Algerian search and rescue at sea

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ALGERIAN SEARCH AND RESCUE AT SEA

by

AMGHAR ALI

ALGERIA

A paper submitted to the Faculty of the World Maritime University in partial satisfaction of the requirements for the award of a

MASTER OF SCIENCE DEGREE

in

GENERAL MARITIME ADMINISTRATION.

The contents of this paper reflect my personal views and are not necessarily endorsed by the UNIVERSITY.

Signature: [Signature]

Date: 86-11-19

Supervised and assessed by: Pr. Aage OS, WMU

Co-assessed by: Tor Jacobsen,
Deputy Head, Search and Rescue Division,
Norwegian Ministry of Justice.
ALGERIAN SEARCH AND RESCUE AT SEA

BY

AMGHAR ALI

This paper submitted in partial fulfilment of the requirements for the award of the Degree of Master of Science (MSc) in General Maritime Administration to the World Maritime University, Malmö.

December, 1986
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I owe special debts of gratitude to my Government for having given me the opportunity to attend the two-year course at the World Maritime University in Malmö.

My kind regards are directed to my colleagues and friends of the World Maritime University, I hope I have not disappointed very much.

Finally, I would like to dedicate this modest paper to my family who suffered from my absence.

Ali AMGHAR
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GEOGRAPHICAL SITUATION OF ALGERIA
INTRODUCTION

As long as there are ships at sea, accidents are bound to happen with consequent losses of life. The loss of the "Titanic" in April 1912 is still very fresh in our minds. In 1978, the Algerian vessel "Le Collo" foundered with 27 persons on board and not very long ago a small fishing vessel disappeared without a trace off the coast of Ghazaouet with five persons on board.

The permanent training of seafarers, inspections and surveys of ships by the Administration to ensure the maintenance of the standards in accordance with the relevant IMO Conventions and the setting up of Search and Rescue Services will greatly help to reduce and prevent the occurrence of such accidents and consequent losses of life.

Up to 1830, Algeria was a great maritime nation. Between 1830 and 1962, maritime activities in Algeria came to a complete standstill as a consequence of the French occupation. After the Independence in 1962, things started to change and today Algeria is once again an active maritime nation. The Algerian fleet has developed rapidly with the acquisition of General Cargo vessels and Ro-Ros. Other specialized tonnages such as Tankers and Gas Carriers are the consequence of important sources of oil and gas deposits being discovered in the Algerian soil. This rapid development of the Algerian fleet has highlighted the necessity of improving the existing rescue services to the Administration so that they could respond to emergency situations that might arise in Algerian waters.

The sea which surrounds us, and constitutes 75 percent of the total area of the planet, is an immense reserve of natural resources, with great potential in terms of food and other minerals. These have been exploited by generations upon generations since time
immemorial. Fish still continues to be an important input in the dietary habits of world populations. With the creation of a "Secretariat of State for Fisheries" which fosters the exploitation of fish resources in the Economic Zone of Algeria, the Algerian Government has clearly indicated the importance it attaches to this particular subject. The growth in this sector has been impressive, if we consider that the catch of fish has increased from 35,000 tons in 1980 to 85,000 tons in 1984 and this in only a few years. The consequence of this development is an increase in the number of small fishing vessels all along the coast of Algeria.

The necessary steps should be taken by the Authority to ensure the safety of those who earn a living at sea and the protection of the living resources all along the Algerian coast. Such preventive measures will remove many dangers threatening the environment, in particular those related to pollution as a result of collisions between vessels at sea.

Assistance to persons in danger at sea must be quick and efficient. These two criteria will depend on the particular geographical situation and configuration of the coast, the type of equipment available, the personnel required and the organisation which would support and back up the operation.

This thesis is meant to introduce the reader to the way in which Search and Rescue in Algeria operates at present and how I hope it shall operate in the near future. My wish is that it may prove to be useful to anybody seeking information in this field.

The first chapter will deal then, with the obligations of the Contracting Parties of the SAR Convention and the future development of a Search and Rescue System.

In the second chapter, we will attempt to see the type of organi-
zation and how Search and Rescue is practiced in the so called developed countries.

The third chapter will deal with collision statistics in the Mediterranean Sea and the adjacent Strait of Gibraltar; the actual structure of the SAR services taking part in such operations highlighting the participating organizations behind such services.

In the fourth chapter we will evolve a model SAR organization and its structure.

Finally, in the last chapter, we will see some recommendations and how the structure in question must be situated so that it will function in a specific environment such as the Mediterranean Sea.
CHAPTER 1

GENERAL INSTRUMENTS
1.1 INTERNATIONAL INSTRUMENTS:

The obligation of ships to respond to distress messages and signals from other ships is one of the oldest traditions of the sea and is also mentioned in various international conventions.

One of them is the Brussels Convention on Assistance and Salvage of 1910.

Article II of that convention established the tradition of the brotherhood of the sea in international law and stated that "every master is bound, so far as he can do without serious danger to his vessel, her crew and her passengers, to render assistance to everybody, even though an enemy, found at sea in danger of being lost". The convention also required Contracting Parties to adopt national laws or regulations to give effective to this provision.

The obligation to provide assistance to persons in distress at sea has been embodied in other international conventions particularly the International Convention of Safety of Life at Sea and the Convention on the High Seas (1958).

Regulation 10 of Chapter V of SOLAS 1974 states: "The master of a ship at sea, on receiving a signal from any source that a ship or aircraft or survival craft thereof is in distress, is bound to proceed with all speed to the assistance of the persons in distress informing them if possible that he is doing so...".

The regulation goes on to outline various other obligations with regard to rescue operations and in Regulation 15 of the SOLAS Convention basic requirements for Governments regarding search and rescue operations are given.
It says: "Each Contracting Government undertakes to ensure that any necessary arrangements are made for coast watching and for the rescue of persons in distress at sea round its coasts. These arrangements should include the establishment, operation and maintenance of such maritime safety facilities as are deemed practicable and necessary having regard to the density of seagoing traffic and the navigational dangers and should, so far as possible, afford adequate means of locating and rescuing such persons".

In addition: "Each Contracting Government undertakes to make available information concerning its existing rescue facilities and the plans for changes therein, if any".

These international instruments operate without prejudice to each other and the repetition of the same principle in more than one convention does not introduce any inconsistencies but strengthens the legal obligations which give added force to tradition.

When IMO was established in 1959, its first major action was to convene an International Conference on Safety of Life at Sea. The participants met in 1960 and adopted a new version of the SOLAS Convention. A number of recommendations which requested IMO to take appropriate action to improve search and rescue at sea, were also adopted. These included the following:

- Contracting Governments should establish coast radio stations to keep a continuous listening watch on the radiotelegraph and radiotelephone distress frequencies and on frequencies used by survival craft;

- Joint studies of the IMO, the International Civil Aviation Organization (ICAO), the International Telecommu-
- Urgent consideration should be given by IMO, ICAO, ITU and WMO on the best way of establishing communications between aircraft and ships involved in cases of distress;

- Contracting Governments should encourage all ships to participate in merchant ship position reporting systems established for search and rescue, the use of which should be free of cost to the ship concerned;

- Governments should encourage ships to give emergency positions - indicating radio beacons (EPIRBs) where appropriate.

The Manual of Search and Rescue operations was prepared for the guidance of those requiring assistance at sea or those who find themselves in a position to provide assistance to others. The draft was completed in 1969 and was finally adopted by the IMO Assembly in 1971 under the title of the Merchant Ship Search and Rescue Manual (MERSAR).

Designed to aid the master of any vessel who might be called upon to conduct search and rescue operations at sea, the MERSAR manual is divided into eight chapters which deal with SAR co-ordination; action by a ship in distress; action by assisting ships; assistance by SAR aircraft; planning and conducting the search; conclusion of search; communications; and aircraft casualties at sea.
Although the MERSAR manual provides valuable guidance, it was envisaged that international search and rescue requirements should be established.
1.2 SARSAT AND COSPAS:

Sarsat and Cospas are two inter-operative satellite systems designed to help save lives and reduce operating costs by greatly improving search and rescue operations. Sarsat is an international programme sponsored by Canada, France, and the United States, while Cospas is a co-operative programme undertaken by the Soviet Union. Other countries are now joining the Sarsat/Cospas programme (Norway, UK, Finland, Bulgaria and Sweden).

The Sarsat programme has two main objectives:

- To improve current search and rescue means which rely on the use of the existing beacons at 121.5 and 243 MHz;

- To demonstrate the validity, operational efficiency and the advantages inherent in the 406 MHz concept which makes use of new beacons especially designed for this application operating in the 406-406.1 MHz frequency band, allocated for such utilisation by the 1979 World Administrative Radio Conference.

The Sarsat/Cospas system consists of several polar orbiting satellites, 800-1000 Km in altitude, providing total world coverage every few hours. The satellites, acting as communications relays, receive radio distress signals from EPIRBs (Emergency Position Indicating Radio Beacon) and retransmit them to ground stations (called LUTs-local user terminals). The LUT detects the distress signals and within twenty minutes of the end of a satellite pass it processes the signals to determine the location of each EPIRB. It then sends alert messages to a rescue co-ordination centre (RCC). Each LUT provides coverage over a large region-roughly
6,000 Km in diameter-centred on the LUT location (See Annex 1). Detection probability is close to 100 percent after four passes and over 90 percent in Europe after a single pass, although more than a single pass helps to resolve ambiguity and distinguish between real and false alarms.

The signal transmitted by the 406 MHz beacon, repeated every 50 second, includes a code that supplies the identity and nationality of the distressed vehicle, as well as information on the nature of the distress. The performance of the 406 MHz system is considerably better than that of the 121.5/243 MHz system because the location is obtained to an accuracy of about 3 Km and up to 90 beacons can be processed by the satellite simultaneously.

It is hoped that second generation Inmarsat satellites will carry 406 MHz repeaters on board. An interim system is in operational use now and has already contributed to about 100 SAR incidents involving almost 200 lives saved (mostly air-related). The system will be in full operational use in the nearest future and it will be demonstrated to the IMO, to satisfy the FGMDSS.
1.3 THE FUTURE GLOBAL MARITIME DISTRESS AND SAFETY SYSTEM:

At present, the maritime radiocommunication system covers
some disadvantages which include:

- Congestion: The number of terrestrial radio frequen-
cies available for maritime communications is physi-
cally limited and cannot be increased.

- Reception facilities: The quality of some messages
can be adversely affected by changes in the ionosphere.

- Uncertainty of messages being received: The successful
receipt of a radio message depends on the propagation
characteristics of the frequency on which it is trans-
mitted, the geographical location of ships, the time of
day and the season. As a result it may under certain
conditions be impossible for a ship in distress to
alert other ships or coast radio stations so assistance
may be delayed for several hours.

These factors could result in a serious delay in a distress
message being received and a search and rescue operation
being initiated.

However, recent advances in communications technology and
the establishment of INMARSAT have provided an opportunity
to overcome these difficulties and a completely new mari-
time distress and safety system is expected to be introduced
in the early 1990s.

The basic concept of the FGM DSS is that shore search and
rescue authorities as well as ships in the vicinity of a
distress situation, will be rapidly alerted to the distress
incident and be capable of being involved in a coordinated rescue operation. The concept applies to all cargo ships and passenger ships on international voyages regardless of their geographical location. Additionally, the system will provide for urgency and safety communications, as well as the dissemination of navigational and meteorological information to ships.

The system will use both satellite and terrestrial communications. Satellite communications will be provided by INMARSAT. A distress capability for alerting by satellite EPIRBs will be provided by INMARSAT geostationary satellites as well as by polar orbiting satellites.

To use this system to its full potential it will be necessary to introduce greater shore authority involvement in distress response, improve long range terrestrial communications, including the use of digital selective calling systems and to establish an international search and rescue infrastructure.

The introduction of the FGM DSS will greatly improve radio-communications at sea, especially for distress purposes, but electromagnetic technology has several other applications which are relevant to rescue at sea.

Chances of survival following an accident at sea depend upon help arriving in time. (See Annex 2)
CHAPTER 2

EXAMPLES OF SAR IN DEVELOPED NATIONS
2.1 SWEDEN: *

2.1.1 The Swedish Maritime Search and Rescue Organization
(See Annex 3 and 4)

Background:
Since 1871 the National Swedish Administration of Shipping and Navigation has been responsible for the SAR-service around the Swedish coast.

The Administration does not perform all the operations by itself but has through an agreement with seven other organizations formed the Swedish Maritime SAR-service.

Legislation:
Sweden has signed both the IMO-SOLAS convention and the IMO-SAR convention and have by that undertaken an international responsibility to give a high-quality service in its area of responsibility.

All Swedish shipmasters are by paragraphs in the sea-law obliged to give assistance to anybody in an emergency at sea.

National Agreement:
The latest national agreement was made in 1981 and is based upon the IMO-SAR convention.

The contracting parties are:

The National Administration of Shipping and Navigation
The Telecommunications Administration
The Customs Coast-Guard
The Navy

* This study was brought from points 13 and 14 on pages 75 and 76.
The Air-Force
The Police
The Board of Civil Aviation
The Sea Rescue Institution

The different organizations have agreed on to participate with suitable resources such as ships, helicopters, fixed-wing air-craft, radiostations, radar-installations and personnel.

International Agreements:
As recommended in the IMO-SAR convention, Sweden is in the process of making agreements with its neighbouring states. Sweden takes part both in the SAR-plan for the Baltic Sea and the North Sea. A complete agreement has been reached with Finland and a substantially complete agreement with the Soviet Union.

Alerting:
The various means of alerting are:

- Telephone 90 000 direct to the appropriate MRCC (Maritime Rescue Coordination Center).

- The international radio distress frequencies which are monitored in the MRCC.

- Citizen band radios monitored by pilot stations, coast-guard communications centers, police-stations.

- Emergency radio stations placed on islands working on VHF and citizen bands.

Coordination:
The MRRCs work by plans and instructions set out by the Shipping Administration and according to the IMO-
SAR convention. The operations are handled by specially trained SMCs (SAR Mission Coordinators).

The MRCCs and MRSCs are:

- MRCC-North
- MRCC-East
- MRCC-West
- MRSC-Tingstäde
- MRSC-Karlsham
- MRSC-Dresund
- MRSC-Öresund

Operated by the Telecommunications Administration
Operated by the Navy
Operated by the Coast-Guard

The MRCCs and MRSCs always have direct communication with their units on MF or VHF radiotelephony. They are also equipped with telex and facsimil.

The units engaged in an operation should follow the plan laid out by the SMC as long as it does not create any danger to the unit.

Training:
Since 1979 the Shipping Administrations SAR-school on Arkö has been offering SAR-training to all SAR-personnel.

The school also offer training-courses in basic safety according to IMO requirements. In the present work by IMO to standardize international SAR-training programmes the Shipping Administration has declared that the school can undertake training for foreign students.

2.1.2 The Swedish Coast Guard (See Annex 5)

2.1.2.1 Mission:

The main tasks are:
The Supervision and Law Enforcement such as:

- Interests of territorial waters.
- Customs regulations in the coastal area.
- Military protected areas.
- Fishery within the fishing zone.
- Sea traffic in navigable waters.
- Continental shelf activities.
- Dumping.

The Search and Rescue and Marine Environmental Protection of which:

- Surveillance and monitoring.
- Abatement of marine pollution at sea and in coastal waters.

The Oceanographic Observations

2.1.2.2 Organization:

On the central level - the Board of Customs - the command is held by the Head of the Coast Guard, the Commodore, from the Coast Guard Head Quarters (CGHQ).

The Coast Guard field organization is divided into four regions comprising together fifteen Coast Guard districts. A Coast Guard district includes 2-4 Coast Guard stations. The regional command is held by a Coast Guard Commander in each of the regional Customs administrations in Sundsvall, Stockholm, Malmö and
2.1.2.3 Equipment:

The Coast Guard fleet comprises some 130 vessels of mainly the following kinds:

- Coast Guard cutters for routine surveillance at sea and in coastal waters.
- Specialized oil combating vessels and workboats.

For general airborne surveillance the Coast Guard has three aircraft equipped with automatic camera systems and remote sensing equipment based on Side Looking Airborne Radar (SLAR) and IR/UV-line scanner.

2.1.2.4 Coordination:

The Coast Guard Maritime Communication Network is based on nine Communication and Coordination Centres (CCC).

The communication net comprises radio-equipment for all maritime and aircraft frequencies in question.

All the CCCs have telex and telefax equipment. Some CCCs have data terminals providing direct access to fishery and chemical data bases. The CCCs are equipped with radar for surveillance of the sea surroundings.
2.1.2.5 Working Methods and Flexibility:

The Coast Guard activities are characterized by "24 hours a day operations". Available working hours are planned in such a way that there are always Coast Guard units on duty in each region. Most activities are directed towards certain tasks.

Each master of a Coast Guard vessel has the permission to change planned activities when called for. This enables immediate diverting of any unit to unforeseen assignments with higher priority, e.g. search and rescue operations or oil pollution combating.
2.2 NORWAY *

2.2.1 The Norwegian Search and Rescue Organization:

In Norway, the Ministry of Justice takes the administrative responsibility for the Search and Rescue Service and the Police retain the operation responsibility for carrying out the missions.

- Cooperation:
  A search and rescue mission is normally performed as a cooperative endeavor, the participants being government agencies, voluntary organizations and private firms with the necessary resources at their disposal.

- Coordination:
  The Police has been entrusted with the responsibility of coordinating all search and rescue activities in any given emergency.

- Integration:
  The Norwegian Search and Rescue Service is fully integrated in the sense that it comprises all sorts of search and rescue activities, be it at sea, on land, or in the air.

2.2.2 The Command Structure:

The Norwegian Search and Rescue Service has a two-tier command structure consisting of:

Two main Rescue Coordination Centers, one each for

* This study was brought from point 9, page 75.
the southern and northern part of the country respectively, and fifty-five Rescue Subcenters, one for each Police district.

At major airports and at some military air bases a total of sixteen Air Rescue Centers are located. These are obliged to initiate a search action as soon as an aircraft has been reported missing. After the action has been initiated, the main Rescue Subcenter will take charge, depending on the nature of the search action.
2.2.3 The Rescue Coordination Centres:

The two main Rescue Coordination Centres (RCCs) are located at Stavanger and Bodo. They have operative responsibility for their part of the country, north and south of the 65th parallel respectively.

The Rescue Coordination Centre is led by a team consisting of the chief of the Police at Stavanger and Bodo respectively - main body - representatives for the Armed Forces, the Communications Administration, and the Air Control Service. In addition numerous consultants have been appointed who may be called upon on demand.

The RCCs have direct access to all participants in the Search and Rescue Service. This enables the RCCs to process the incoming emergency calls in the most efficient way possible. The modern equipment facilitates the coordination and execution of even the largest actions.
Organization of Main Rescue Coordination Center (RCC)

- Chief of Police (Chairman)
  - Navy
  - Air Force
  - Air Control
  - Communications Administration
  - Health Authorities

RCC Permanent Staff

Advisors

- Norwegian Society for Sea Rescue
  - Red Cross
  - Norsk Folkehjelp Sanitet
  - Various Organizations

Permanent Professionals
Senior Rescue Control
Rescue Controllers
The Rescue Subcentres:

The RSCs have an executive committee headed by the Chief of the Police and a number of advisors who have been appointed. The RSCs are manned by Police officers and others who may be of use.

The local sheriffs will often act as on scene commanders in areas where actions take place. Normally the actions are coordinated from the Rescue Subcentre at the local Police headquarters.

**Organization of Local Rescue Subcentre (RSC)**

- Chief of Police (Chairman)
- Fire Brigade
- Health Authority
- Harbor and Pilot Service
- Armed Forces
- Telecommunications Administration
- Air Control

Representatives of various agencies and institutions appointed by the Chief of Police.
The Air Rescue Subcentres:

These centres are established at the main airports and Air Force bases. They are led by the senior air traffic controller and manned by air traffic controllers and various advisors when required. The RSC (Air) will immediately upon receipt of information concerning aircraft in distress, notify the RCC, initiate appropriate action according to regulations, and direct the operation until the RCC itself assumes control or decides that an RSC (Police Headquarters) take over.

2.2.5 Resources:

Considerable resources are at disposal of Norway's Search and Rescue Service. These can be divided in three: Public resources, voluntary organizations and private firms.

Public Resources:

- The Police Force
- The Armed Forces
- The Royal Norwegian Air Force
- The Royal Norwegian Navy
- The Civil Defence
- The Public Health Service and the Ambulance Service
- The Municipal Fire Departments
- The Civil Aviation Administration
- The Norwegian Telecommunications Administration
- The Pilot Service
- The Weather Service, etc.
Voluntary Organizations:

- The Norwegian Society for sea rescue
- The Norwegian Red Cross
- Norsk Folkehjelp Sanitet
- Norwegian Radio Relay League, etc.

Private Firms:

- Helicopter Service Inc.
- Lufttransport Inc., Tromso
- Civilian Air Lines, etc.
CHAPTER 3

THE CASE OF ALGERIA
3.1 COLLISION STATISTICS OF THE MEDITERRANEAN SEA AND THE STRAIT OF GIBRALTAR

The Strait of Gibraltar is considered as a coastal region with a high traffic density. In 1978 the flow of traffic through the Strait of Gibraltar was found to be of the order of 100-150 ships per day.

The total number of ships of over 100t. which are known to have been involved in a sea collision in the five-year period of 1976-1980 are 728.

The regional total of collisions for the five-year period in the Mediterranean Sea and the Strait of Gibraltar are:

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<td>The Mediterranean Sea</td>
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<td>31</td>
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Source: See point 10 page 75.

The increase of collisions occurring off the Mediterranean Sea and the Strait of Gibraltar can be attributed to the growth of international and coastal trade and the considerable increase of ships. The proportion of collisions in restricted visibility has been of the order of 60 percent or more in the coastal region of the Strait of Gibraltar.

It is also sad, that for collisions known to have occurred in clear visibility the number of collisions occurring in
darkness is approximately three times the number of accidents occurring in daylight. In restricted visibility, collisions occur as frequently in daylight as in darkness. In conditions of clear visibility the higher incidence of collisions was found to apply evenly throughout the period of darkness. The incidence during the period of twilight does not appear to be greater than during the period of darkness.

In spite of everything that has been done, accidents, unfortunately still occur from time to time. Ships may be seriously damaged or even sink in such accidents, and lives may be lost.
Various Organizations and Administrations are concerned with the Search and Rescue. They are participating, with the resources which are at their disposal. Those are:

- The National Coast Guard Service (SNGC: Service National des Garde Cotes).
- The Towing Service.
- The National Civil Protection Service.

However, it is necessary to add other establishments which are participating too but in an indirect manner and those are:

- The Coast Radio Stations of the Ministry of Telecommunications.
- The Maritime Services of the Regional Directorates of Maritime Affairs (SMDTW: Services Maritimes des Directions de Transports de Wilaya).

We will attempt to see the attributions of each service; how the co-ordination is carried out and what the resources at disposal of each organization involved are.

3.2.1 The National Coast Guard Service

The article 3 of the Ordinance No.: 73-12 of 3 April, 1973, relative to the creation of the National Coast Guard Service stipulates "... it participates to the assistance and salvage at sea".
3.2.1.1 Organization of the National Coast Guard Service

- Ghazaouet - Algiers - Bejaia
- Benisaf - Dellys - Jijel
- Oran - Tipaza - Skikda
- Arzew - Cherchell - Annaba
- Mostaganem - Tenes - El-Kala

* M.D.: Maritime District

3.2.1.2 The Resources:

The resources which are at the disposal of the National Coast Guard Service are those which previously were headed by the Maritime Registration Service of the Ministry of Transport and the Naval Service of Customs of the Ministry of Finance.

Consequently, according to this new Service,
a certain number of units were distributed along the littoral and by stations in order to participate in assistance and salvage at sea in case of need.

Assessment of Resources:

<table>
<thead>
<tr>
<th>Maritime Stations</th>
<th>Maritime Stations</th>
<th>Maritime Stations</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEST</td>
<td>CENTER</td>
<td>EAST</td>
</tr>
</tbody>
</table>

Oran : 3 Units  Alger : 4 Units  Annaba : 2 Units  
Arzew : 1 Unit  Dellys : 1 Unit  Skikda : 1 Unit  
Mostaganem : 1 Unit  Tenes : 1 Unit  Bejaia : 1 Unit  
Benisaf : 1 Unit  Tipaza : 1 Unit  Jijel : 1 Unit  
Ghazaouet : 1 Unit  Cherchell : 1 Unit  Elkala : 1 Unit

3.2.2 The Towing Service

Besides the normal port activity, the Towing Service is in charge of assisting ships in case of danger and participating in the salvage of lives at sea. The latter activities need in fact adequate and operational means.

How does this service contribute and how can it be involved in assistance and salvage according to the resources which are at its disposal?

3.2.2.1 Assessment of the Means

At the present time, the Towing Service has 31 tugs from different powers distributed along the main ports (See Annex 8).
The assessment of tugs is a function of the traffic which could exist in the main ports.

3.2.2.2 Intervention Procedure in Case of Distress Call

The Towing Service can receive distress calls in different manners:

- Either by the tugs directly because they are equipped for the purpose.
- Or by the various Radio Stations of the Ministry of Telecommunications which in turn retransmit the distress calls directly to the Towing Station and the nearest Maritime Station of Coast Guard.
- Or through the Port Authority.

Once the distress call is received, the Towing Station takes the necessary measures for a quick and efficient intervention.

3.2.3 The National Civil Protection Service

Among the responsibilities of the National Civil Protection Service, the safety for the bathing on beaches is precisely defined by the Decree Number: 64-129 of 15 April 1964 relative to the Administrative Organization of the Civil Protection, and by the Order in Council decided conjointly by the Ministry of the Interior. The latter fixed the particular rules which must be adopted in order to ensure and protect the bathing on beaches.
If the prerogatives of the Civil Protection are extended along the littoral in collaboration with the Communes and Prefectures (APC and APW), then its intervention in open sea, on the contrary, is limited. Indeed, the National Civil Protection Service is not equipped with naval means which could permit a quick and efficient intervention beyond 300 metres from the shore.

But, the collaboration of this service is always required by the maritime services, because of the fire fighting and drainage equipment which is in its possession.

3.2.4 The Radio Stations of the Ministry of Telecommunications

At the present time three main radio stations exist along the Algerian Littoral:

- West Main Radio Station of Oran
- Centre Main Radio Station of Algiers
- East Main Radio Station of Annaba

Furthermore, there are three secondary radio stations in Bejaia, Arzew and Skikda.

Those six Radio Stations ensure permanent watchkeeping during day and night.

The principal duty of those stations is to catch every "distress call" and to transmit it to the administrations concerned.
3.2.5 The Sub-Directorates of Maritime Affairs of Prefectures (APW)

By Ordinance No.: 73-12 of 13 April, 1973, concerning the creation of the National Coast Guard Service (SNGC), it is stipulated in article 14 that: "the naval equipment previously into possession of the Maritime Registration are devolved to the National Coast Guard Service".

This article limits the attributions of the Maritime Affairs of the Ministry of Transport which can not intervene any more at sea. When this service receives a "distress call", it is transmitted to the Towing Service or to the Coast Guard Service. Those two services are equipped to intervene at sea.

3.2.6 Co-ordination Between the Services Involved in Salvage and Assistance

There is no relationship and no co-ordination procedures between the Towing Service and the National Coast Guard Service when a distress call is transmitted to those two services.

On the contrary, there is a substantial collaboration, even exceptional, between the Towing Service and the National Civil Protection Service. The example given is the case when the tanker "Augi" was brought back from open sea by two tugs. Because of the lack of fire fighting equipment, when the Towing Service asked the Civil Protection Service for assistance, the latter provided not only the adequate means but also the specialized people needed.
3.2.7 Partial Conclusion

What we have seen from various organizations and administrations involved in the salvage of persons at sea, we are tempted to say that its organization is incongruous and does not reflect its importance.

Indeed, regarding the National Coast Guard Service, and according to the Ordinance of its creation, this Service is not in charge of the assistance and salvage, but it participates only according to the resources at its disposal. The latter can give salvage to the crew only when it is permitted by the weather condition because of the small units involved. However, the advantage of this Service, is that it covers all the littoral with various Coast Guard Stations. But in fact twenty small units from the Coast Guard, besides their traditional duties as the control of the coast, control of the safety of navigation, control of the fishing areas, etc..., can not provide the total need for assistance and salvage quickly and efficiently. Consequently, the neuralgic items in the matter of assistance and salvage along 1,200 Kms. of coast are not covered in an efficient manner by the National Coast Guard Service.

Regarding the organization of the Towing Service, the secondary ports which are in the vicinity of the main ports are not taken into consideration and if we look at the purpose of tugs, not all of them are able to take high seas and the activities in the salvage of lives at sea need in fact adequate and operational means which those vessels are not equipped with. These statements leave to suppose
that the Towing Service in question is not able to act alone in the assistance and salvage neither of lives nor ships.

The Civil Protection Service can not take part in salvage and assistance in a real intervention because the action of this Service is limited to the beaches and a fringe of 300 metres.

The Radio Stations of the Ministry of Telecommunications remain a unique service which operates efficiently because only a small number of personnel is involved.
CHAPTER 4

ATTEMPT TO CREATE AN ORGANIZATION OF SEARCH AND RESCUE IN ALGERIA
4.1 INTRODUCTION

In order to avoid the difficult problem concerning the organization, which arose in Chapter 3, it is advisable to suggest the creation of an organization for the conduct of search and rescue. This organization in order to be operational and efficient must have the power at a national level.

Indeed, this body, in addition to an adequate organization which must reflect certain principles of safety and safekeeping, assumes a huge means in order to reach the fixed objective, which is the coverage of the areas at sea for search and rescue purposes, both for persons and ships.

To intervene rapidly, this assumes not only naval units, but also air-means which must be combined with the former when the necessity is required. This signifies that the creation of a structural organization must be established.

In addition, to be operational, this organization must have not only regional centres in charge of the co-ordination at that level, but also secondary centres endowed with equipment for transmission and communication in order to "catch" and transmit all the "distress calls" within an area of responsibility already fixed.

The fullness of the task, the financial means and equipment needed for operating such an organization with its various services can hardly appear feasible immediately. That is the reason why the organization must in the first step, ask for the collaboration from other organizations endowed with naval and air equipment in order to give contribution.

The organization in question must be set up according to this principle.
4.2 THE ADMINISTRATIVE DIVISION OF THE LITTORAL (See Annex 9)

As we said, this organization is not going to be equipped with an enormous amount of naval means, it will receive the contribution from other institutions interested in search and rescue to some extent. But it will be equipped with air means which can contribute either to the search in case of distress or to the surveillance of particular areas of traffic.

Therefore, the administrative division of the littoral will take two factors into consideration:

- The existing administrative division; that means the various stations of the Coast Guard Service and the stations of the Towing Service.

- The site of small airports which could receive aeroplanes and helicopters. The Air-Force could also intervene quickly under the demand of the organization coordinating the actions of search and rescue.
4.3 ORGANIZATION

4.3.1 Organization of Search and Rescue:

The structure of the organization must cover a certain number of requirements due not only to the traffic at sea in general, particularly the traffic of tankers and gascarriers, but also the traffic of small fishing boats and pleasure boats which are passing along the coast within a mile of distance from the shore.

The organization will be established permanently on the coast in the middle of the littoral and it will be a "central" of information as well as a principal centre for the co-ordination at a national level. Accordingly, it will be equipped with means for transmission and communication which will permit the entering into contact with all the administrations and institutions already programmed in the working plan and which are able to provide the necessary help. It will be able to receive "distress calls" and communicate with the regional centres created precisely for this purpose.

Furthermore, a close collaboration must exist between the organization itself and all the services attached as being part of the general organization for search and rescue (the Coast Guard Service, the Towing Service, ...).

Therefore, it will be asked of those services to communicate the positions at sea of the vessels gradually according to certain intervals of time and certain procedures which should be defined later on by the
organization in question.

The coastal stations of those services (SNGC & CNAN) will also communicate information about their floating means to the various centres of search and rescue.

This collaboration is necessary because, according to the area of responsibility of search and rescue, the organization or the various centres could manage to send those floating means to the determined area of distress and to rally towards the point by ships and airplanes if any cruising in those areas.

Therefore, this organization will be a "nerve centre", the head where all the "distress calls" will be caught and transmitted. It will be the general co-ordinator of all regional centres for the co-ordination in search and rescue situated along the coast.

4.3.2 Regional Centre of Co-ordination:

The organization of search and rescue must have at its disposal operational centres able not only to intervene at a determined point, either according to the demand of the organization itself, or at the proper initiative, but also to insure the co-ordination of operations during an intervention at a regional level.

Those centres must be established in so called "strategic areas", which means where the traffic at sea is dense. The number of co-ordination centres depends upon the extent of the littoral
considered. There could be a great many centres connected with a secondary centre which, for the purpose, could be created. When needed they could also be numbered, the Centre of Co-ordination 1, being the Principal Centre susceptible to attending to advising or to conducting all operations.

At their disposal, they must have sufficient means in communication field to be able to catch "distress calls", either by their own means, or through Radio Stations or through other means:

Moreover, they must be able to communicate with the Principal Centre and with the various secondary centres created for this purpose.

4.3.3 Secondary Centre of Co-ordination:

The centres will be created, possibly according to the importance of the areas frequented, particularly by small fishing boats and pleasure boats which are passing along the coast. Those secondary centres must have at one's disposal sufficient means to communicate either with the regional centre on which it is depending or with the head and the other secondary centres which are in the same area.

The mission of those secondary centres, is to provide a direct first aid to every ship, fishing boat or pleasure boat in difficulty and to await for the possible expected intervention from the regional centre which could co-ordinate all the interventions in its sector, notifying if needed, other centres.
4.3.4 Trusteeship:

At present it is not necessary that a special organization for search and rescue must be set up in a self-sufficient manner, having at its disposal its own means. The most important principles are the creation of the permanent structure with the designation of the responsible authorities, the definition of liaisons and procedures, and furthermore the creation and implementation of centres endowed with materials and resources as well as the organization of telecommunications.

All the services concerned with the various institutions susceptible to participating in an efficient cooperation to all the possible operations of search and rescue will be drafted to the permanent structure.

Regarding the trusteeship of the permanent structure, two possible alternatives are available:

- **First alternative:** The trusteeship will be assured by the National Coast Guard Service because of the material means which are at its disposal and also the liaisons with services of the Ministry of Defence, able to provide assistance in airplanes and helicopters. But this should be set up with the fundamental cooperation of the Ministry in charge of the merchant fleet.

- **Second alternative:** The trusteeship will be the responsibility of the Ministry in charge of the merchant fleet, because it is the first
interested party, with the fundamental co-operation of the Coast Guard Service for the same reasons enumerated in the first alternative.

Because of the effective existence of maritime stations of the Coast Guard all along the littoral, the first alternative seems to be easy to implement and therefore this will be considered during the remaining study.

The regional centres will be directly attached to the organization while the secondary centres could be assimilated to the actual Maritime Stations of the Coast Guard Service.

The area of action of the organization and its centres comprises the whole Algerian coast. In open seas, the organization will intervene in the collaboration of the Navy, possibly coordinating the means of the various services or administrations able to give assistance.
4.4 PRACTICAL MEASURES

4.4.1 Requirements for Information:

Each regional centre shall have up-to-date information relevant to search and rescue operations available in its area including information regarding:

- Rescue units and coast watching units.
- Means of communication that may be used in search and rescue operations.
- Any other public and private resources, including transportation facilities and fuel supplies, that are likely to be useful in search and rescue operations.
- Names, cable and telex addresses, telephone and telex numbers of agencies who may be able to assist in obtaining vital information of vessels.
- The locations, call signs, hours of watch and frequencies of all radio stations likely to be employed in search and rescue operations.
- Locations where supplies of droppable emergency survival equipment are stored.

Furthermore, each regional centre should have ready access to information regarding the position, course, speed, and call signals of vessels within its area, as the regional centre may be able to provide assistance to vessels or persons in distress at sea. This information shall either be kept in the regional
centre or be readily obtainable when necessary.

4.4.2 Operating Plans or Instructions for the Conduct of Search and Rescue Operations:

Each regional centre shall have available detailed plans or instructions for the conduct of search and rescue operations in its area.

Those plans or instructions shall specify arrangements for the servicing and refuelling, to the extent possible, of vessels, aircraft and vehicles employed in search and rescue operations.

Furthermore, the plans or instructions should contain details regarding action to be taken by those engaged in search and rescue operations in the area, including:

- The manner in which search and rescue operations are to be conducted.

- The action to be taken jointly with other regional centres.

- The methods of alerting vessels at sea and en route aircraft.

- The duties and authority of personnel assigned to search and rescue operations (see p. 4.4.5).

- The methods of obtaining such assistance from other regional centres as may be needed, including vessels, aircraft, personnel and equipment.
4.4.3 Operating Procedures:

A coastal radio station receiving any distress calls or messages shall:

- Immediately inform the regional centre of its area.

- Rebroadcast to the necessary extent in order to inform ships on one or more of the international distress frequencies or any other appropriate frequency.

Furthermore, any authority or element of the search and rescue organization having reason to believe that a vessel is in a state of emergency should give all available information as soon as possible to the regional centre or secondary centre concerned.

Regional centres and secondary centres shall immediately upon receipt of information concerning a vessel in a state of emergency evaluate such information and determine the phase of emergency it is in.

4.4.4 Emergency Phases:

For operational purposes, three emergency phases should be distinguished:

- **Uncertainty phase:**
  When a vessel has been reported overdue at its destination or when it has failed to make an expected position.
- **Alert phase:**
  When following the uncertainty phase, attempts to establish contact with the vessel have failed and inquiries addressed to other appropriate sources have been unsuccessful; or when information has been received indicating that the operating efficiency of a vessel is impaired.

- **Distress phase:**
  When positive information is received that a vessel or a person is in grave and imminent danger and in need of immediate assistance; or when following the alert phase, further unsuccessful attempts to establish contact with the vessel points to the probability of the vessel being in distress.

### 4.4.5 Duties and Authority of Personnel:

### 4.4.5.1 Regional Centre Chief:

The role of the Regional Centre Chief is to ensure, that when an incident occurs, the SAR operation can be promptly performed. Therefore he should:

- Ensure that the plan of operations covers all situations likely to arise and is maintained up-to-date and that sufficient trained personnel are available.

- Develop detailed procedures with neighbouring regional centres.

- Make arrangements for servicing and fuelling of aircraft, ships and craft
made available by the various agencies.

- Ensure that all operations are recorded in detail and that they are reviewed and appraised.

4.4.5.2 Regional Centre Staff:

The staff of a Regional Centre performs administrative and operational duties. The administrative duties are concerned with maintaining the Regional Centre in a continuous state of readiness. The operational duties are concerned with the efficient conduct of a SAR operation or exercise. Therefore, the staff should consist of personnel who are experienced and trained in SAR operations.

In cases where the Regional Centre does not maintain a continuous watch, provision must be made to enable stand-by Regional Centre staff to be mobilized rapidly.
CHAPTER 5

RECOMMENDATIONS
An obvious question one should try to answer is why should countries co-operate? Countries like individual human beings can have problems in common and similar interests in various matters, consequently, circumstances put them in such a situation that in order to solve those problems or because of the common interests, co-operation become essential and even necessary.

In some geographical regions of the World, neighbouring countries have established regional arrangements which operate successfully, they have agreed on links of communications and have accepted standard procedures and areas of responsibility for co-ordination and control in cases of distress. Exchange of personnel and frequent contact between those responsible for operating the search and rescue services, assist to resolve operational difficulties which might arise and contribute to the effectiveness of the regional system.

Agreements with neighbouring States are also recommended for the pooling of facilities such as the establishment of common procedures; the conduct of joint training and exercises; regular checks of inter-state communication; liaison visits by RCC personnel; and exchange of search and rescue information.

Chapter 3 of the International Convention on Maritime Search and Rescue, 1979 also recommends that parties should co-ordinate search and rescue operations with those of neighbouring States.

However, it is recognized in the SAR Convention that it will not always be possible for all parties to reach agreement, in which case they shall use their best endeavours to
reach agreement on appropriate arrangements which would provide equivalent overall co-ordination of search and rescue services.

An example of a possible agreement in search and rescue between Algeria and Spain is given on the following page. This agreement could be considered as a study case.
5.2 AGREEMENT ON CO-OPERATION REGARDING MARITIME SEARCH AND RESCUE SERVICES BETWEEN ALGERIA AND SPAIN
(See Annex 10)

In order to cover the whole south-western part of the Mediterranean Sea, agreements based on the same principles, should be made between all the countries concerned in the sub-region.
AGREEMENT ON CO-OPERATION REGARDING MARITIME SEARCH AND RESCUE SERVICES BETWEEN ALGERIA AND SPAIN

This Agreement applies to the co-operation between the Algerian Search and Rescue Service and the Spanish Search and Rescue Service in respect of maritime search and rescue services within the areas mentioned below:

Article 1, Area

The area where this Agreement on co-operation is to be applied covers the southwestern part of the Mediterranean Sea. The rescue area of each state extends from the coastline to the borderline between the two states settled by the points: 35°55.0 N, 002°11.0 W; 37°36.0 N, 001°22.3 E; 37°59.0 N, 002°56.0 E; 37°56.0 N, 008°41.0 E.

The borderline mentioned in this Article shall not affect other borderlines defined or being defined in the future between the two states.

Article 2, Alerting

Alarm request for assistance or participation of the search and rescue organizations of the other party is made by the Algerian party by the Principal Centre for Co-ordination (RCC Algers) to the Rescue Co-ordination Centre Palma de Mallorca (RCC Son Bonat) and by the Spanish party by the Rescue Co-ordination Centre Palma de Mallorca (RCC Son Bonat) to the Principal Centre for Coordination (RCC Algers).

Article 3, Co-ordination and Participation

Search and rescue operations within the Spanish rescue
areas are co-ordinated by the appropriate Spanish Rescue Co-ordination Centre (RCC) and search and rescue operations within the Algerian rescue areas by the appropriate Algerian Rescue Co-ordination Centre (RCC), if not otherwise agreed at the time of the accident.

If the situation calls for such an arrangement, the rescue co-ordination centre may agree on other forms of co-operation and on other forms of distribution of responsibility and work.

The borderline between the rescue areas of the two States mentioned in Article 1 should in no respect be an obstacle to joint co-operation in rescue operations between the two States.

**Article 4, Exchange of Information**

Both parties shall exchange information on the location of rescue units and equipment, performance characteristics and availability, and shall also exchange operation plans and lists of actions to be taken to deal with different kinds of accidents.

**Article 5, Exercises**

The parties shall, alternately, arrange a maritime search and rescue exercise each year. The exercise shall be based upon estimated risks or accidents occurred. The purpose of the exercise shall be to train the maritime rescue organizations of the two countries in working together.

**Article 6, Meetings of Representatives**

Representatives of the authorities responsible for the
Article 7, Languages

During joint rescue operations, exercises and meetings the English language will be used primarily and secondly the French language.

Article 8, Operating Costs

Each party covers the part of the operating costs connected with that party's participation in accordance with this Agreement.

Article 9, Validity

This Agreement enters into force when it has been signed by representatives of the responsible authorities of the parties and remains in force two years from the date of its entry into force. The period of validity of the Agreement will be automatically extended by two years at a time if the Agreement is not denounced by one of the parties at least three months prior to the expiry of the period of validity.

Article 10

This Agreement is in duplicate, one copy in the Spanish language and one copy in the Arabic language, both texts
being equally authoritative.

Algers, .......... 1987

For the Algerian Search and Rescue Service

For the Spanish Search and Rescue Service

(Signature) (Signature)

Note: Admission

Both parties shall make the preparations efficient in order to ensure that units of the maritime or aeronautical rescue organization of the other State are admitted to the territory of the party. The request for such admission shall be made to the rescue co-ordination centre (RCC) of the respective State in the same way as described in Article 2 of this Agreement.
5.3 **TRAFFIC SEPARATION ZONES** (See Annex 11)

The eventual establishment of VTS unit(s) and Traffic Separation Zones along the coast will greatly help in the reduction of accidents.

Because of the lack of traffic separation zones and non-reviewed anchorage areas, a great many of accidents occur at sea within the territorial waters.

If we consider the total traffic in the direction east-west, within the Mediterranean Sea, almost all the traffic occurs along the Algerian coast. This is because of the geographical situation of this country. Consequently, the establishment of traffic separation zones, appears to be necessary and even vital.
CONCLUSION

To fulfill the obligations under the SAR Convention is definitely not an easy task for a developing maritime nation such as Algeria. As a pre-requisite, heavy financial investments and highly specialized human resources are needed for the establishment of a SAR organization.

As previously mentioned in this paper, it is estimated that for a country like Algeria, which is a party to the Convention, it is not necessary immediately to set up a special organization for SAR purposes which needs to be heavily equipped in order to cope with its goals, as in the particular case of Norway and Sweden which are traditional maritime nations. But it is considered to be most vital to establish the foundation for a permanent structural organization with minimum means and to which the various services and administrations liable to give any possible assistance in this context will be complementing.

The inherent weakness of the present structure in the field of search and rescue is not only due to the inadequacy of the existing means but mainly due to the absence of a proper authority capable of asserting itself as a responsible body at all levels in this particular domain.

In fact, if there is a lack of adequate means, on the other hand, those existing are considered to be valuable and their respective operation is actually suffering from a shortage of good organization and from proper co-ordination between the various services involved in the Search and Rescue as well.

However, the latter lack could be reduced and even eliminated by the establishment of a training school which would give the possibility to attend short training courses for two weeks once or
twice a year in order to keep the SAR people ready for operations at any time. Furthermore, it would give them the opportunity to know each other and attend meetings all together and to discuss search and rescue matters.

The numerous shipwrecks, in particular the small fishing-boats that do not come back to their respective home ports considered to be a consequence of the non-existence of the above mentioned Authority.

Therefore, the setting up of the body in question is imperative and most vital in view of the development of the merchant fleet and the fishing fleet but also because of the very dense traffic along the Algerian Coast whereby the non-existence of traffic separation zones leads to an increased probability of accidents with the possible consequential losses of human lives at sea.

This particular body will embrace several regional and secondary centres whose main objective will be to search and save lives in distress.

Moreover, in order to have rapid and efficient intervention for SAR operations, it is therefore recommended to co-operate with neighbouring States in view to conclude agreements concerning the bringing together of their respective means, the elaboration of common procedures, exchange of information, the flexibility of formalities concerning the crossing of territorial waters and provision for reciprocal assistance for SAR operations.

From the foregoing, it can be seen that this paper has stressed some problems involved and has also highlighted the vital need for the setting up of an organization. However, I wish to
point out that I do not pretend by no means that this study is exhaustive by itself and has covered all the various issues leading to possible solutions in the domain of SAR for Algeria.
Annex 1: Coverage of the LUTs (Local User Terminals)

Source: See point 11, page 75.
Annex 2: Coverage in the FGMDSS

Source: See point 11, page 75.
Annex 3: The Swedish Maritime Search and Rescue Organization

Source: See point 13, page 75.
Annex 4: Areas of Responsibility

Source: See point 13, page 75.
Annex 5: The Tasks of the Swedish Coast Guard

Source: See point 14, page 76.
Annex 6: Organization Chart for the Norwegian Search and Rescue Services

Source: See point 9, page 75.
Annex 7: Assessment of Means in the Actual Organization

- Maritime District
- Maritime Station
- Main Radio Station
- Secondary Radio Station
- Towing Service
Annex 8: Towing Service: Assessment of Means

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</table>

Source: See point 20; page 76.
Principa Co-ordination Centre
Regional Centre of Co-ordination
Secondary Centre of Co-ordination
SAR Units

Helicopter and aeronautical means
Towing Units
Annex 10: Establishment of a Maritime Search and Rescue Border Between Spain and Algeria Based on the Proposed Agreement.
Annex 11: Tracks in the Western Mediterranean Sea
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>IMO</td>
<td>International Maritime Organization</td>
</tr>
<tr>
<td>SOLAS</td>
<td>International Convention on Safety of Life at Sea</td>
</tr>
<tr>
<td>SAR</td>
<td>Search and Rescue</td>
</tr>
<tr>
<td>INMARSAT</td>
<td>International Maritime Satellite Organization</td>
</tr>
<tr>
<td>FGMDSS</td>
<td>Future Global Maritime Distress and Safety System</td>
</tr>
<tr>
<td>SARSAT</td>
<td>Search and Rescue Satellite System</td>
</tr>
<tr>
<td>COSPAS</td>
<td>URSS equivalent system SARSAT</td>
</tr>
<tr>
<td>EPIRB</td>
<td>Emergency Position-Indicating Radio Beacon</td>
</tr>
<tr>
<td>ELT</td>
<td>Emergency Locating Transmitter</td>
</tr>
<tr>
<td>RCC</td>
<td>Rescue Coordination Centre</td>
</tr>
<tr>
<td>RSC</td>
<td>Rescue Sub-Centre</td>
</tr>
<tr>
<td>LUT</td>
<td>Local User Terminal</td>
</tr>
<tr>
<td>CNAN</td>
<td>Compagnie Nationale Algerienne de Navigation (Algerian Shipping Company)</td>
</tr>
<tr>
<td>APC</td>
<td>Assemblee Populaire Communale (Commune)</td>
</tr>
<tr>
<td>APW</td>
<td>Assemblee Populaire de Wilaya (Prefecture)</td>
</tr>
<tr>
<td>VTS</td>
<td>Vessel Traffic Service</td>
</tr>
<tr>
<td>SNGC</td>
<td>Service National des Garde Cotes (National Coast Guard Service)</td>
</tr>
<tr>
<td>MRCC</td>
<td>Maritime Rescue Coordination Centre</td>
</tr>
<tr>
<td>MRSC</td>
<td>Maritime Rescue Sub Centre</td>
</tr>
<tr>
<td>SMC</td>
<td>SAR Mission Coordinator</td>
</tr>
<tr>
<td>VHF</td>
<td>Very High Frequency</td>
</tr>
<tr>
<td>MF</td>
<td>Medium Frequency</td>
</tr>
<tr>
<td>SLAR</td>
<td>Side Looking Airborne Radar</td>
</tr>
<tr>
<td>CCC</td>
<td>Communication and Coordination Centre</td>
</tr>
<tr>
<td>IR/UV</td>
<td>Infra Red/Ultra Violet</td>
</tr>
</tbody>
</table>
REFERENCE

01. SAR Convention 1979
02. IMO Search and Rescue Manual
03. Merchant Ship Search and Rescue Manual (MERSAR)
04. SOLAS Convention 1974
05. Convention on the High Seas 1958
06. Brussels Convention on Assistance and Salvage, 1910
07. Algerian Maritime Code
08. Agreement on Cooperation regarding maritime search and rescue services between Finland and Sweden - translated copy 12.71-432/82.

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14. Brochure "The Swedish Coast Guard - An Organization for Supervision, Rescue and Environmental Protection at Sea - Ref. 830301 T.S./Printer's Service"

INFORMATION

The information has also been received during discussions in January, 1986 with responsible persons, managers and authorities in the service of the following administrations and ministries:-

15. Algerian Ministry of Transport
16. Algerian Ministry of Telecommunications
17. The National Civil Protection Service
18. The Sub-Directorates of Maritime Affairs of Prefectures
19. The Algerian Coast Guard Service
20. The Towing Service of the Shipping Company CNAN