

Example 2: Search areas will be located only in the XXX district / province.

Example 3: There will be no evacuation of the "injured" from the field medical post to hospitals.

MEETINGS

The preparatory meeting for the exercise will be held in the office of XXX on "dd/mm/yyyy".
The first debriefing meeting will be held in the offices of "XXX" immediately after the exercise terminates.

The final meeting will be held in the offices of "XXX" on "dd/mm/yyyy."

INSTRUCTIONS ON DOCUMENT PROTECTION

Documentation for the SAREX 50-05 exercise includes the following:

- General instructions – WHITE
- Introductory narrative – WHITE
- Specific narrative inputs – BLUE
- Specific messages – PINK
- Instructions to control personnel – GREEN

Documents on green paper are classified "Exercise – Confidential" and are to be distributed only to the Exercise Director, observers and coordinators.

Documents on pink and blue paper are classified "Exercise – Confidential" and are to be distributed only to the Exercise Director, observers and coordinators and the operatives concerned.

Documents on white paper may be distributed to all exercise participants.

Exercise reports should be forwarded to the Exercise Director. Conditions for the distribution of these reports to other participants are set at the discretion of each author.

SPECIFIC MEANS OF COMMUNICATION USED IN THE EXERCISE

Telegraphic links

The usual operational links will be used.
Operational messages transmitted by telegraphy should include the words, at the beginning and end of the message:

"EXERCISE – EXERCISE – EXERCISE – SAREX 50-05"

Radio links

Primary frequency	:	[for example 123.1MHz]
Secondary frequency	:	[for example 119.7MHz]

Radio call signs for air and ground resources [examples]

[BALAFON SAR	:	RCC "Town X"]
[KILIMANJARO SAR	:	DUMMY OBJECT]
[RESCUE 2	:	FENNEC "XXX"]

Other aircraft involved will use the term RESCUE followed by the ordinary radio call sign.

A specific directory of call signs to be used in the exercise is appended to this document.

SAFETY RULES

The following safety measures will be taken before and during the exercise:

- Issuance by the "XX" aeronautical information office of NOTAM NN50-05 regarding the aerial search area
- Separation of aircraft within and between search areas (horizontally and/or vertically) as established by RCC
- Exclusive use of the primary frequency (for example 123.1 MHz)
- Possible use of an airborne relay station if contact is lost between SAR aircraft and RCC

In addition, crew will:

- Follow customary procedures
- Comply with standard rules of the air
- Maintain flight in VMC in the search area
- Ensure radio watch is maintained on the primary frequency (for example 123.100 MHz).

During the exercise, all participants will pay close attention to their own personal safety and the safety of other participants.

MEDIA RELATIONS

A media room will be open from "hh/mm" to "hh/mm" from "dd/mm/yyyy" to "dd/mm/yyyy" in the offices of "XX" under the responsibility of "Mr / Ms XX,", who will manage all contact with the media regarding the organisation and conduct of the exercise.

Note: The media room used in the framework of the SAREX should be separate from the premises in which the RCC would usually manage the media personnel during a real operation, which will be evaluated during the exercise.

REPORTS FROM PARTIES INVOLVED AND FINAL REPORT

In accordance with the national SAR manual, each participating organization will submit a report to the Exercise Director within "n" days of the exercise termination.

Participants' reports shall state the number of persons and resources engaged, along with comments and lessons learned.

END OF EXERCISE

In conjunction with the local administration, the Exercise Director will decide when the SAR exercise is to end. The RCC will send the following message to all participants:

"TERMINATION – TERMINATION – TERMINATION – SAREX 50-05"

APPENDICES

Example: TELEPHONE DIRECTORY

XXX RCC - Tel: XXX, Fax XXX …

"XXX" local administration command post – Tel XXX…

Annex 3. EXAMPLES OF INTRODUCTORY NARRATIVES

Example 1:

EXERCISE – EXERCISE – EXERCISE SAREX 50-05

A medium-size aircraft is flying under VFR with a flight plan from “town1” to “town2.” It has not filed an arrival report to close its flight plan.

Example 2:

EXERCISE – EXERCISE – EXERCISE SAREX 50-05

Flight “VV WW” took off under IFR from “town1” heading for “town2.” Just after takeoff it established contact with air traffic control on “FFF” MHz. It was climbing to FL LLL when radio contact was lost. The aircraft was supposed to contact “town3” area control centre on “FFF’” MHz when flying over the “VVV” VOR – start exercise.

Example 3:

EXERCISE – EXERCISE – EXERCISE SAREX 50-05

The control tower at “town1” receives a message from flight VV – SAR about a serious in-flight emergency. The pilot reports engine vibration and the loss of a part of the wing. He advises that he’ll try to make a forced landing in a field at …… (inaudible). End of radio transmission – start exercise.

Example 4:

EXERCISE – EXERCISE – EXERCISE SAREX 50-05

The RCC receives a Cospas-Sarsat message reporting an unconfirmed position– start exercise.

Example 5:

EXERCISE – EXERCISE – EXERCISE SAREX 50-05

A witness calls the police to say he has been waiting for an hour for a client who was supposed to arrive by aircraft at the “town1” aerodrome – start exercise.

Annex 4. EXAMPLES OF NARRATIVE INPUTS / SPECIFIC MESSAGES

1. Report from an ATC unit that had contact with the craft in order to narrow the field of investigations

"The VV – SAR you're looking for contacted us at hh:mm to request a clearance across our area. The pilot reported clear of the area at hh:mm. He was tracking to "town1"and estimated beacon "BBB" at hh:mm"

Upon request only, add: "Last fix was at "PPP" at FL LLL"

2. Report from an aerodrome worker indicating a change in original intentions

"This morning I saw VV – SAR getting ready to depart. He was waiting for Mr. X, who didn't fly with him." "The pilot was worried about the serviceability of the aircraft; the plane had recently come out of maintenance. After take off, he came back and landed and raised the engine cover, did something inside and then took off again. I filled up the fuel tank on the plane; its endurance was only T hours".

3. Police report from eyewitness

(Don't provide name or phone number, to test that the response of the person who takes the call includes getting call-back details)

"At hh:mm I saw a plane that seemed to be having engine trouble and that was flying very low between "town1" and "town2"."

"I was in a boat in the lake at "town3" when a plane with flames coming from the engine flew over us. It disappeared over the horizon, and then we heard an explosion. We didn't have a cell phone with us so we were only able to contact you now."

4. Cell phone contact with a passenger on a plane

(The person cannot be contacted to confirm information)

"We just crashed into a forest. I'm trapped in the plane and the people in the front of the aircraft are no longer responding. I don't know where we are but about two minutes ago we flew over a large body of water. My battery is running out. Come quickly" - end of communication.

5. Original Intentions (FPL, departure message, MET)

Available upon request at the start of the exercise because they are normally held by air traffic control services, but communicated at the request of the parties concerned. They will generate responses but are not given to all participants at the start of the exercise.

6. Radio transcripts

Available at the air traffic control centre at the start of the exercise (specific narrative input) or at a time chosen by the exercise coordinators (specific message). A transcript of air / ground communications on the control frequency will be communicated to the RCC, upon request and after a certain technical delay.

7. Radar trajectory transcriptions

Available at the air traffic control centre (civil or military) at the start of the exercise (specific narrative input) or at a time chosen by the exercise coordinators (specific message), the radar plots for the accident aircraft will be communicated to the RCC upon request, after a certain technical delay.

Annex 5. EXAMPLE OF EXCERPTS FROM SEQUENCE OF EVENTS

"H": declaration of INCERFA

Time	Event	Operative	Expected Actions	Comment
H	Declare INCERFA	ATC 1	Contact the RCC, activation of INCERFA	The Coordinator will intervene after 10 minutes if ATC 1 has not taken any action
H1	Receive INCERFA alerting message	RCC	Collect initial information, especially from ATC units [depending on local procedures]	
H1		RCC	Notify COSPAS-SARSAT system	
H2	Information Request received from RCC	ATC 1	Request information from other ATC units	
		ATC 1	Request information from aerodromes in the vicinity of the route	
		ATC 1	Request information from aerodrome(s) of diversion	
		ATC 1	Transmit initial data to RCC (FPL….)	

.
.
.

"Hn": declaration of DETRESFA

Time	Event	Operative	Expected Actions
Hn	Declare DETRESFA	RCC	Allocate search areas to SAR units
			Brief SAR units
			Instruct aircraft to depart
			Activate command post (CP) local administration
			Etc.
Hn+1	Reception of aircraft deployment instruction from RCC	SAR air units	Depart
Hn+2	Reception of ground units deployment instruction from RCC	CP local administration	Deploy ground units

Annex 6. EXAMPLE OF EVALUATION FORMS

(One sheet per agency to be evaluated)

Date: dd/mm/yyyy **Name of exercise**: SAREX 50-05

Observer's name: Mr / Ms X **Location of observation:** RCC town1

Expected Time of Event	Event	Operative	Expected Responses	Real Time (amount of time)	Observed Responses	Observations / Comments / Suggestions
H1	Declare INCERFA	SMC 1	Collect initial information, particularly from ATC units [depending on local procedures]	H/m	Call ATC Unit 1 to request info from aerodromes 1, 2 and 3	
H1		SMC 1	Notify COSPAS-SARSAT	H/m	Send message to MCC town 2	e.g. Time taken for operator to respond considered too long
. . .						
Hn	Declare DETRESFA	SMC 1	Allocate search areas to SAR units	H/m	Call local administration CP	e.g. Lost time looking for new phone number of contact person / update directory

Expected Time of Event	Event	Operative	Expected Responses	Real Time (amount of time)	Observed Responses	Observations / Comments / Suggestions
Hn		SMC 1	Allocate search areas to SAR units	H/m	Call air base town 4	
Hn		SMC 1	Brief SAR units	H/m	Call air base town 4	e.g. Forgot to transmit information about colour of accident aircraft
Hn		SMC 1	Send departure instruction	H/m	Call air base town 4	
Hn		SMC 1	Activate local administration CP	H/m	Call local administration CP	e.g. Lost time because contact was unfamiliar with SAR procedures

Annex 7. EXAMPLE OF FRAMEWORK FOR FINAL REPORT OF THE EXERCISE

1 CONDUCT OF THE EXERCISE

1.1 Alert

1.1.1 Origin of alert

1.1.2 Agencies alerted

1.2 Information Gathering

1.2.1 Initial information

1.2.2 First investigations

1.3 Searches

1.3.1 SAR agency assuming responsibility

1.3.2 Associated agencies

1.3.3 Establishment of search plan
Limits of search area
Type of search (land, air, sea)

1.3.4 Brief description of searches
Time searches started (land, air, sea)
Weather in the area

1.3.5 Location of object
Position
Time
Mode of location

1.3.6 Termination or suspension of search
Date and time
Reason

1.4 Rescue

1.4.1 [Agency delegated to rescue]

1.4.2 Resources used

1.4.3 Steps taken to guide rescue teams at the site

1.4.4 Steps taken to evacuate, identify victims and inform relevant authorities

1.4.5 Steps taken to evacuate the injured

1.4.6 Nature of accident site

1.4.7 Condition of wreckage

1.4.8 Date and time rescue ended

2 ASSESSMENT OF EXERCISE

2.1 Implementation of procedures
- Alert phase
- Research phase
- Rescue and evacuation phase

2.2 Overall co-ordination

2.3 Communication

2.4 Comments and suggestions

3 APPENDICES

APPENDIX A
STATISTICAL INFORMATION

1 Mode of location
- visual contact:
  - immediate location
  - by aircraft
  - by ground team
  - by ship
- radar contact:
  - by aircraft
  - by building
- radio contact
- reception of distress beacon signal
  - by COSPAS-SARSAT
  - by aircraft
  - by ground team
  - by building

2 Air units engaged
- Number of missions
- Aircraft used (identification, flight time: transit, searches, rescues)

3 Maritime units engaged

4 Ground units engaged
- Number of persons involved
- Number of vehicles involved
- Number of hours of operation
- Number of hours of overland activity per person

5 Time elapsed between activation of the alert and
- departure of first search facilities
- discovery of the dummy object

6 Total number of persons involved

APPENDIX B

EXERCISE CHRONOLOGY
(All times UTC)

APPENDIX C

BEACON USAGE INFORMATION

Manufacturer
Frequencies
Model
COSPAS-SARSAT certification number
Serial No.
Identification