

# A Solution for Enhancement search and rescue services (Egyptian SAR Services case study)

Capt. Samir Abdelghany Megahed Mahdaly

Teaching Staff Member, college of Maritime Transport & Technology - Arab Academy for Science, Technology and Maritime Transport – AASTMT Alexandria – EGYPT

Author email id: samir.mahdaly@hotmail.com

---

**Abstract:** Every nation identifies the great importance of saving lives, and the need to be directly involved in an execution aeronautical and maritime search and rescue (SAR) services to people in distress. The goal is to deliver an effective world- wide system, so that wherever people sail or fly, SAR services will be available if needed. The general attitude in which a nation takes in creating, providing and improving SAR services is precious by the fact that these efforts are a vital share of a global SAR system.

In many developed countries, volunteers normally compliment the national search and rescue duty. Volunteerism is the act or practice of doing volunteer work in a community service. A volunteer is a person who voluntarily offers himself for a service without payment. The voluntary work becomes one of the main columns of the public sharing in the development efforts towards human comfort. With a focus on the humanitarian nature of their work, volunteers help national SAR services to make a huge savings on resources.

State authorities are encouraged to promote harmonization of all available resources including the volunteer's organizations. The most important element in improving the effectiveness of SAR services is the reduction in the elapsed time between incidents occurrence and the people in distress are rescued.

Because of this paper, the efforts of volunteers should be collected in a formal organization, which incorporates volunteers into its programs. It helps build organizational strength and that strength comes from growing and retaining members and enhancing organization programs.

**Keywords:** (SAR) services, global SAR system, world- wide system, community service, humanitarian nature.

---

## 1. INTRODUCTION

A basic, practical, and humanitarian effect of having a global SAR system is that it eliminates the need for each state to provide SAR services for its own citizens wherever they travel worldwide. Instead, the globe is divided into search and rescue regions (SRRs), each with a rescue co-ordination center (RCC) and associated SAR services, which assist anyone in distress within the SRR without regards to nationality or circumstances.

The effective search and rescue service needs extra ordinary willingness and co-operation between all available resources including volunteers' efforts. Therefore, one may find some countries' coasts apply the service while the shores of other countries do not have such service. The degree-of significance in this vital aspect of maritime transport industry among these countries varies.

According to the International Convention for the Safety of Life at Sea, Signatories States have the obligation to provide maritime (SAR) services. In order to comply with this obligation, various forms of maritime search and rescue services have been established all over the world. All SAR incident aspects must be sensitive to time, i.e. alerting, planning transit, location and rescue.

Search and rescue planners should maintain updated information on how to contact these volunteers' resources and to be familiar with their capabilities and limits. The organization among volunteers is the way to collect their efforts, categorize their experiences and in which aspect they can help (Mahdaly, 2012). Organizational structure helps in putting the right volunteer on the right job, which can be done by selecting people according to their qualifications, skills and experience. In addition, working through a well-established organization is a mean of creating a co-operation among numbers of volunteers.

## 2. THE CURRENT SITUATION

United Nations Conference on Trade and Development stated that international shipping transports is approximately 80% of global trade by volume and over 70% of global trade by value. According to Lloyd's List Intelligence Casualty Statistics, the East Mediterranean and Black Sea region is the second highest total loss of vessels by region over the world through the period from 2006 up to 2015 and through the period from January up to December 2015 as it is clear in figure (1).



**Figure (1) Total losses by Top 10 Regions all over the world Source: Allianz safety and shipping review 2016**

Also from Lloyd's List Intelligence Casualty Statistics, it was found that the East Mediterranean and Black Sea region has been the location of the most shipping casualties for the year of 2015, as it is clear in figure (2). It is clear from the statistics, that the East Mediterranean area is in need for significant search and rescue services facing the challenge of the high probability of causality occurrence.

|  |              |
|--|--------------|
| East Mediterranean and Black Sea                   | 484          |
| British Isles, N. Sea, Eng. Channel, Bay of Biscay | 341          |
| S. China, Indochina, Indonesia and Philippines     | 284          |
| Baltic   | 175          |
| Japan, Korea and North China                       | 168          |
| Iceland and Northern Norway                        | 133          |
| North American West Coast                          | 120          |
| Australasia  | 118          |
| Great Lakes  | 115          |
| West Mediterranean                                 | 76           |
| Others   | 673          |
| <b>Total Casualties by Region</b>                  | <b>2,687</b> |

**Figure (2) Top 10 regions Ships Casualties including Total Losses in 2015**

Source: Allianz safety and shipping review 2016

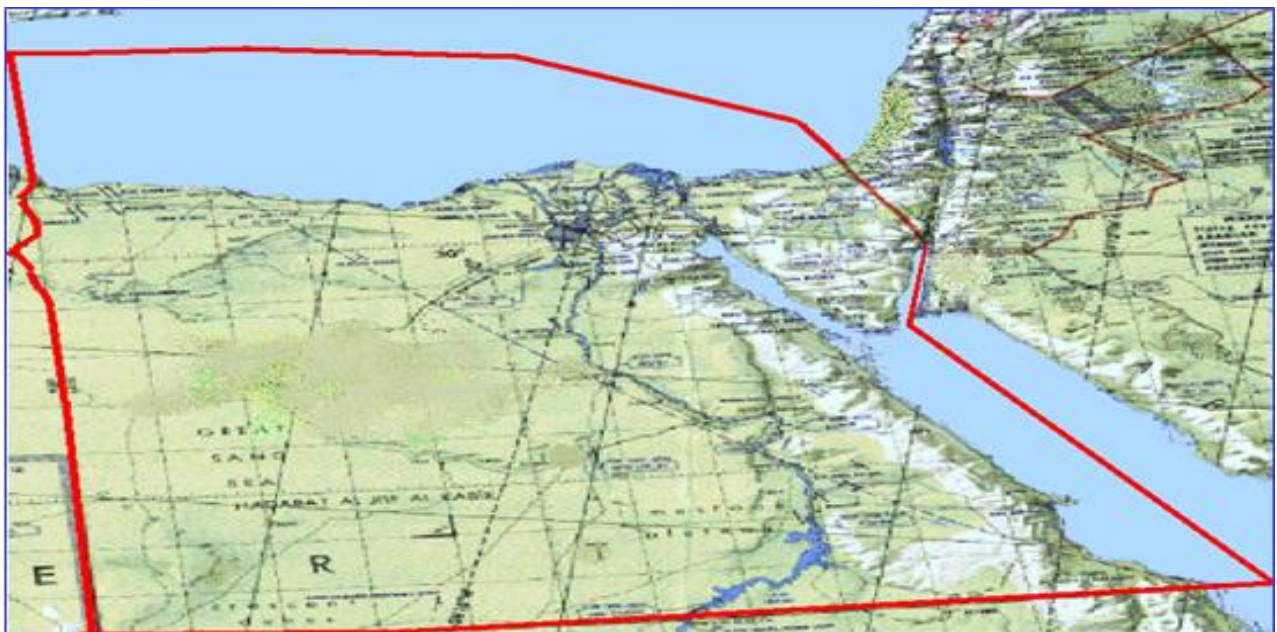
The importance of such SAR service comes from those 2 to 6 hours, this period is considered a vital period for a person to stay alive according to the temperature as it is shown in table (1), as the seawater temperature varies from 10°C to 15°C.

**Table (1) Guide to survival time for persons without special protective clothing in water of various temperatures.**

| Temperature (°C) | Expected time of survival       |
|------------------|---------------------------------|
| Less than 2      | Less than $\frac{3}{4}$ hour    |
| 2 to 4           | Less than $1\frac{1}{2}$ hours  |
| 4 to 10          | Less than 3 hours               |
| 10 to 15         | Less than 6 hours               |
| 15 to 20         | Less than 12 hours              |
| Over 20          | Indefinite (depends on fatigue) |

Source: (International Aeronautical and Maritime Search and Rescue V. III)

With the widespread of territorial waters, the 2,450 km (1300 nautical Miles) of the coastline on the Mediterranean Sea, the Gulf of Suez, the Gulf of Aqaba, and the Red Sea which creates the Egypt's maritime boundaries as it is clear in fig (3), Egypt is faced with considerable pressure in terms of maritime safety (Elsabban, 2008).



**Fig (3): Egypt search and rescue regions**

Source: Elsabban (2008)

Egypt is currently aiming to become a maritime power with frequent maritime transport, a successful fishing industry and additional exploitation of marine resources, flourishing coastal tourism and other activities. Additionally, there is a demand for coastal transportation and inland water transportation from the external sight, as many developed countries have already formed mature and effective maritime search and rescue volunteer systems, which provide Egypt with precious experience in various aspects based on the objective of aiding the Egyptian government in establishing a stable, reasonably-compensated, technically-qualified maritime search and rescue volunteer force (Huapu,2013).

### 3. THE REQUIRED SITUATION

SAR Volunteers are organizations, which provide training and an operational framework for privately owned craft, which can be used by volunteering in search and rescue (Queensland, 2010).

By the mid-1970s, it became clear that a formal organization for training volunteer search and rescuers was necessary in order to improve the Canadian Coast Guard CCG's response to maritime search and rescue incidents, particularly in remote locations. In a 1975 study commissioned by CCG led to the Canadian Marine Rescue Auxiliary or CMRA being formed in late 1978 as an effort to enhance search and rescue coverage and capability. The CMRA was renamed the Canadian Coast Guard Auxiliary or CCGA in 1997. (Canadian Coast Guard Auxiliary).

The CCGA organized into five federally incorporated, not-for-profit volunteer organizations. The majority of CCGA members are commercial fishers and pleasure boaters who donate their time and vessels to assist the CCG SAR Program. The remaining CCGA members are volunteers from local communities who crew community-based, dedicated response vessels 24 hours a day, 7 days a week. As of fiscal year 2015-16, the CCGA has approximately 4,000 members and access to approximately 1,100 vessels.

The CCGA continues to be an important contributor to maritime search and rescue through the provision of thousands of volunteer hours and vessels. Evidence from administrative data and key informants noted that the CCGAs were largely available when needed resulting in a national average of 24% involvement in responses to maritime search and rescue incidents. A similar result noted in the 2012 Search and Rescue evaluation.

Graph 4 demonstrates that the number of trained members was largely stable between 2013 and 2016; however, data on the longer historical trend has shown an overall decrease in both members and vessels. These risks are known, and similar concerns were raised in the 2007 SAR Needs Analysis, as well as in the 2012 Search and Rescue evaluation. Key informants noted some concerns regarding the capacity of CCGAs, to maintain or replenish the volunteer base, and that these issues are further intensified when the retirement of CCGA members, which also entails the withdrawal of an owner-operator auxiliary vessel. Finally, 15% of the CCGA tasks are M1 or M2 type of incidents where there is distress or potential distress.

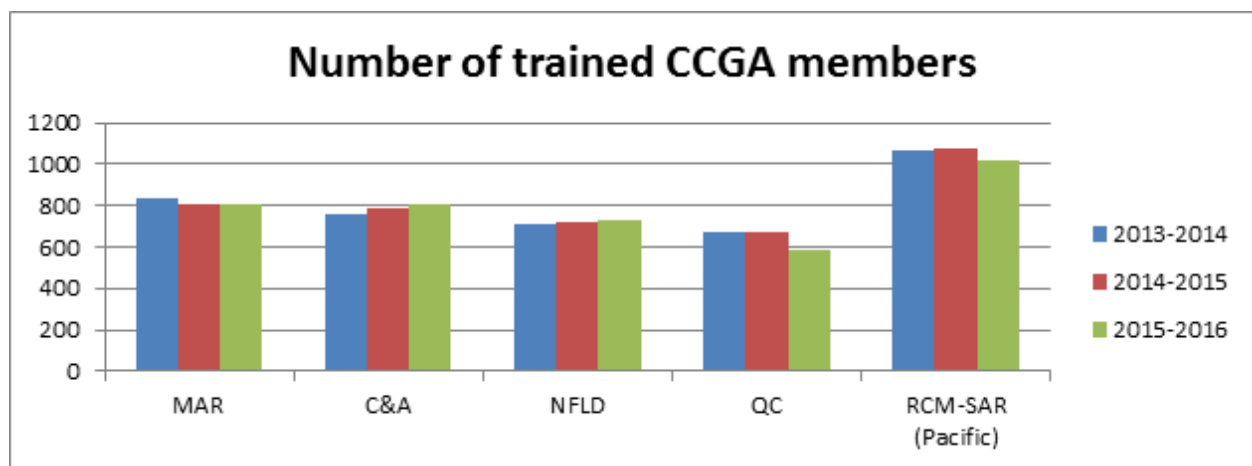


Figure 4 (a)

Source: CCGA Annual Business Plans

Figure 4 shows the number of the trained Canadian Coast Guard Auxiliary members over a 3-year period between 2013-14 to 2015-16. The first group of bars is for the Maritime Auxiliary Region where there were 831 trained members in 2013-14. In 2014-15 and 2015-16 there were 806 trained members in each fiscal year. The second group of bars is for the Central and Arctic Auxiliary Region where there were 754 training members in 2013-14. In 2014-15 there were 784 trained members whereas there were 811 trained members in 2015-16. The third group of bars is for the Newfoundland and Labrador Auxiliary Region where there were 715 members in 2013-14. In 2014-15 there were 721 trained members and 726 trained members in 2015-16. The fourth group of bars is for the Quebec Auxiliary Region where there were 668 members in both 2013-14 and 2014-15. In 2015-16 there were 589 trained members. The final group of bars is for the Royal Canadian Marine Search and Rescue (i.e. Pacific Auxiliary Region) where there were 1,062 trained members in 2013-14. In 2014-15 there were 1,073 trained members and 1,019 trained members in 2015-16.

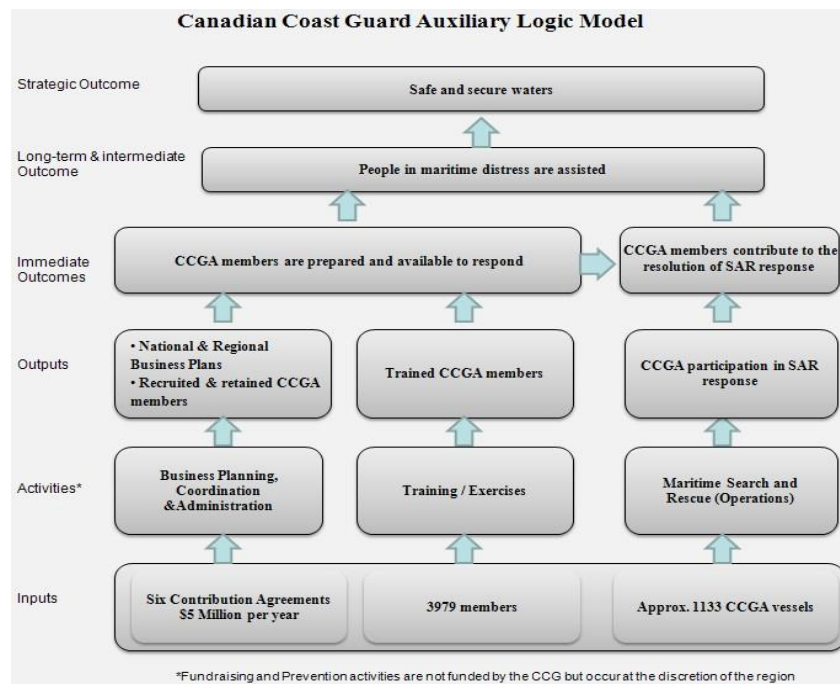


Figure 4 (b)

The International Rescue Federation (IMRF) is the international charity focused on preventing loss of life in the world's waters. IMRF Works with Governmental and Non-Governmental SAR Organizations to achieve this. Now there are 112 organizations in 48 countries paying a subscription as members of the IMRF and working together to reduce the loss of life. Estimating a range from 360,000 per year (WHO Drowning report 2014) to 1.1m (International Life Saving Drowning Prevention Conference 2013). Many of these deaths could be prevented through safety interventions and improved maritime SAR coordination and response.

The membership of IMRF includes Maritime Rescue Coordination Centers, Coast Guards and Volunteer response organizations. Fig (5) shows that there are no full members in the area of Middle East.

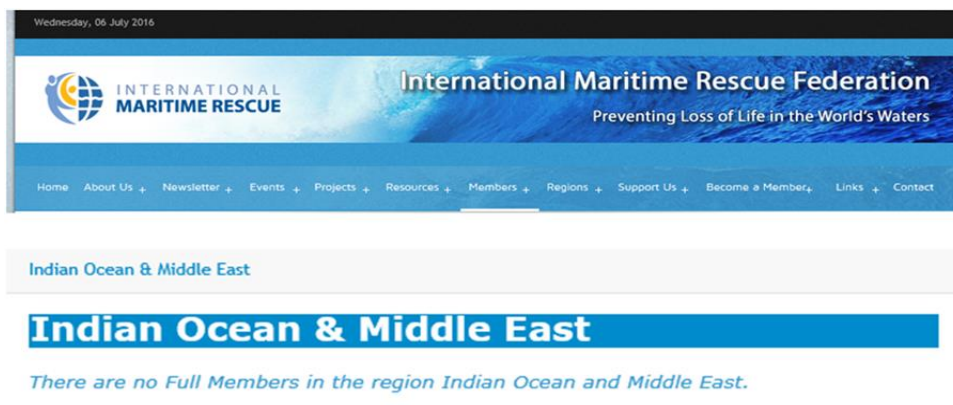


Fig (5) International Maritime Rescue Federation (Middle East membership)

Source: <http://international-maritime-rescue.org/>

#### 4. PROPOSED ORGANIZATIONAL STRUCTURE OF EGYPTIAN VOLUNTEER SAR ORGANIZATION (EVSAR)

4.1 A mission of a Volunteer SAR Organization is to provide operational, logistic and training support of Search and Rescue activities by providing vessel facilities and trained crews. These vessels and crews will conduct on-water searches; locate search objects and affect a rescue of persons within the VSAR area, which is about 2,450 km (1300 nautical Miles)

of coastline on the Mediterranean Sea, the Gulf of Suez, the Gulf of Aqaba, and the Red Sea through active preventive search and rescue activities. While Vision of volunteer members will become a fully sustainable, professional, adequately trained, and equipped to support Volunteer SAR Organization.

4.2 EVSAR authority is considered the authority with responsibility for the management, operation and co-ordination of the EVSAR organization, In addition, coordination with Government Authorities like Egyptian Authority For Maritime Safety (EAMS) which is participate in search and rescue plans and combat marine pollution safety.

4.3 Egyptian Volunteer SAR organization operated by an EVSAR center in Cairo. There is also a number of sub-areas along Search and Rescue Region (SRR), Mediterranean coastline and Red Sea coastline, 9 EVSAR sub centers in Alexandria, Mersa Matrouh, Port Said, Suez, Sharm el Sheikh, Taba, Ghurgada, Safaga and Mersa Alam as it shown in figure (6).

4.4 EVSAR coordinator, a properly skilled person acting one or more jobs contributing to the services of the EVSAR.

4.5 EVSAR plan, approved by a VSAR Authority and EAMS Authority about the mission of the SAR resources in EVSAR area.

4.6 Legal protections from civil liability and protection for volunteer vessels while assigned to duty.

4.7 Organizational Structure will provide core members of the organization who can then assist EVSAR Organization in the training of others and possibly Regional interface with other organizations.

4.8 Membership Requirements like Ownership of a motorboat, yacht, aircraft, or people who because of their special training or experience deemed qualified for duty in the organization.

4.9 Building Assets and Essential Resources, a government affiliated volunteer Auxiliary requires legal protections and safety considerations. Standards for training and equipment should be established and supported financially.

4.10 Training Requirement EVSAR, a series of qualification tasks defines the knowledge and skills required for volunteer members. Each task describes a certain job skill and states performance criteria for that skill.

4.11 Procedures for involvement, the governmental unit may choose to train, examine, and qualify volunteer members before assigning them to duty. This is necessary to ensure the safety of volunteer members.

4.12 Resources, Surface resources (on-water facilities, search and rescue vessels) supplied by volunteer members who own these resources. These resources should be equipped to certain written standards, and inspected by competent authority.

4.13 EVSAR organization will need an information system to track and process for certification of volunteer members who will conduct Search and Rescue missions.



**Figure (6) Proposed Structure Model of Egyptian Volunteer SAR Organization Source (Author)**

## 5. CONCLUSION

Initiating a new volunteer organization is not an easy task, but it is a worthwhile endeavor. With proper planning, budgeting and marketing, the initial core members of an organization can be trained and active in a relatively short period. It is important to focus on one or two activities in the initial stages. As the Volunteers organization matures, new opportunities for service will develop and further training implemented. Organization Growth should be planned and done in stages so that training programs kept with increasing of membership. The potential long-term benefits to Egyptian Authority For Maritime Safety (EAMS) and maritime community far outweigh the initial investment of time and resources that are required to start a volunteer Organization.

## 6. RECOMMENDATIONS

1. Establishing Maritime volunteer search and rescue services covering all Egyptian coastlines.
2. Qualifying and training volunteers to work as supervisors and coordinators in the EVSAR center and sub center.

## REFERENCES

- [1] Elsabban. Yasser, (2008) "Improving Maritime Search & Rescue Supply Chain in Egypt" A Thesis for the Degree of Master, the Arab Academy for Science, Technology and Maritime Transport.
- [2] CCGA, (2003). SAR Training manual. Sarnia, Ontario N7T 8B1.
- [3] CCGA, (2008). Contribution agreement. Ottawa, Ontario K1P 9Z9.
- [4] Chien Hsu and sandford, (2007). The Delphi Technique: Making Sense of Consensus. The Journal Practical Assessment, Research & Evaluation.
- [5] Fisheries and ocean Canada, (2000). Canadian SAR seamanship reference manual. Canadian government publishing Ottawa Ontario KIA 0S9.
- [6] Huapu, (2013) "Study about volunteer groups' involvement in China maritime search and rescue" degree of Master dissertation, World Maritime University, Sweden.
- [7] IAMSAR (2016). International Aeronautical and Maritime search and rescue manual, Volume (1), Chapter (1), IMO, London.
- [8] (IAMSAR V. III) International Aeronautical and Maritime search and rescue manual, IMO, London.
- [9] IMO, (2005). SAR personal staffing and training, ICAO /IMO JWG 12/8 23 July 2005. London, Author.
- [10] IMO, (2016). IAMSAR International Aeronautical and Maritime Search and Rescue Manual, Volume (1), chapter (1). London, author.
- [11] IMO, (2008) Adoption of amendments to the international aeronautical and maritime search and rescue (IAMSAR) manual. MSC.1/Circ.1289, 9 December 2008. London, author.
- [12] IMO, (2010). International Convention on maritime search and rescue, 1979. London, author.
- [13] Law, Averill M. (2015) "Simulation Modeling and Analysis" fifth Edition, U.S.A
- [14] Mahdaly, Samir. (2012) "The role of volunteers in the success of SAR operations" the border security conference, Saudi Arabia.
- [15] Search and rescue framework for the United Kingdom of Great Britain and Northern Ireland. (2008)
- [16] Search and Rescue Volunteer Association of Canada (2011) History of SARVAC. Retrieved from <http://www.sarvac.ca/Home/tabid/148/language/en-US/Default.aspx>
- [17] Urban Institute, (2010), Public Charities, Giving, and Volunteering. Washington, 2010 DC 20037.
- [18] United States National Search and Rescue Committee (2000). United States National Search and Rescue Supplement chapter (2), Washington, D.C. Author.
- [19] Volunteer Marine Rescue Association, Queensland. (2010).