



CAA BANGLADESH

SAR MANUAL

**GOVERNMENT OF THE PEOPLE'S REPUBLIC OF
BANGLADESH**



Search and Rescue (SAR) Manual

**Second Edition, 2024
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Dhaka-1229**



Purpose

The purpose of this Manual is to provide specifications/requirements for the establishment and operation of Search and Rescue (SAR) services and allied matters in the territory of The People's Republic of Bangladesh and over the high seas where provision of SAR services is the responsibility of Bangladesh in accordance with the regional Air Navigation Agreements.

Scope

The Standards and Recommended Practices contained in this Manual are in line with requirements of Annex 12 to ICAO Convention and Doc 9731, IAMSAR Manual Vol I, II & III shall be applicable to all authorities, service providers and agencies responsible for the provision of SAR services to aircraft.

Objectives

To describe guidelines for Search and Rescue incidents, that will:

- Give the appropriate high priority to the protection of human life;
- Locate, provide necessary care, including emergency medical care, and evacuate persons in distress:
 - using the most effective methods;
 - with the least elapsed time;
 - in the safest and most economical way; and
 - with the least impact on the resources and on the normal, day to day operations of Bangladesh.





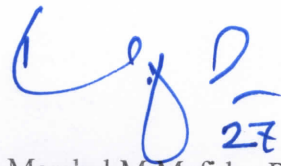
FOREWORD

The prompt provision of Search and Rescue (SAR) Service is paramount to the assistance rendered to persons in distress and the term SAR refers to a process of searching for and providing rescue service to persons who are or are believed to be in imminent danger of losing their lives or limb. The SAR function is a state's responsibility with respect to obligation that Bangladesh has accepted under Article-25 of the Convention of International Civil Aviation. This Manual has been issued by Civil Aviation Authority, Bangladesh under Civil Aviation Act 2017 to give effect to the Standard and Recommended Practice to be met by the provider or coordinator of SAR services within Bangladesh Search and Rescue Region (SRR) to meet SAR obligations of Contracting States to the Convention. The Standard and Recommended Practices in this Manual are based on those stipulated in Annex-12 to the Convention and other relevant ICAO documents and with such modifications as may be determined by CAAB to be applicable in Bangladesh.

I wish to thank all involved in updating this Manual, which was a long felt need of Search and Rescue Officers and staff of ATM Division of CAAB.

This Document is issued and amended under the authority of the Chairman of Civil Aviation Authority, Bangladesh. Amendments to this Manual are the responsibility of the Member ATM. Readers should forward advice of errors, inconsistencies or suggestions for improvement to this Manual to the addressee stipulated below.

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27.6.24

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Amendments to this “SAR MANUAL” for Air Traffic Services (ATS) in Bangladesh is issued by Chairman of Civil Aviation Authority, Bangladesh.

Amendment Records

The amendments listed below have been incorporated into this copy of the SAR Manual.

Amendment no	Version no	Subject	Source	Sections affected	Entered by(date)	Approved by(date)	Effective date	Remarks
1.								
2.								
3.								
4.								
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9.								
10.								
11.								
12.								



Definitions

Alerting post

Any facility intended to serve as an intermediary between a person reporting an emergency and a rescue coordination centre or rescue subcentre.

(ALERFA) Alert phase

A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

Crew member

A person assigned by an operator to duty on an aircraft during flight time.

COSPAS-SARSAT System

A satellite system designed to detect distress beacons transmitting on frequencies 121.5 MHz and 406 MHz.

(DETRESSFA) Distress phase

A situation wherein there is a reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger and require immediate assistance.

Ditching

The forced landing of an aircraft on water.

(ELT) Emergency locator Transmitter

Aeronautical radio distress beacon for alerting and transmitting homing signals.

Emergency phase

A generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

False Alert

Distress Alert received from any source, including communications equipment intended for alerting, when no distress situation actually exists, and a notification of distress should not have resulted.

(GADSS) Global Maritime Distress and Safety System

A global communication system, both satellite-based and terrestrial, to provide distress alerting and promulgation of maritime safety information for mariners.

(GPS) Global Positioning System

A specific satellite-based system used in conjunction with mobile equipment to determine the precise position of the mobile equipment.

(JRCC) Joint rescue coordination centre

A rescue coordination centre responsible for both aeronautical and maritime search and rescue operations.

(LUT) Local User Terminal

An earth receiving station that receives beacon signals relayed by Cospas-Sarsat satellites processes them to determine the location of the beacons and forwards the signals.



**(MCC) Mission Control Centre**

Part of the Cospas-Sarsat system that accepts alert messages from the local user terminal(s) and other mission control centres to distribute to the appropriate rescue co-ordination centres or other search and rescue points of contact.

Search and Rescue (SAR) aircraft

An aircraft provided with specialized equipment suitable for the efficient conduct of search and rescue missions.

May Day.

Spoken International distress signal, repeated three times.

Operator

A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

(OSC) On-Scene Coordinator

A person temporarily designated to coordinate Search and Rescue operation within a specified area.

Pan Pan

The International radio telephony urgency signal, when repeated three times, includes uncertainty or alert, followed by urgency.

(P-in-C) Pilot-in-command

The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

Rescue

An operation to retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety.

Rescue Coordination Centre (RCC)

A unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.

Rescue Sub Centre (RSC)

A unit subordinate to a rescue coordination centre, established to complement the latter according to particular provisions of the responsible authorities.

Rescue action plan.

A plan for rescue operations normally prepared Search mission coordinator (SMC) for implementation by the on-Scene coordinator (OSC) and facilities on-Scene.



**Rescue Unit (RU)**

A unit composed of trained personnel and provided with equipment suitable for the expeditious conduct of Search and Rescue.

Search

An operation normally coordinated by a rescue coordination centre or rescue sub centre using available personnel and facilities to locate persons in distress.

(SC) SAR Co-ordinator

One or more persons or agencies within an administration with overall responsibility for establishing and providing SAR services and ensuring that planning for those services is properly co-ordinated.

SAR facility

Any mobile resource, including designated search and rescue units, used to conduct search and rescue operations.

SAR organization

The provider of search and rescue services within the search and rescue region.

SAR service

The performance of distress monitoring, communication, coordination and search and rescue functions, initial medical assistance or medical evacuation, through the use of public and private resources, including cooperating aircraft, vessels and other craft and installations.

Search and Rescue Region (SRR)

An area of defined dimensions, associated with a rescue coordination centre, within which search and rescue services are provided.

SAR Unit

A mobile resource composed of trained personnel and provided with equipment suitable for the expeditious conduct of search and rescue operations.

SAR Mission Coordinator (SMC)

An officer temporarily designated by the RCC chief to conduct and supervise a Search and Rescue.

Search action plan

Message normally developed by the SMC, for passing instructions to SAR facilities and agencies participating in a SAR mission.

SAR Area

An area in which the coordination of Search and Rescue is integrated by a single rescue coordination centre.



**SAR Aircraft**

An aircraft provided with specialized equipment suitable for the efficient conduct of SAR mission.

State of Registry

The State on whose register the aircraft is entered.

Uncertainty phase

A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.





Abbreviations

AIP	Aeronautical Information Publication AIS Aeronautical Information Services
ATC	Air Traffic Control
ATS	Air Traffic Services
ARCC	Aeronautical Rescue Coordination Centre
COSPAS	Cosmicheskeya sistema poiska avariynich sudop (Space System for Search of Vessels in Distress)
ELT	Emergency Locator Transmitter
FIR	Flight Information Region
IMO	International Maritime Organization
IAMSAR	International Aeronautical and Maritime Search and Rescue
ICAO	International Civil Aviation Organization
JRC	Joint Rescue Coordination Centre
LUT	Local User Terminal
MRCC	Maritime Rescue Co-ordination Centre
MOS	Manual of Standards MCC Mission Control Centre OSC On-scene co-ordinator
RCC	Rescue Coordination Centre
RSC	Rescue Sub Centre
RU	Rescue Unit'
SAR	Search and Rescue
SARSAT	Search and Rescue Satellite-Aided Tracking
SC	SAR Co-ordinator
SRR	Search and Rescue Region
SITREP	Situation Report
SMC	SAR Mission Co-ordinator
SPOC	Search and Rescue point of contact
SRU	Search and Rescue Unit



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10. Deputy Director Hazrat Shahjalal International Airport, Kurmitola, Dhaka.	8511 Mob:01894908500 E-mail; ddhaia@caab.gov.bd	





11. Station Air Traffic Officer (SATO) Hazrat Shahjalal International Airport, Dhaka.	8901460 Extn- 8901904-13/8100, Mob:01894908900 satohsia@caab.gov.bd	
12. Area Control Centre (ACC), HSIA.	8901462,8901463 8901904-13/3465, 3410	
13. Rescue Coordination Centre (RCC), HSIA.	8901464, 8901904-13/3589 3452	
14. Control Tower, HSIA.	8022, 3490-48964462	
15. Director, Shah Amanat International Airport, Chittagong.	APM : 41350110-21/3000, Mob: 01894909100 E-mail: apmctg@caab.gov.bd	031- 2500900
16. Airport Manager, Osmani International Airport, Sylhet	APM; 02996687045 Mob: 01894909200 E-mail: apmaylhet@caab.gov.bd	0821- 714243
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18. Airport Manager, Jessore Airport, Jessore.	0421-64033 APM: 01894909600 E-mail: apmjessore@caab.gov.bd	0421- 64033
19. Airport Manager, Saidpur Airport, Saidpur.	05526-72384 Mob: 01894909400 E-mail: apmsaidpur@caab.gov.bd	05526- 72384
20. Airport Manager, Barisal Airport, Barisal.	0431-55061662 Mob: 01894909700 E-mail: apmbarisal@caab.gov.bd	04327- 73362
21. Airport Manager, Shah Makhdum Airport, Rajshahi.	478000153 Mob: 01894909500 E-mail: apmrajshahi@caab.gov.bd	0721- 800153
22. Airport Manager, Ishurdi Airport, Ishurdi.	07326-63569 Mob: 01894909800 E-mail: apmishurdi@caab.gov.bd	
23. Airport Manager, Comilla Airport. Comilla.	081-76119 Mob: 01894909900	
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Chapter-1

1. Introduction

1.1 General

1.1.1 Search and Rescue (SAR) comprises the search for and provision of aid to persons who are, or are believed to be in imminent danger of loss of life. The two operations – Search and Rescue – may take many forms, depending on whether they are both required or not, on the size and complexity of the operation and on the available staff and facilities.

1.1.2 This SAR Manual provides Standards and requirements for the establishment, maintenance and operation, of SAR services within Bangladesh Search and Rescue Region (SRR). The primary purpose of the SAR is to ensure that the SAR organization meets the SAR needs and obligations under the Convention on International Civil Aviation.

1.1.3 CAAB shall develop and improve its SAR services, co-operate with neighboring States and to consider the SAR services to be part of a global system.

1.2 SAR Manual

1.2.1 This Manual should be read in conjunction with:

- a) ICAO Annex 12 – Search and Rescue
- b) ICAO Annex 13 – Aircraft Accident and Incident Investigation
- c) ICAO Annex 11– Air Traffic Services
- g) IAMSAR Manuals Vol. i, ii, & iii



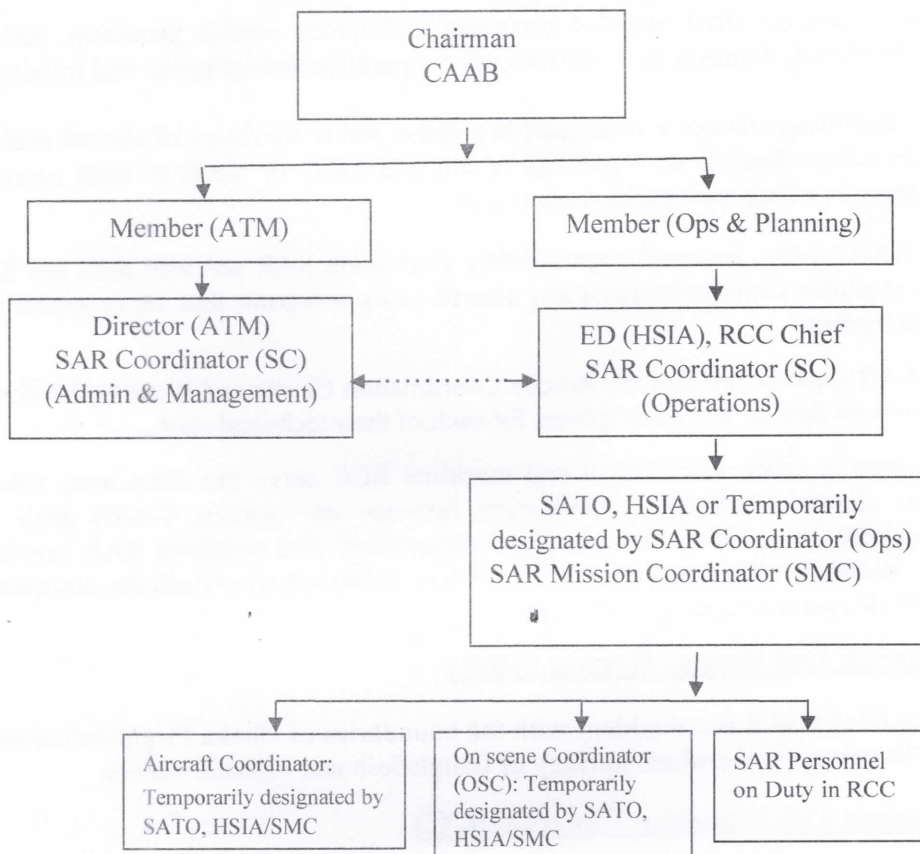


Chapter- 2

2. Organization

2.1 SAR Co-ordinating Organization of CAAB

The following chart shows the positions of the SAR coordinating organizations in CAA Bangladesh.



2.2 SAR Services

2.2.1 CAAB shall, individually or in cooperation with other States, arrange for the establishment and prompt provision of SAR services within Bangladesh SRR to ensure that assistance is rendered to persons in distress. Such services shall be provided on a 24-hour basis.

2.2.2 The SAR Procedures shall be prepared taking into consideration available resources within the country of various organization for example, Defense Forces, Marine Authority, Bangladesh Fire service & civil defense, Hospitals, Police and other Organizations as may be applicable. The relevant organizations shall render appropriate assistance and services as per the detailed role & procedures agreed upon and required for SAR service.





2.2.3 Those portions of the high seas or areas of undetermined sovereignty for which SAR services will be established shall be determined on the basis of regional air navigation agreements. CAAB, having accepted the responsibility to provide SAR services in such areas shall thereafter, individually or in cooperation with other States, arrange for the services to be established and provided in accordance with the provisions of this SAR manual.

2.2.4 Basic elements of SAR services shall include a legal framework, a responsible authority, organized available resources, communication facilities and a workforce skilled in coordination and operational functions.

2.2.5 SAR services shall establish processes to improve service provision, including the aspects of planning, domestic and international cooperative arrangements and training.

2.2.6 In providing assistance to aircraft in distress and to survivors of aircraft accidents, the SAR organization shall do so regardless of the nationality or status of such persons or the circumstances in which such persons are found.

2.2.7 CAAB having accepted responsibility to provide SAR services shall use SAR units and other available facilities to assist any aircraft or its occupants that are or appear to be in a state of emergency.

2.2.8 CAAB shall ensure that the Rescue Coordination Centre and if applicable Rescue Sub Centre develops written Job Descriptions for each of their technical staff.

2.2.9 Where separate aeronautical and maritime RCC serve the same area, CAAB shall ensure the closest practicable coordination between the centres. CAAB shall facilitate consistency and cooperation between their aeronautical and maritime SAR services. Joint Rescue Coordination Centres (JRCC) should be established to coordinate aeronautical and maritime SAR operations, where practical.

2.3 Search and Rescue Region (SRR)

2.3.1 The Dhaka SRR is coincident with the boundaries of Dhaka Flight Information Region (FIR) covering the whole territory of Bangladesh and adjacent waters.

2.4 Rescue Coordination Centre (RCC)

- i. The SAR Co-ordinator (Admin & Management) shall establish an RCC within the SRR;
- ii. RCC and as appropriate, Rescue Sub Centre (RSC) shall be arranged to be Staffed 24 hours a day by trained personnel and they should be proficient in the use of the English Language for radiotelephony communications;
- iii. SAR personnel working in RCC for the purpose of conducting operation must demonstrate at least operational level (Level 4) in English Language proficiency in the use of both Standard phraseologies and plain English Language for radiotelephony communication.





- iv In case Dhaka RCC is not staffed on a 24-hour basis, provision must be made for standby RCC staff to be mobilized rapidly and RCC shall be activated without delay.

As the Area controller of Dhaka ACC has been designated as Search and Rescue Point of Contact (SPOC) and is available for 24-hour basis, arrangements shall be made so that anybody requiring contacting Dhaka RCC can get Dhaka ACC instantaneously whenever Dhaka RCC is unmanned.

- v. RCC shall be employed with sufficient workforce skilled in coordination and operational functions;
- vi. RCC should have job descriptions for each of its technical staff;
- vii SAR personnel (SC, SMC, OSC,) shall be trained regularly and that appropriate exercises are arranged; (Ref. SAR Ex. GM, Para 11, Page 11)
- a) A Communications Exercise in the first year.
 - b) A table top (Co-ordination) Exercise (in the second year)
 - c) A Full-Scale Exercise or a Field Exercise (in the third year)
- viii. Training programme (Initial, Recurrent and Specialized) should be established for RCC staff and maintain Training Records;
- ix. Any authority or any element of Search and Rescue organization having to believe that an aircraft is in an emergency shall give immediately all available information to the RCC concerned.
- x. The RCC is located in the Operation Building, 3rd Floor, Room No. 411,
- xi. Dhaka ACC has been designated as the Search and Rescue (SAR) point of contact (SPOC) for the receipt of COSPAS-SARSAT distress data. Area controller on duty shall act as an RCC in charge before activation of RCC. The address and telephone numbers for SAR point of contact are:
Dhaka Area Control Centre 3rd Floor
Control Tower Building,
Hazrat Shahjalal International Airport,
Kurmitola, Dhaka-1229
Bangladesh
AFTN; VGHSZQZX
Tel: + 88-02-8901243, 8901463, 8901464
Fax: + 88-02-8901924
E-mail: rcc-dhaka@caab.gov.bd



**2.5 Names & telephone numbers of RCC and RSC are given below:**

RCC and SAR point of contact:

SI No.	Name of the Airport.	ACC and RCC Tel. No.	Director/ APM, & SATO
1	Hazrat Shahjalal International Airport, Dhaka.	ACC: 8901462, 8901463. 8901904-13/3465,3410 RCC: 8901464, 8901904-13/3589. Control Tower: 48964462; 8901904-13/8022.	Tel: 8901449 Fax: 8901450 SATO: 02-8901460, 8901904-13/8100. Mob: 01894908900 E-mail: satohsia@caab.gov.bd





The following Civil Airports Control Towers are established as Rescue Sub Centre's and point of contact on 24 hours on call basis:

2.	Shah Amanat International Airport, Chittagong.	Control Tower: 41350105 Mob:01894909122	Director: 41350100. Mob: 01894909100 SATO: 01717433068, dctg@caab.gov.bd
3.	Osmani International Airport, Sylhet.	Control Tower: 02996635794 Mob:01894909222	Director: 02996631143 Mob:01894909200 dsylhet@caab.gov.bd
4.	Cox's Bazar Airport, Cox's Bazar.	Control Tower: 02333346987 Mob:01894909322	APM: 02333346980 Mob: 01894909300 apmcox@caab.gov.bd
5.	Saidpur Airport, Saidpur.	Control Tower: 02589956952 Mob:01894909422	APM: 05526-72384 Mob: 01894909400 apmsaidpur@caab.gov.bd
6.	Jessore Airport, Jessore.	Control Tower: 024777-65348 Mob:01894909622	APM: 0421-64033 Mob: 01894909600 apmjessore@caab.gov.bd
7.	Shah Makhdum Airport, Rajshahi.	Control Tower: 47800157 Mob:01894909522	APM: 0721-800153 Mob: 01894909500 apmrajshahi@caab.gov.bd
8.	Barisal Airport, Barisal.	Control Tower: 02478869827 Mob:01894909722	APM: Mob: 01894909700 apmbarisal@caab.gov.bd





2.6 Alerting Posts

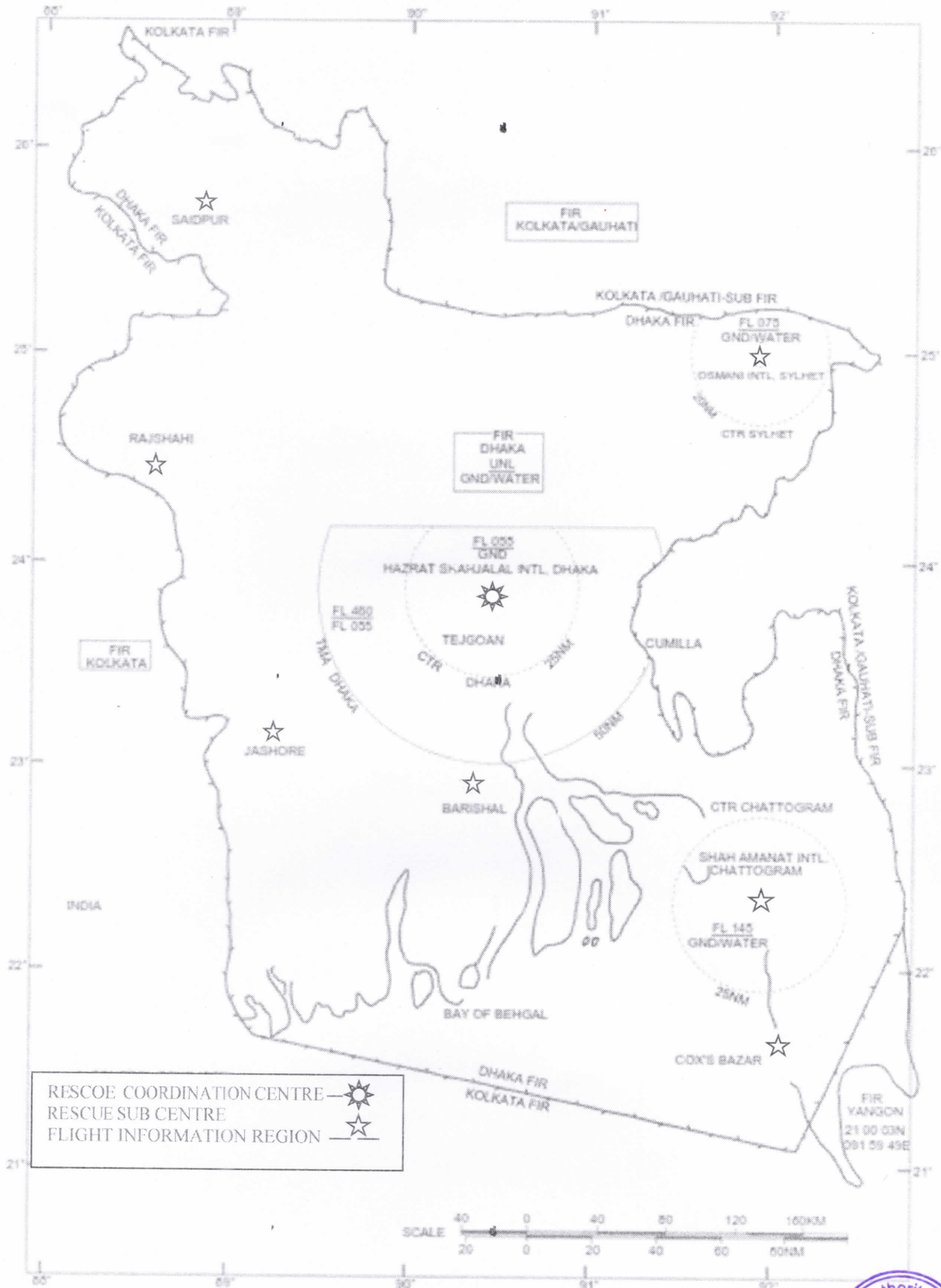
The following authorities, agencies, aerodromes and their associated units are designated alerting posts in Bangladesh:

- a) All Civil Airports and Aerodrome;
- b) All Army Units;
- c) All Air Force Units;
- d) All Naval & Coast Guard Units;
- e) All Police-stations;
- f) Mercantile Marine and Port Authorities¹
- g) Bangladesh Fire Services and Civil Defense Headquarters, Dhaka (all fire stations may act as alerting post).
- h) ATS units, aircraft, vessels or other persons or facilities which may receive and relay alerts.





RESCUE COORDINATION CENTRE AND RESCUE SUB CENTRES





2.9.6 Unless it is known that there is no need to provide supplies to survivors by air, at least one of the aircraft participating in a SAR operation should carry droppable survival equipment.

2.9.7 CAAB shall locate, at appropriate aerodromes, survival equipment suitably packed for dropping by aircraft. (the basic pack items are Ration, signaling equipment, medical items, Covering items, Fire and lighting items, Sundries etc.)

2.9.8 CAAB shall:

- a) keep the SAR Manual, SAR Plan of Operations in a readily accessible form;
- b) amend the SAR Manual, SAR Plans of Ops whenever necessary to keep its contents up-to-date.

2.9.9 Each SAR Unit shall:

- a) be cognizant of all parts of the plans of operation that are necessary for the effective conduct of its duties; and
- b) keep the RCC informed of its preparedness





Chapter-3

3. Cooperation

3.1 Cooperation between States

3.1.1 CAAB shall arrange coordination of their SAR efforts with those of neighboring States.

3.1.2 RCC when necessary, coordinates their SAR operations with those of neighboring States especially when these operations are proximate to adjacent SRR.

3.1.3 Subject to the SAR agreements that had been concluded between Civil Aviation Authority of Bangladesh and the SAR authorities or agencies of neighboring States, CAAB shall permit immediate entry into its territory of SAR units of other States for the purpose of searching for the site of aircraft accidents and rescuing survivors of such accidents or provided the approval of entry is obtained from the higher authority.

3.1.4 SAR units entering the territory of neighboring States for SAR purposes shall transmit a request with prior approval from the higher authority, giving full details of the projected mission and the need for it, to the RCC of the neighboring State concerned or to such other authority as had been designated by the State.

3.1.5 Agreements with neighboring states should be made to strengthen SAR cooperation and coordination, setting forth the conditions for entry of each other's SAR units into their respective territories. These agreements should also provide for expediting entry of such units with the least possible formalities.

3.1.6 Requests for the entry of aircraft, equipment and personnel from other States to engage in search for aircraft in distress or to rescue survivors of aircraft accidents should be transmitted to the RCC.

The RCC shall:

- a) immediately acknowledge the receipt of such a request,
- b) forward the request, to the concerned authorities, and
- b) as soon as possible, indicate the conditions, if any, under which the projected mission may be undertaken.

3.1.7 Instructions as to the control which will be exercised on entry of such aircraft and/or personnel shall be given by the RCC in accordance with the standing plan for the conduct of SAR in the area.

3.1.8 CAAB with prior approval from higher authority shall:

- a) when request from other RCCs, provide assistance including assistance in the form of aircraft, vessels, persons or equipment, as may be needed;
- b) grant any necessary permission for the entry of such aircraft, vessels, persons or equipment into its territory; and
- c) make the necessary arrangements with the appropriate customs, immigration or other authorities with a view to expediting such entry.





3.1.9 Dhaka RCC shall provide when requested, assistance to other RCCs, including assistance in the form of aircraft, vessels, persons or equipment subject to approval of the higher authority.

3.1.10 CAAB shall make arrangement for joint training exercises involving its SAR units, those of neighboring States and operators, if possible, to promote search and rescue efficiency.

3.1.11 CAAB shall make arrangements for periodic liaison visits by personnel of its RCC to the centres of neighboring States.

3.2 Cooperation with other Services

3.2.1 CAAB shall arrange for all aircraft, vessels and local services and facilities which do not form part of the SAR organization to cooperate fully with the latter in SAR and to extend any possible assistance to the survivors of aircraft accidents.

3.2.2 To provide for the most effective and efficient SAR services, CAAB shall maintain the closest practicable coordination between the relevant aeronautical and maritime authorities.

3.2.3 CAAB shall ensure that their SAR services cooperate with those responsible for investigating accidents and with those responsible for the care of those who suffered from the accident. To facilitate accident investigation, rescue units should, when practicable, be accompanied by persons qualified in the conduct of aircraft accident investigations.

3.2.4 Any authority, organization or element of the SAR organization having reason to believe that an aircraft is in an emergency shall give immediately all available information to the RCC.

3.3 SAR Point of Contact (SPOC)

3.3.1 CAAB shall designate a SAR point of contact for the receipt of COSPAS-SARSAT distress data.

3.3.2 Dhaka ACC/RCC has been designated as the SAR point of contact for receipt of COPAS-SARSAT distress data.

3.3.3 National regulations shall be available or CAAB shall arrange for carriage of ELTs and arrangements for registration of the 406 MHz beacon and rapid access to the beacon registration database.

3.4 Dissemination of Information:

3.4.1 CAAB shall publish and disseminate all information necessary for the entry of SAR units of other States into its territory or, alternatively, include this information in SAR service arrangements.

3.4.2 When such information could benefit the provision of SAR services, CAAB should make available, through the RCC or other agencies, information regarding their SAR plans of operation.





- 3.4.3 CAAB shall, to the extent desirable and practicable, disseminate information to the general public and emergency response authorities regarding actions to be taken when there is reason to believe that an aircraft's emergency situation may become cause for public concern or require a general emergency response.
- 3.4.4 Information necessary for SAR services shall be published in AIP Bangladesh.





Chapter-4

4. Preparatory Measures

4.1 Preparatory Information

4.1.1 The RCC shall have readily available at all times up-to-date information concerning the following in respect of its SRR:

- a) SAR units, Rescue units and alerting posts;
- b) air traffic services units;
- c) means of communication that may be used in SAR operations;
- d) addresses and telephone numbers of all operators, or their designated representatives, engaged in operations in the region; and
- e) any other public and private resources including medical and transportation facilities that are likely to be useful in SAR.

4.1.2 In addition, the RCC should have readily available all other information related to SAR, including information regarding:

- a) the locations, call signs, hours of watch, and frequencies of all radio stations likely to be employed in support of SAR operations;
- b) the locations and hours of watch of services keeping radio watch, and the frequencies guarded;
- c) locations where supplies of droppable emergency and survival equipment are stored; and
- d) objects which it is known might be mistaken for un located or unreported wreckage, particularly if viewed from the air.

4.1.3 The RCC whose SRR includes maritime areas should have ready access to information regarding the position, course and speed of ships within such areas that may be able to provide assistance to aircraft in distress and information on how to contact them.

Note: This information may either be kept in the RCCs or be readily accessible.

4.1.4 CAAB shall, make arrangements for communication/coordination with maritime authorities to facilitate SAR operation at sea.

4.2 SAR Plans of Operation

4.2.1 The RCC shall prepare detailed plans of operation for the conduct of SAR operations within its search and rescue region.

4.2.2 SAR plans should be developed jointly with representatives of the operators and other public or private services that may assist in providing SAR services or benefit from them, taking into account that the number of survivors could be large.

4.2.3 The plans of operation shall specify arrangements for the servicing and refueling, to the extent possible, of aircraft, vessels and vehicles employed in SAR operations, including those made available by other States.





4.2.4 SAR plans of operation should be integrated with Airport Emergency Plans to provide for Rescue Services in the vicinity of aerodromes including coastal aerodromes, areas of water.

4.2.5 The SAR plans of operation shall contain details regarding actions to be taken by those persons engaged in SAR, including:

- a) the manner in which SAR operations are to be conducted in the SRR;
- b) the use of available communication systems and facilities;
- c) the actions to be taken jointly with other rescue coordination centres, as appropriate;
- d) the methods of alerting en-route aircraft and ships at sea;
- e) the duties and prerogatives of persons assigned to SAR;
- f) the possible redeployment of equipment that may be necessitated by Meteorological or other conditions;
- g) the methods for obtaining essential information relevant to SAR operations, such as weather reports and forecasts, appropriate NOTAM, etc.;
- h) the methods for obtaining, from other rescue coordination centres, such assistance, including aircraft, vessels, persons or equipment, as may be needed;
- i) the methods for assisting distressed aircraft being compelled to ditch to rendezvous with surface craft;
- j) the methods for assisting SAR or other aircraft to proceed to aircraft in distress; and
- k) cooperative actions to be taken in conjunction with air traffic services units and other authorities concerned to assist aircraft known or believed to be subject to unlawful interference.

4.3 Equipage of RCC

RCC should be equipped with the following:

- a) Legal Documents such as ICAO Annex 11 & 12;
- b) SAR Manual;
- c) ANO 12 on SAR;
- d) Sunrise/ Sunset Tables;
- e) AIP Bangladesh;
- f) Maps and Charts (Aeronautical, Topographical, and Hydrographical) of different scales;
- g) Computer Facilities so as to retrieve and display of information previously stored;





- i Log books pertaining to RCC;
- j RCC & RUs location charts;
- k Rapid and Reliable SAR Communications systems with various units/agencies;
- l Distress frequencies; 121.5MHZ
- m Plotting Equipment;
- n HF/RT;
- o VHF/Walkie Talkie, Official Cell Phone;
- p Satellite communication system for reception of COSPAS-SARSAT Distress Alert (406 MHZ) and data base from ELT.

4.4 Necessary Information & Preparedness

Each SAR units, shall;

- a) having knowledge of all parts of the plans of operation that are necessary for the effective conduct of its duties; and
- b) keep the rescue coordination centre informed of its preparedness.

4.5 SAR Facilities & Logistics

CAAB shall:

- a) maintain in readiness the required number of SAR facilities;
- b) maintain adequate supplies of rations, medical stores, signaling devices and Other survival and rescue equipment.

4.6 Training Policies & Programs

Member (ATM) shall ensure the development of detailed Training Policies & Programs and Annual Periodic Training Plans for SAR personnel to maintain a basic level of competency that includes Initial, Recurrent/Refresher, Specialized training, and knowledge about updates in ICAO provisions.

4.6.1 The following training should be included as Initial Training

- a) Basic ATC Course
- b) SAR Mission coordinator course;
- c) SAR Administrators course;

4.6.2 All SAR officers/staff shall undergo Refresher/Recurrent, Specialized training on the above-mentioned fields/topics.

4.6.3 Training in aeronautical SAR shall consist of theoretical and practical knowledge of aeronautical SAR operations. The following subject areas should be included to demonstrate a level of knowledge appropriate to conduct aeronautical SAR operations in the RCC:

- a) General SAR procedures
 - ICAO Annex 12 and international provisions
 - SAR organization
 - SAR resources





- SAR communications
 - SAR operating procedures
 - RCCs and rescue sub-centres, as appropriate;
 - Meteorological information for SAR
 - Conduct of search and air search patterns
 - Rescue of survivors
- b) Aeronautical SAR procedures
- Aeronautical SAR organization
 - Aeronautical RCC administration
 - Basic navigation
 - Search areas (sea and land)
 - Search techniques (sea and land)
 - Plotting exercises

4.7 Foreign Training

Member ATM shall, after the assessment, authorize trainings in the foreign institutions, if so required. While doing so, Member ATM will ensure the quality of the training provided.

4.8 SAR Training and Exercise

SAR services, to achieve and maintain maximum efficiency in SAR shall provide regular training of their SAR personnel and arrange appropriate SAR Exercise. (Ref. SAR Ex GM, Para 11, Page 11)

- a) Communications Exercise: (in the first year), 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) Table Top (Co-ordination) Exercise: (in the second year), involves simulated response to a crisis based on a series of scenarios. All levels of SAR services are involved but do not deploy. This type of exercise requires considerable planning.
- c) Full-Scale Exercise or a Field Exercise: (in the third year), 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.

4.9 Maintaining Training Records and Files

The SAR organization shall maintain training records and files for their SAR officers and staff.

4.10 Wreckage

CAAB should ensure that wreckage resulting from aircraft accidents within its SRR or, in the case of accidents on the high seas or in areas of undetermined sovereignty, within the SRR for which it is responsible, is removed, obliterated or charted following completion of the accident investigation, if its presence might constitute a hazard or confuse subsequent search and rescue operations.





Chapter-5

5. Operating Procedures

5.1 Information Concerning Emergencies

5.1.1 Any authority or any element of the SAR organization having reason to believe that an aircraft is in an emergency shall give immediately all available information to the RCC.

5.1.2 RCC shall, immediately upon receipt of information concerning aircraft in emergency, evaluate such information and assess the extent of the operation required.

5.1.3 When information concerning aircraft in emergency is received from other sources than air traffic services units, the RCC shall determine to which emergency phase the situation corresponds and shall apply the procedures applicable to that phase.

5.2 Procedures for RCC during Emergency Phases

Three phases of emergencies are:

a) Uncertainty phase, when

- i) no communication has been received from an aircraft within a period of thirty (30) minutes after the time a communication should have been received or from the time an unsuccessful attempt to establish communication with such an aircraft was first made, whichever was earlier.
- ii) an aircraft fails to arrive within thirty (30) minutes of the estimated time of arrival last notified to or estimated by air traffic service units, whichever is the later, except when no doubt exists as the safety of the aircraft and its occupants.

Upon the occurrence of an uncertainty phase, the RCC shall cooperate to the utmost with Air Traffic services units and other appropriate agencies and services in order that incoming reports may be speedily evaluated.



**b) Alert phase, when:**

- i) following the uncertainty phase, subsequent attempts to establish communication with aircraft or enquiries from other sources have failed to reveal any news of the aircraft, or when;
 - ii) an aircraft has been cleared to land and fails to land within five minutes of the estimated time of landing and communication has not been re-established with the aircraft, or when;
 - iii) information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely, except when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants, or when;
 - iv) an aircraft is known or believed to be the subject of unlawful interference.
- Upon the occurrence of an alert phase the Rescue Coordination Centre shall immediately alert Search and Rescue units and initiate any necessary action.

c) Distress phase, when:

- i) following the alert phase, further unsuccessful attempts to establish communication with aircraft and more widespread enquiries point to the probability that the aircraft is in distress; or when:
- ii) the fuel on board is considered to be exhausted or to be insufficient to enable the aircraft to reach safety; or when:
- iii) information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely; or when:
- iv) information is received or it is reasonably certain that the aircraft is about to make or has made forced landing or has crashed.

5.2.1 Notification by ATS Units:

The notification from an ATS unit to RCC or by RCC to RCCs of adjacent countries and to AIG-BD will contain the following information in the order listed:

- a) INCERFA, ALERFA or DETRESFA, as appropriate to the phase of the emergency;
- b) agency and person calling;
- c) nature of the emergency;
- d) significant information from the flight plan (call sign & registration marking of aircraft/owner/type/fuel/place of departure/destination etc.);
- e) time of last communication, by whom received and frequency used;
- f) last position report and how determined;
- g) colour and distinctive marks of aircraft;
- h) any action taken by the reporting officer including details of information when received through a reporting aircraft;
- i) other information.





5.2.2 Notification by informants other than ATS Unit

All persons are encouraged to report abnormal occurrences they have witnessed or may have heard of. Notification that an aircraft has crashed, is overdue or in a state of emergency, etc; may therefore reach to RCC from any source, either directly or relayed through ATS units and/or alerting posts.

5.2.3 Evaluation of Report and action by RCC

After evaluating the information, the RCC will declare the appropriate emergency Phases & will immediately inform:

- a) Dhaka ACC/FIC;
- b) Details of information received shall be entered in a log book which shall also be used for recording subsequent developments. The initial notification of an incident should be entered on a standard "Initial Report Form" (Appendix-III) supplies of which should be available at RCC, ATS units and alerting posts (where applicable). Its use will be precluding the possible loss of certain important details because this was not called to the attention of the information;
- c) Initial action to obtain full details of the aircraft in case of Dep. /Plan. Message not received;
- d) Inform concerned ATS units, Rescue Sub Centres and Alerting posts for necessary search and rescue action and AIG Office;
- e) Inform SATO, Director (ATM), ED HSIA/Airport Manager, Chairman, Civil Aviation Authority, Member (Operation), Civil Aviation Authority, Director (Flight Safety & Regulations Division), Chief of Flight Inspection, CAAB, Director of Air Operation, Bangladesh Air Force, SATCO BAF Base Basher, Director Operations, Bangladesh Navy, Coast Guard, Owner of the Aircraft, Police HQ, Bangladesh Railways, Head of Postal and BTCL, Biman Operation, Harbor master & Port Authorities(if necessary), BIWTA, Deputy Commissioner, Upazila Executive concerned, Radio Bangladesh & Bangladesh Television(if necessary), RAB & BGB Authorities, Fire Service & Civil Defense HQ, Dhaka and any other organization or person if required;
- f) Plot the probable estimated position of the aircraft on the map.

5.3 Initiation of SAR action in respect of an aircraft whose position is unknown

5.3.1 In the event that an emergency phase is declared in respect of an aircraft whose position is unknown and may be in one of two or more Search and Rescue regions, the following shall apply:





- a) When a Rescue Coordination Centre is notified of the existence of an emergency phase and is unaware of other centres taking appropriate action, it shall assume responsibility for initiating suitable action⁴ in accordance with 5.3 and confer with neighbouring Rescue Coordination Centres with the Objective of designating one Rescue Coordination Centre to assume responsibility forthwith.
- b) Unless otherwise decided by common agreement of the rescue coordination centres concerned, the rescue coordination centre to coordinate Search and Rescue action shall be centre position for:
 - i. the region in which the aircraft last reported its position; or
 - ii. the region to which the aircraft was proceeding when its last reported position was on the line separating two Search and Rescue regions; or
 - iii. the region to which the aircraft was destined when it was not equipped with suitable two- way radio communication or not under obligation to maintain radio communication; or
 - iv. the region in which the distress site is located as identified by the Cospas-Sarsat system.
- c) After declaration of the distress phase, the Rescue Coordination Centre with overall coordination responsibility shall inform all Rescue Coordination Centres that may become involved in the operation of all the circumstances of the emergency and subsequent developments. Likewise, all Rescue Coordination Centres becoming aware of any information pertaining to the emergency shall inform the Rescue Coordination Centre that has overall responsibility.

5.3.2 Passing of information to aircraft in respect of an emergency phase which has been declared:

- i. Whenever applicable, the RCC responsible for SAR action shall forward to the air traffic services unit serving the flight information region in which the aircraft is operating, information of the SAR action initiated, in order that such information can be passed to the aircraft.

5.4 Procedures where responsibility for operations extends to two or more Contracting States

When the conduct of operations over entire Search and Rescue region is the responsibility of more than one Contracting State, each involved State shall take action in accordance with the relevant plan of operations when so requested by the Rescue Coordination Centre of the region.

5.5 Procedures for Authorities in the Field

- 5.5.1 The authority immediately directs to conduct of operations or any part thereof shall:
 - a) give instructions to the units under their direction and inform the RCC of such instructions; and





5.6 Procedures for rescue coordination centres — termination and suspension of operations

- 5.6.1 Search and rescue operations shall continue until all survivors are delivered to a place of safety or until all reasonable hope of rescuing survivors has passed.
- 5.6.2 The responsible rescue coordination centre shall normally be responsible for determining when to discontinue search and rescue operations.
- 5.6.3 When a search and rescue operation has been successful or when a rescue coordination centre considers, or is informed, that an emergency no longer exists, the emergency phase shall be cancelled, the search and rescue operation shall be terminated and any authority, facility or service that has been activated or notified shall be promptly informed.
- 5.6.4 If a search and rescue operation become impracticable and the rescue coordination centre concludes that there might still be survivors, the centre shall temporarily suspend on-scene activities pending further developments and shall promptly inform any authority, facility or service which has been activated or notified. Relevant information subsequently received shall be evaluated and search and rescue operations resumed when justified and practicable.

5.7 Procedures at the scene of an accident

- 5.7.1 When multiple facilities are engaged in search and rescue operations on-scene, the rescue coordination centre or rescue subcentre shall designate one or more units on-scene to coordinate all actions to help ensure the safety and effectiveness of air and surface operations, taking into account facility capabilities and operational requirements.
- 5.7.2 When a pilot-in-command observes that either another aircraft or a surface craft is in distress, the pilot shall, if possible and unless considered unreasonable or unnecessary:
- keep the craft in distress in sight until compelled to leave the scene or advised by the rescue coordination centre that it is no longer necessary;
 - determine the position of the craft in distress;
 - as appropriate, report to the rescue coordination centre or air traffic services unit as much of the following information as possible:
 - type of craft in distress, its identification and condition;





- its position, expressed in geographical or grid coordinates or in distance and true bearing from a distinctive landmark or from a radio navigation aid;
 - time of observation expressed in hours and minutes Coordinated Universal Time (UTC);
 - number of persons observed;
 - whether persons have been seen to abandon the craft in distress;
 - on-scene weather conditions;
 - apparent physical condition of survivors;
 - apparent best ground access route to the distress site; and
- d) act as instructed by the rescue coordination centre or the air traffic services unit.

5.7.2.1 If the first aircraft to reach the scene of an accident is not a SAR aircraft, it shall take charge of on-scene activities of all other aircraft subsequently arriving until the first SAR aircraft reaches the scene of the accident. If, in the meantime, such aircraft is unable to establish communication with the appropriate RCC or air traffic services unit, it shall, by mutual agreement, hand over to an aircraft capable of establishing and maintaining such communications until the arrival of the first SAR aircraft.

5.7.2.2 When it is necessary for an aircraft to convey information to survivors or surface rescue units, and two-way communication is not available, it shall, if practicable, drop communication equipment that would enable direct contact to be established, or convey the information by dropping a hard copy message.

- 5.7.3 When a ground signal has been displayed, the aircraft shall indicate whether the signal has been understood or not by the means described in this manual or, if this is not practicable, by making the appropriate visual signal.
- 5.7.4 When it is necessary for an aircraft to direct a surface craft to the place where an aircraft or surface craft is in distress, the aircraft shall do so by transmitting precise instructions by any means at its disposal. If no radio communication can be established, the aircraft shall make the appropriate visual signal.

5-8 Procedures for a pilot-in-command intercepting a distress transmission

Whenever a distress transmission is intercepted by a pilot-in command of an aircraft, the pilot shall, if feasible:





- a) acknowledge the distress transmission;
- b) record the position of the aircraft in distress if given;
- c) take a bearing on the transmission;
- d) inform the appropriate rescue coordination centre or air traffic services unit of the distress transmission, giving all available information; and
- e) at the pilot's discretion, while awaiting instructions, proceed to the position given in the transmission.

5.9 Search and rescue signals

- 5.9.1 The air-to-surface and surface-to-air visual signals in Appendix shall, when used, have the meaning indicated therein. They shall be used only for the purpose indicated and no other signals likely to be confused with them shall be used.
- 5.9.2 Upon observing any of the signals in the Appendix, aircraft shall take such action as may be required by the interpretation of the signal given in Appendix.

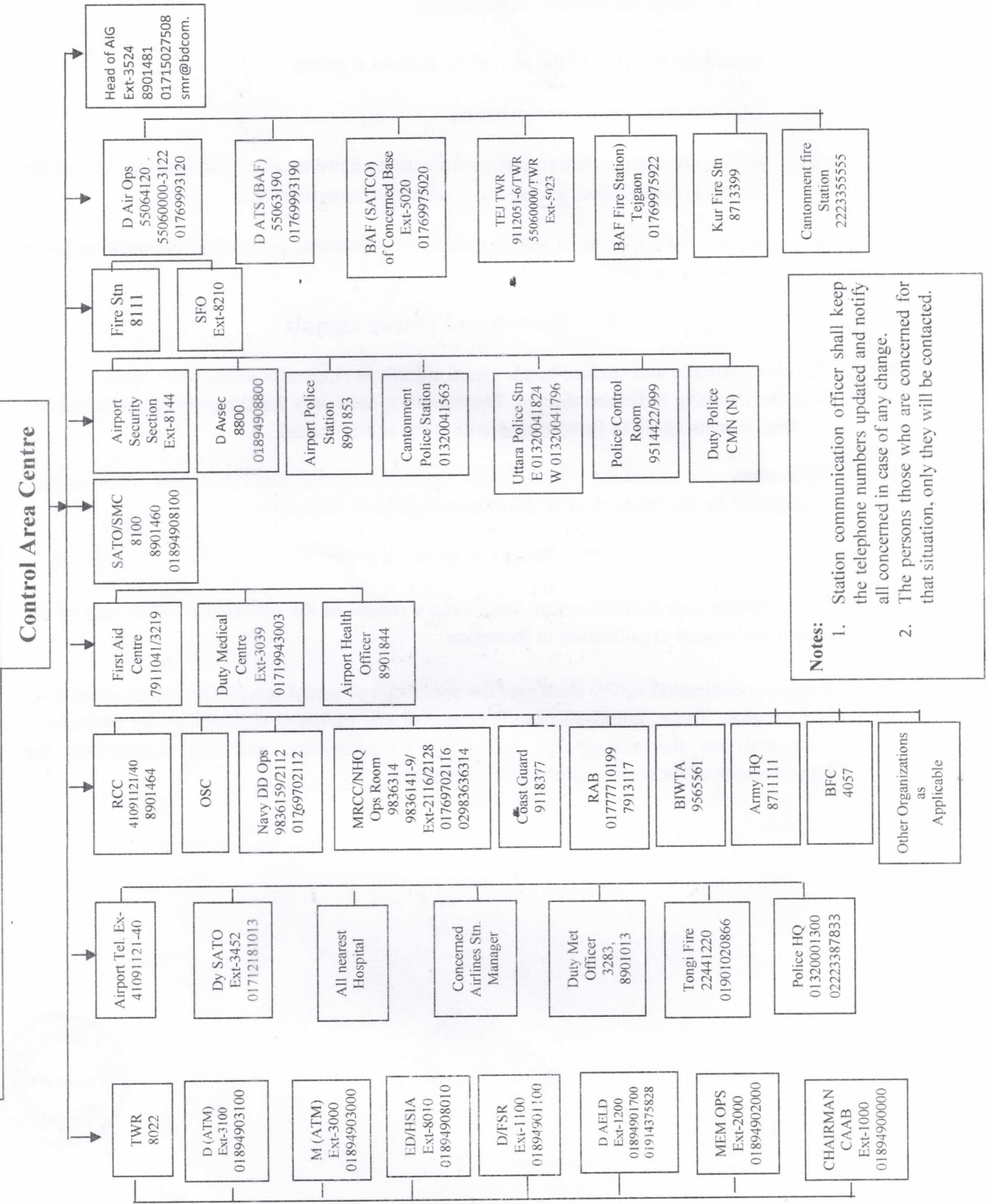
5.10 Maintenance of records

- 5.9.1 Dhaka rescue coordination centre shall keep a record of the operational efficiency of the search and rescue organisation in its region.
- 5.9.2 Rescue coordination centre shall prepare appraisals of actual search and rescue operations in its region. These appraisals should comprise any pertinent remarks on the procedures used and, on the emergency, and survival equipment, and any suggestions for improvement of those procedures and equipment.





5.11 Search and Rescue (SAR) Emergency Action Flow Chart





APPENDIX -I

1. Search and Rescue Signals

1.1 Signals with Surface Craft:

1.1.1 The following maneuvers performed in sequence by an aircraft mean that the aircraft wishes to direct a surface craft towards an aircraft or a surface craft in distress:

- a) circling the surface craft at least once;
- b) crossing the projected course of the surface craft close ahead at low altitude and:
 - i. rocking the wings; or
 - ii. opening and closing the throttle; or
 - iii. changing the propeller pitch.
- c) heading in the direction in which the surface craft is to be directed.
Repetition of such maneuvers has the same meaning.

1.1.2 The following maneuvers by an aircraft means that the assistance of the surface craft to which the signal is directed is no longer required:


- a) crossing the wake of the surface craft close astern at a low altitude and:
 - i. *rocking the wings; or*
 - ii. *opening and closing the throttle; or*
 - iii. *changing the propeller pitch.*
- b) The following replies may be made by surface craft to the signal in 1.1.1: for acknowledging receipt of signals:
 - i. *the hoisting of the "code pennant" (vertical red and white stripes) close up (meaning understood);*
 - ii. *the flashing of a succession of "T's" by signal lamp in the Morse code;*
 - iii. *the changing of heading to follow the aircraft.*
- c) for indicating inability to comply:
 - i. *the hoisting of the international flag "N" (a blue and white checkered square);*
 - ii. *the flashing of a succession of "N's" in the Morse code.*



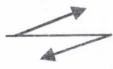



1.2 Ground-Air Visual Signal Codes

1.2.1 Ground-air visual signal code for use by survivors.

- 1 Require assistance **V**
- 2 Require medical assistance **X**
- 3 No or Negative **N**
- 4 Yes or Affirmative **Y**
- 5 Proceeding in this direction 

1.2.2 Ground-air visual signal code for use by rescue units No Message Code Symbol

- 1 Operation completed **L L L**
- 2 We have found all personnel **L L**
- 3 We have found only some personnel **L**
- 4 We are not able to continue, returning to base **X X**
- 5 Have divided into two groups. Each proceeding in direction indicated 
- 6 Information received that aircraft is in this direction 
- 7 Nothing found. Will continue to search **N N**
- 8 We are not able to continue returning to base **XX**

1.2.3 Symbols shall be at least 2.5 meters (8 feet) long and shall be made as conspicuous as possible.

Note 1.—symbols may be formed by any means such as: strips of fabric, parachute material, pieces of wood, stones or such like material; marking the surface by tramping, or staining with oil.

Note 2.—Attention to the above signals may be attracted by other means such as radio, flares, smokes and reflected light.





1.3. Air-to-Ground Signal codes

1.3.1 The following signals by aircraft mean that the ground signals have been understood:

- a) during the hours of daylight:
 - i. by rocking the aircraft's wings;
- b) during the hours of darkness:
 - i. flashing on and off twice the aircraft's landing lights or, if not so equipped, by switching on and off twice its navigation lights.

1.3.2 Lack of the above signal indicates that the ground signal is not understood.





END

