PROTECTION AND RESCUE OF LIFE AT SEA

S. C. Politis
Department of Shipping, Trade & Transport
University of the Aegean
Chios, Greece

Abstract. Maritime and air transports can sometimes be proven dangerous for humans on vessels and aircrafts. The international community in an effort to improve navigation safety conditions and rescue life in danger at sea, was led to a series of special conventions. States also through their national legislation secured the effective enforcement of the provisions of these conventions.

The Convention on Safety of Life at Sea, the new UN Convention on the Law of the Sea, the International Regulations for Preventing Collisions at Sea and the International Convention on Maritime Search and Rescue in combination with broadcasting services such as NAVTEX, and with the assistance of the relevant local authorities have offered efficient and high-quality assistance to humans in distress.

However, the institutional framework of maritime search and rescue must be improved, while state authorities must modernize their equipment and keep training constantly their personnel in order to serve better their objectives and protect more life at sea.
1. INTRODUCTION

From the ancient times, people tried to control the water element. Scientific researches have proven the existence of navigation since 7500 B.C.\textsuperscript{15}, especially in the Aegean Sea. The codification also of navigation customs started quite early, on the 5\textsuperscript{th} century B.C., with the Naval Code of Rhodes. This law covered mostly maritime legal matters, but it failed to include issues related to the protection and the rescue of human life at sea, as there were no technical facilities at the time for the achievement of this goal. As a result the extremely important virtue of solidarity was developed. It exists even in our days, and is usually combined with a strong religious feeling deriving from the intense insecurity that seamen were and are still feeling.

The development of maritime technology and communications contributed to the adoption of measures which ameliorated significantly the security of navigation, and also assisted to the invention of means to rescue human life, as it is impossible to wipe out completely sea dangers. Within this context, the international community was led to a series of special conventions, without though omitting to include provisions relevant to the issue, in more general ones. States also conformed their national legislation to the provisions of these international conventions, and imposed both precautionary and, at the same time, repressive measures.

The issue examined consists of two parts: the first one is related to the secure construction and utilization of the maritime means of transport, and aims to prevent accidents. The latter refers to the organisation of rescue services, in case of accident.

2. THE MAIN INTERNATIONAL CONVENTIONS

2.1. Convention on Safety of Life at Sea (SOLAS)

This Convention was signed in London on 1st November 1974 and replaced the pre-existing similar Convention of 1960. Its objective is to promote international standards and to create suitable conditions under which ships will provide the greatest possible safety to everybody onboard.

The Contracting States, including Greece, have taken up the responsibility to implement fully the provisions of the Convention through the necessary legislative arrangements required for putting them into effect. The Annex of the Convention contains eight regulations and practices, and are considered binding. Their enforcement ensures the safe construction of vessels, their seaworthiness, ability to maintain their water-tightness and keep afloat and steady. These regulations include also instructions on the mechanical and electrical facilities of ships, as well as all precautionary and repressive measures against fire, leaks and damage control in general. Moreover, all rescue means as well as means of maritime communications that each ship must carry, are described in full details. Finally, the Convention refers to noxious substances and to nuclear-powered vessels. Provision is also made for ships carrying grains whose loading and transport can even capsize them, as well as for other dangerous goods that may cause maritime casualties. Special security regulations and special documents that certify the enforcement of the relevant provisions are provided for nuclear-powered vessels.


Within the framework of defining the legal regime of various sea zones, the new UN Convention provides many rights and imposes obligations to the States Parties. Among them, there are some directly related to our issue. These obligations refer to the ability of a coastal state to adopt terms and conditions for ships passing through its territorial sea. They are related to the safety of navigation, to regulation and separation schemes of maritime traffic, to the protection of navigational aids and facilities, other facilities and
installations as well as to the design, construction, manning or equipment specifications of foreign vessels, unless they are giving effect to generally accepted international rules or standards. The same Convention obliges foreign nuclear-powered ships carrying nuclear and other inherently dangerous or noxious substances to bring along with them documents and to observe all special precautionary measures established by international agreements, while passing through the territorial sea of another state\textsuperscript{16}.

2.3 International Regulations for Preventing Collisions at Sea

These Regulations impose rules related to the ship’s navigation marks as well as to its movements in order to avoid collision. The marking of ship with the appropriate lights at night or with other characteristic signs in the daytime, reveals the ship’s intentions, its activities i.e. fishing, or possible problem, such as loss of command or restricted ability to manoeuvre.

2.4. International Convention on Maritime Search and Rescue

No matter how many precautionary measures are adopted, it is impossible to protect fully human life at sea. No one can ever exclude various maritime accidents, such as collisions, shipwrecks or even somebody’s unlucky fall in the sea. The International Convention on Maritime Search and Rescue refers to these cases. The Convention aims at the necessary organisation and coordination for tracking down and rescuing people in distress at sea. The main obligation of states parties, is the development of search and rescue services. Each contracting state may act separately or in cooperation with other states and the International Maritime Organisation. The competence of search and rescue services extends over their geographical regions which are delimited with special agreements between the interested states. However, the equivalent search and rescue regions for aircrafts are defined by the Chicago Convention on International Civil Aviation.

\textsuperscript{16} See Articles 21, 22, 23 and 41 of the new UN Convention on the Law of the Sea.
3. GREEK NATIONAL LEGISLATION

3.1 Code of Public Shipping Law

The Code of Public Shipping Law obliges not only masters, but also all mariners to supply every possible assistance to vessels, aircrafts or people in danger at sea.\(^\text{17}\).

3.2 Code of Private Shipping Law

The Code of Private Shipping Law obliges the captains of the vessels involved into a maritime casualty to supply assistance to both passengers and crew.\(^\text{18}\).

3.3 Code of Civil Aviation Legislation

The Code of Civil Aviation Legislation obliges pilots in command of aircrafts to supply assistance to everyone who is in distress at sea, to report all air accidents and to contribute in case they receive any relevant information.\(^\text{19}\).

3.4 Military Criminal Code

The Military Criminal Code obliges captains of merchant vessels to assist every warship in danger or emergency. Accordingly, it obliges commanders of warships and pilots of military aircrafts to help every ship or aircraft in danger.\(^\text{20}\).

\(^{17}\) See Articles 120, 195, 196, 210, 224 and 227 of the Code of Public Shipping Law.

\(^{18}\) See Article 240 of the Code of Private Shipping Law.

\(^{19}\) See Articles 123, 124, 153 and 175 of the Code of Civil Aviation Legislation.

\(^{20}\) See Articles 115 and 122 of the Military Criminal Code.
3.5 Criminal Code

Criminal Code obliges us all to assist everyone in distress\textsuperscript{21}. The law, however, does not demand to expose our life or health in danger in order to save other persons.

4. SERVICES CHARGED WITH THE ENFORCEMENT OF THE CONVENTIONS

4.1. World-Wide Navigational Warning Service

On the initiatives of the International Hydrographic Organisation and the International Maritime Organisation and following many conferences, it was decided to establish a universal service for the broadcasting warnings\textsuperscript{22}, aiming at the faster and more accurate information of mariners on the existence of sea dangers and meteorological forecasts that could affect the vessel’s safety. For this reason, earth was divided into 16 geographical subdivisions (NAVAREAS) and a coordinator was nominated for each one. Seamen report to the nearest communication station any information they have on incidents which may influence the safety of navigation. This piece of information is transmitted to the coordinator who in his turn retransmits it to everyone interested.

4.2 Global Maritime Distress and Safety System

The necessity for smooth functioning of the maritime research and rescue system was the motive to organise, within the context of activities of the International Maritime Organisation, a new international system with improved distress and safety communications. After this, the respective improvement of the communication provisions of the Convention on Safety of Life at Sea was decided. Moreover, the International

\textsuperscript{21} See Articles 288 and 307 of Greek Criminal Code.
\textsuperscript{22} Officially called Hellenic Navwarns.
Union of Radio Communications adopted adjustments and modifications to frequencies and manning of the new system. This system was gradually introduced and fully put into effect on 1st February, 1999.

4.3 NAVTEX Service

The International Hydrographic Organisation and the International Maritime Organisation cooperated on the establishment of the NAVTEX service which is part of the Global Maritime Distress and Safety System. NAVTEX is a medium frequency radio communications service and consists of stations corresponding to a specific region. It broadcasts regularly telex messages, in strictly fixed hours, 6 times per day. These messages contain navigational, meteorological, as well as other urgent information. Stations also broadcast emergency messages with vital information and extremely urgent warnings (i.e. information on research and rescue, urgent gale warnings etc.).

4.4 Inspection Service of Merchant Vessels

An Inspection Service of Merchant Vessels as well as similar private companies have been established in order to enforce the provisions of the Convention and examine maritime equipment and its efficiency. All states have relevant services.

4.5 Hellenic Navy Hydrographic Service

The main work of the Hydrographic Service is to publish nautical charts and keep them up-to-date. It is also in charge of transmitting notices and navwarns to mariners of navigational dangers, existing not only within the Greek territorial sea, but also in all maritime regions close to the Greek coasts. This important obligation derives from the new UN Convention on the Law of the Sea, which obliges coastal states to give the appropriate publicity to any danger of which they have knowledge, within their territorial

The relevant foreign services broadcast similar notices and warnings. Notices inform mariners on urgent dangers and other safety issues and are described as yearly (permanent)\textsuperscript{25}, definite\textsuperscript{26} and temporary\textsuperscript{27} ones. Navwarns inform mariners on urgent issues and are broadcasted into Greek and English as they are considered urgent. Greek Radio transmits notices only in Greek, daily at 13.30 (1\textsuperscript{st} Programme, AM 729KHZ or 411.52m).

4.6. National Vessel Traffic Management and Information System

The Ministry of Merchant Marine is responsible for the operation of the National Vessel Traffic Management and Information System. All regions with increased maritime traffic and particular dangers will be electronically supervised. This system will originally operate in the areas of the Saronic and Patras Gulfs, as well as Kafireas and Corfu straits.

4.7. National Search and Rescue Service

This Service consists of a Joint Rescue Coordination Centre, which is in Piraeus and has five rescue units in Thessaloniki, Mytilini, Rhodes, Chania, and Patras, as well as many other stations. All Greek port authorities are considered as stations. The Joint Rescue Coordination Centre is divided into two sectors: the maritime search and rescue which comes under the authority of the Ministry of Merchant Marine and the aerial search and rescue which is under the Greek Air Forces. Its area of responsibility coincides with the Athens Flight Information Region (F.I.R.), i.e. it covers the Aegean Sea (but not the Turkish territorial sea and the access to Ellispontos), the Cretan Sea, a great part of the Libyan Sea and approximately half of the Ionian Sea.

\textsuperscript{24} See Articles 24 and 44 of the New UN Convention on the Law of the Sea.

\textsuperscript{25} Yearly notices contain important information (e.g. restricted areas, areas of exercises and firing practice) which are repeated every year. See Hydrographic Service H.N., (2001 publication), Yearly (Permanent) Notices to Mariners, p. 5.

\textsuperscript{26} Definite notices contain permanent information (e.g. maritime dangers, shipwrecks, shallows, new lights etc.). These notices must be entered in the maritime charts and in all other maritime manuals. Ibid.

\textsuperscript{27} Temporary notices contain temporary information (e.g. port works, temporary turning off of lights, etc.). These notices must be noted temporarily on charts and manuals. Ibid.
Any port authority that receives information regarding a ship sinking or in distress within its region, is obliged to supply assistance and try to rescue everybody aboard. In order to achieve this objective, all available means must be used or further assistance from other port authorities or civilians must be requested. Police authorities are also obliged to assist until the Coast Guard takes over the situation. In case there is no port or police authority in the area, then the local authorities take over the situation. In any case, the Ministry of Merchant Marine, i.e. the Joint Centre, coordinates and advises further action.\footnote{See Article 195 of the Code of Public Shipping Law.}

The means of the Greek Coast Guard consist of small patrol ships, ten unsinkable all-weather life-boats, four all-weather helicopters (Super Puma), as well as four small airplanes. The ships of the Hellenic Navy must also be added. Many of them are ready to help immediately. All port authorities are also aware of all private means available in their area.

4.8. Other Services and volunteer lifeguards

Many other authorities indirectly involved in the safety of life at sea should also be added to the above-mentioned services, such as Lighthouse Service, all leading maritime systems, any position determination system etc.

Article 7 of the ratifying Law of the Convention on Search and Rescue also refers to volunteer lifeguards who can be included in the rescue units, in order to contribute to the search and rescue operations with state or private means. The Ministry of Merchant Marine takes decisions on their training, their obligations, the badges they should carry and the moral rewards that should be given.

5. THE HUMAN FACTOR

5.1 Main causes of maritime casualties

The majority of maritime casualties, i.e. 75 to 80% is due to the human element according to data from the International Maritime Organisation and other reports. The
main causes are focused on errors or omissions by the master or the crew in charge of the ship 29.

5.2 Manning of Vessels

The first and most important issue is the recruitment of the best personnel. The second is their excellent training and then follows the correct evaluation of their abilities and allocation of duties. Finally, vessels must be manned with the appropriate number of staff, depending always on their qualifications. All these depend on the Greek State. The recruitment is regulated by the provisions of the Code of Public Shipping Law and by Presidential Decrees30. The training of merchant mariners, state or private, is under the state supervision31. The maritime ability certificates are issued from the public service, the Ministry of Merchant Marine, under conditions set by the law32. Finally, the suitable manning of vessels is also controlled by Presidential Decrees33.

It would be considered as omission from our part not to refer to the “amateur seamen”. Those who own small boats have no certificates, the coxswains of fast-boats have a state license while skippers of sailing-boats get their “certificates” from private schools.

6. COMMENTS ON THE INSTITUTIONAL FRAMEWORK AND ITS ENFORCEMENT

The institutional framework covered most of the needs not only for preventing but also for confronting with the emerging situations. Its capability to adapt to various incidents in combination with the technological evolution was rather impressive. Technological progress provoked the necessary adjustments in order to exploit all available possibilities. However, this sector has great improvement potentials. The increased traffic of vessels and aircrafts in the area of Europe, imposes the need to establish a European organisation

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30 See Articles 55 and 64 of the Code of the Public Shipping Law and Presidential Decree 258/86/26-7-86 (Government Gazette 120 A/86), 591/75 (Government Gazette 191 A/75), 64/84 (Government Gazette 21 A/84).
31 See Articles 65 and 72 of the Code of Public Shipping Law.
32 See Articles 73 and 86 of the Code of Public Shipping Law.
33 See Article 87 of the Code of Public Shipping Law.
on safety at sea which will exploit all high technology means of the European countries. European Union has already submitted a proposal on the creation of a relevant organisation, and on a communal supervision and information system of sea traffic.\textsuperscript{34}

The delimitation of the areas of responsibility of the search and rescue (SAR) system on the international air space and in high sea, according to the Chicago Convention,\textsuperscript{35} is achieved through Regional Air Navigation Treaties approved by the Council of the International Civil Aviation Organisation (I.C.A.O). In 1952 and 1958 two regional conferences took place in Europe, in Paris and Geneva respectively. It was then decided that the geographical borders of the search and rescue regions of every state must coincide with the relevant Flight Information Region. This decision was submitted to the Council of I.C.A.O. and was approved on the meetings of 23 June 1952 and 15 May 1958.\textsuperscript{36}

Coinciding geographical regions must also be adopted in case of maritime search and rescue. However, the relevant international Convention on Maritime Search and Rescue at paragraph 2.1.4 of its Annex states that delimitation of each search and rescue region will be effected by an agreement between the interested Parties. Paragraph 2.1.5 states that in case that an agreement on the exact size of a search and rescue region is not achieved by the interested Parties, efforts should be made in order to reach an agreement for appropriate settlements with which everyone in the region, will be given an equal coordination of search and rescue services. Therefore, the Convention on Maritime Search and Rescue does not determine procedures and mechanisms that, within the framework of the International Maritime Organisation, could help to the delimitation of respective areas of responsibility for each coastal state. The definition of the borders of the maritime search and rescue region, is given to the State Parties, which may or may not, however, reach to an agreement. This is the weak point of the existing international framework. In this case, the coordination and the control of multinational maritime and aerial means will be extremely difficult. Unfortunately, while drafting the text of the Convention neither the corresponding provisions of the Chicago Convention of 1944, nor the international aeronautical Regulations which existed until then, were taken into

\textsuperscript{34} Athens News Agency, METORAMA Newspaper, Thursday 15 February 2001.
\textsuperscript{36} See Reports of the Third and Fourth European – Mediterranean Regional Air Navigation Meetings ICAO, Doc 7280, EUMIII and 7870 EUM IV.
consideration. At this point, there is also lack of conformity between the provisions of the Convention on Maritime Search and Rescue, and its Introduction that refers to Recommendation no. 40 adopted by the International Conference on Safety of Life at Sea, in 1960. This Recommendation recognizes the necessity of coordination among certain intergovernmental organisations for the safety on and above sea surface. International Civil Aviation Organisation is among them.

The existing institutional framework should be adjusted and obligatorily delimitate identical geographical maritime and air search and rescue areas with the Flight-Information-Regions. The harmonization of the relevant provision in order to identify these two regions was generally accepted in March 1986, at the panel of the 32nd Session of the International Maritime Organisation. The only countries that did not accept this proposal were Turkey and China. The 21st Session of the Navigation Safety Committee gave special emphasis to the need of incorporating search and rescue procedures and services between the International Maritime Organisation and the International Civil Aviation Organisation. The European Organisation for Safety at Sea, which we will soon be established, may put things in order.

Almost all services on prevention and confrontation of distress incidents have been formed recently and are constantly improving. The State Inspection Service of Merchant Vessels as well as the respective private sector, the Greek Register, offers high quality services to navigation. The services of all other public offices are equally effective in the Greek area of responsibility. The standards also of the Charting and Navwarns Divisions of the Hydrographic Service are very high. Moreover, NAVTEX operates perfectly in all the sea regions surrounding the Greek coasts. On the other hand, whenever the Joint Rescue Coordination Centre was tested, it proved its perfect organisation. Its great success in all search and rescue operations is indisputable as many lives were saved.

All above-mentioned do not mean that there is no need for improvements. As it is already noted, the Ministry of Merchant Marine will soon put into operation the National Vessel Traffic Management and Information Service. However, its function should not be restricted to the scheduled areas, i.e. Saronic Gulf, straits of Kafires and Corfu and Patras Gulf. It should be extended as soon as possible to other regions of similar interest.

38 IMO, doc. LSR 21/W.P.9/22-3-1990.
such as the Kithyra-Antikithyra, Kassos, Karpathos and Rhodes straits, the region of Ikarios Sea and the access to the Gulfs of Smyni and Ellispondos.

Within the Greek responsibility zones, the Joint Research Coordination Centre has five rescue units based in Thessaloniki, Mytilini, Rhodes, Chania and Patras. The selection of these positions is successful, but they are not enough. Still nowadays, search and rescue operations in Greece depend on the means of the Coast Guard, on the mobilization of the private sector and the contribution of the Hellenic Navy. This system functions satisfactorily, but the situation is rapidly developing. It is estimated that the existing means will not be sufficient in future. At the same time, the Greek Coast Guard needs an urgent upgrading. More aircrafts and a sufficient number of big high sea vessels for search and rescue operations should be purchased and be permanently scattered in key-positions and always ready to act.

Another important issue that should be mentioned is the assistance of lifeguards. Volunteers should be found and recruited from different humanitarian organisations, such as the Boy Scouts, the Hellenic Red Cross and, why not, Universities, and more precisely the University of the Aegean which has Faculties on many islands of the Aegean Sea. Their education should be state or state-sponsored, with free accommodation in specially organised centers. They should also have identity cards and their certificates should have grades (A', B', C' class). Depending on the services they offer, they should be compensated for their efforts with moral awards (commendations, gold, silver or bronze medals as well as the relevant distinctions), apart from the already established “Maritime Medal”, awarded since 1925 to those contributing to the rescue of human lives and vessels.

Finally, reference should be made to the human factor, which is also the most important. The institutional framework combined with the most developed technological systems gives result harmonized to the abilities of its users. It has already been mentioned that the majority of casualties is exclusively due to the human factor and this subject has been examined in detail. The fact that everything depends on the State proves the need to examine once more the institutional framework in order to trace the points that could be ameliorated. These points could be related to the recruitment, the seamen’s training, and the issuing of naval ability documents, the ship manning or even the penalties imposed in cases of penal and disciplinary offences.
Although "leisure seamen" do not have great maritime experience, they have not caused many accidents. This does not mean, though, that the State should not worry. The request of a special state certificate of maritime ability for the amateurs would significantly improve safety conditions. These certificates should be divided in grades for skippers, boatswains and members of crew.

7. CONCLUSIONS

The institutional framework covered to great extent the needs not only for preventing, but also for confronting distress situations. However, it should be adjusted regarding the maritime search and rescue areas which must coincide compulsory with the relevant flight information region.

The National Vessel Traffic Management and Information System, which will supervise electronically areas with increased maritime traffic and special dangers, must start its operation as soon as possible and then be extended to the all other high-risk areas.

The Greek Coast Guard must improve itself and become a modern Force, with a sufficient fleet of high sea vessels for its search and rescue duty, more helicopters and airplanes.

Great emphasis should be given on the recruitment, training and moral recognition of volunteer lifeguards.

All our thoughts should be dominated and focused on the need for improving our navigators' training. The re-examination of the institutional framework will offer many opportunities for improvement and modernization.

The training also of "amateur seamen" should be reconsidered. The need to impose maritime ability certificates for amateur is urgent.
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