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THEMATIC AXIS 3:

“COOPERATION IN SEARCH AND RESCUE CAPACITIES”

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INTRODUCTION

This paper aims to present an overview regarding cooperation in search and rescue capabilities at the American Region level the, which aims at contributing to the safety of human life in the air and maritime fields.

To this end, this work is divided into a regulatory legal framework, then a diagnosis and finally conclusions and suggestions for consideration by the distinguished participating delegations.

The name "Search and Rescue" has been chosen for the text, which is commonly used in organizations dedicated to this subject.

I.- LEGAL FRAMEWORK IN THE MARITIME FIELD

1.- International Convention for the Safety of Life at Sea “SOLAS 74” .

The "SOLAS" agreement establishes standards for the construction and equipment of ships as well as standards for inspection and certification procedures to ensure the safety of ships and people on board.

Flag States that have adopted the SOLAS are responsible for ensuring that ships under their flag comply with its requirements through appropriate examinations and issuing certificates prescribed in the Convention as proof of compliance.

Control provisions also allow Contracting Governments to inspect ships of other Contracting States if there are clear grounds for believing that the ship and its equipment do not substantially comply with the requirements of the Convention - this procedure is known as Port State Control.

The Chilean government adopted it on November 1, 1974, and it entered into force on May 25, 1980, and was ratified by DS No. 80 of April 15, 1980.

Similarly, in general this agreement has been adopted by all riparian states in the American Region, which have incorporated it into their own legislation, applying it to both their own flag vessels as well as to those calling at their ports, chasing the eradication of navigation of substandard ships that endanger crews, passengers and the aquatic environment in the cost.

For Safety and Security communications, the International Convention for the Safety of Life at Sea, in its Chapter IV Radio Communications, Part B Undertakings by Contracting Governments, Regulation 5-1, indicates and suggests the establishment of the Global Maritime Distress and Safety System (GMDSS). Each Contracting Government undertakes to ensure that suitable arrangements are made for a 24-operation of that system, registering identities and equipment, ensuring the reception of ship-ground emergency radio communications and the delivery of security information in their SAR area of responsibility.

2.- International Convention on Maritime Search and Rescue "SAR 79".

Its main objective is to facilitate cooperation among governments and among people involved in maritime search and rescue at sea through the establishment of an International SAR Plan. It is the coordination of the means that can be employed in a maritime emergency in each state and coordination to achieve an integrated global system of inter-State Rescue.

It requires Parties to the Convention to establish ship reporting systems. This reduces the time between the loss of contact with a ship and the initiation of SAR operations.

Chile adopted it on April 27, 1979, and it entered into force on June 2, 1985; it has been amended in 1998 and 2004 and ratified by the State on October 7, 1981.

The oceans have been divided into search and rescue regions and in each region countries have been trying to agree, among them, the search and rescue region for which each is responsible.

In the case of the American Region, the entire adjacent sea is covered with areas of SAR responsibility. In general, all states have assumed SAR areas, with the special case where the Caribbean and Central America states have undertaken internally and unilaterally an area which in most cases coincides with their exclusive economic zone, with the exception of Panama, where its SAR area is limited to its territorial sea.

II.- LEGAL FRAMEWORK IN AERONAUTICAL FIELD

1.- Convention on International Civil Aviation.

Also known as the Chicago Convention, it was intended to update the rules on International Civil Aviation. It is currently the most important normative treaty in relation to Public International Air Law.

In 1944, with the end of World War II, the United States sponsored a conference to update the international civil aviation agreements, practically stagnant since the Paris Convention of 1919. The conference was held in Chicago from November 1 to December 7, 1944 with the participation of delegates from 52 states.

The Convention regulates liberally aspects of navigation and air traffic, along with air traffic with no pay. The expensive air transport was assessed by bilateral agreements among States, to be registered with ICAO.

It was agreed to establish a permanent body to continue the task of 1919, initially called Provisional International Civil Aviation Organization (PICAO), and in 1947 it was renamed as International Civil Aviation Organization (ICAO), as the agreement was endorsed by Member States.

This agreement establishes multiple regulations on the development and operation of international civil aviation and its application is limited only to civil aircrafts, leaving out those deemed state aircrafts, consisting of the military, police and custom aircrafts.

All aspects, particularly as regards the role of "aeronautical search and rescue", are included in this context, article 25 expressly states: "Each contracting State undertakes to provide such measures of assistance to aircraft in distress in its territory as it may find practicable, and to permit, subject to control by its own authorities, the owners of the aircraft or authorities of the State in which the aircraft is registered to provide such measures of assistance as may be necessitated by the circumstances. Each contracting State, when undertaking search for missing aircrafts, will collaborate in coordinated measures which may be recommended from time to time pursuant to this Convention."

In accordance with the previously stated, we see that this is the first step taken internationally to create this level of commitment in the aeronautical search and rescue function that will begin operating in different signatory countries to this International Civil Aviation Agreement.

2.- Annex 12 to the Convention on International Civil Aviation “Search and Rescue”

Following the signing of the Agreement on International Civil Aviation by different countries, then the need to operationalize this agreement in its multiple functions that enclose the range of areas covered by the civil aviation concept was created. One refers specifically to aeronautical search and rescue and this is how a draft annex, which was approved distributing it to States for them to prepare their observations. Following these observations, further improvements were introduced and Annex 12 to the Convention on International Civil Aviation was officially born, which officially went into effect on March 1, 1951.

The rules and methods recommended in this document govern the implementation of procedures for aeronautical search and rescue and are applicable to the establishment, maintenance and operation of aeronautical search and rescue services in the territories of Contracting States and over the high seas, as well as the coordination of those services among States.

In this international document, recommendation on the cooperation of the SAR services among States begins to appear; that is specifically the ease and authorization for entry of human and material resources for search and rescue belonging to a State in support of SAR operations of another State.

This is stated in the articles within chapter 3 “cooperation.”

3.- Multilateral Agreement on Search and rescue

Among the many chapters contained in Annex 12, there is one referred to cooperation.

In this context, it is recommended that Contracting States should, wherever possible, develop common plans and procedures for search and rescue to ease the coordination of search and rescue with neighboring States and expressly states: “Subject to such conditions as may be prescribed by its own authorities, a Contracting State shall permit immediate entry into its territorial sea and air space search and rescue units of other States for the purpose of searching for the site of aircraft accidents and rescuing survivors of such accidents.”

It is then possible to conclude that these recommendations led to the need to create a mechanism to operationalize this suggestion, which is understood as accepted by the signatory countries, and thus this SAR multilateral cooperation agreement was born, which considers that there have been certain situations where it is clear that there is a need to promote greater harmonization of rules and procedures to be adopted in each of the American States for the provision of search and rescue services.

Thus, during the VI Conference of Commanders in Chiefs of American Air Forces, held in Lima in May 1966, while discussing the issue concerning the role of the American Air Forces in search and rescue operations, it was concluded that there must be extensive cooperation among the American States for the provision of search and rescue services, and this cooperation, either offered or requested, in America; and they concluded that

"American States, all members of the International Civil Aviation Organization that signed and accepted this agreement concerning search and rescue services agree that each State party to this agreement shall take the necessary measures to conduct search and rescue operations in the airspace within their respective territory and territorial waters, and set the details to facilitate their participation in conducting combined search and rescue operations, where practicable."

III.- LEGAL FRAMEWORK IN THE MARITIME AND AERONAUTICAL FIELD RELATED TO SAR OPERATIONS PROCEDURES

1.- International Aeronautical and Maritime Search and Rescue (IAMSAR) Manual

The primary purpose of the three volumes of the International Aeronautical and Maritime Search and Rescue Manual is helping States to meet their own needs concerning search and rescue (SAR) and to fulfill their obligations under the Convention on International Civil Aviation, the International Convention on Maritime Search and Rescue and the International Convention for the Safety of Life at Sea (SOLAS). These volumes provide guidelines for a common aviation and maritime approach to organizing and providing SAR services. It urges States to develop and improve their SAR services, work with neighboring states and consider their SAR services as part of a global system.

Each volume of the IAMSAR Manual is written considering specific aspects of the search and rescue system, and can be used as a separate document or in conjunction with the other two volumes in order to obtain an overall view of the SAR system.

The volume on Organization and Management examines the global SAR system concept, establishment and improvement of national and regional SAR systems and collaboration among neighboring States to provide effective and economical SAR services.

The volume on Mission Co-ordination assists personnel responsible for planning and coordinating SAR operations and exercises.

And the volume on Mobile Units is intended to be carried on board units, aircrafts and rescue vessels to improve the effectiveness of a search and rescue activities or the coordinator function on disaster site and the relevant aspects of search and rescue to their own emergencies.

IV.- DIAGNOSIS OF THE GLOBAL SITUATION AND COOPERATION IN SEARCH AND RESCUE IN THE AMERICAN REGION

1.- Maritime Field.

According to reports obtained from the International Maritime Organization (IMO) regarding Maritime Search and Rescue Services that American Region countries currently have and operate, they generally operate under the guidelines suggested by the organization, assuming the agreements related to that matter. Similarly, and as it has been noted in SAR cases that occurred both in the SAR area of responsibility of Chile and other SAR areas, the use of standardized procedures has been noted, using as a basic tool the International Aeronautical and Maritime Search and Rescue Manual. Similarly almost all American countries have adopted SAR organizations according to the recommendations by the current binding international rules on that matter, creating Maritime Rescue Coordination Centers (MRCC), establishing focal points for coordination and support in SAR matters.

Furthermore, and as suggested by the IMO for commercial shipping, tourism and sports, riparian American States have adopted the SOLAS 74 Convention, ratifying and transforming it into their own legislation, applying it to their own ships, causing them to reach standards in their safety equipment and emergency procedures, equipping them with the Global Maritime Distress and Safety System to secure emergency and relief communications.

Special Situation in Central America.

Notwithstanding the above and as required by Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama, IMO held in 2012 a SAR evaluation with the intention to support these Central American countries in establishing Maritime Search and Rescue Coordination Centers and the implementation of the Global Maritime Distress and Safety System. This work mandated by the IMO was made by Chile, whose evaluation produced the following results:

A.- **Description of the structure of States evaluated to address emergencies SAR**

Each of these countries has an administrative structure that allows them to address SAR emergencies occurring in sea space. They have bodies that carry out operational functions during emergencies and others with responsibilities for coordination. The existing structure of countries is different in each of them, so it is difficult to generalize. In the absence of a formal organization of Maritime Search and Rescue, all of them show the intention to establish a formal organization that meets all of the functions of an MRCC.

B.- **Evaluation of maritime SAR systems**

a.- **Administration**

As it is clear from visits in all of them, except for Panama, authorities are legally designated as responsible for the National Maritime SAR. However, in the absence of a SAR plan, structures and formal procedures, this authority does not meet fully the role assigned. Despite this, all countries have expressed a strong interest in strengthening their structures and implementing a national MRCC. Similarly, all of them have expressed their willingness to assume responsibility for operating a regional coordination center.

In countries where the SAR authority is given to an operating entity of the Navy or its equivalent, action is more fluid. This does not imply that this condition is better, but, as there are fewer organizations involved, coordination is simpler and can be performed even in the absence of formal procedures.

Countries in which the SAR responsibility and operational function are under the same Authority are Belize, Costa Rica, Guatemala and Nicaragua.

b.- **Coordination**

The existing coordinating for aeronautical SAR operations is admirable and demonstrates the maturity in the region. The Maritime SAR, meanwhile, has no formal structures and its operation in this area is based on the skill, knowledge and experience of those involved rather than pre-established procedures.

c.- **Communications**

While maritime radio communications are regulated in most cases, none of the authorities have communication centers that allow providing all services defined in the GMDSS, particularly regarding the dissemination of safety information and the use HF or DSC safety channels.

d.- **SAR Areas**

None of the visited countries have ratified the SAR 79 Convention and neither did they formalize the responsibility for a maritime SAR area. Despite this, all countries assume responsibility for the safety of vessels operating within a specific area.

Bilateral Agreements and Confidence Building Measures

A.- **Bilateral Agreements**

An example worth mentioning in the field of bilateral operational cooperation is the Argentina - Chile Combined Antarctic Naval Patrol, agreement that was signed on April 21, 1998.

The Staffs of the Armed Forces of Argentina and Chile agreed to participate in an integrated and alternate fashion in the Antarctic area, between November 15 and March 15 of each year, with a Combined Antarctic Naval Patrol to conduct activities and exercises on Search and rescue, maritime salvage, pollution control and combat.

B.- **Real Maritime SAR Situations where Cooperation among States was Materialized**

Following the example of Chile, which is repeated in several other parts of the hemisphere, we can mention some rescues conducted in coordination with countries in adjacent SAR areas, using both naval and regulated maritime traffic combined resources, being the most relevant those that occurred in the Antarctic area, where the capacities provided by the materialization of the Agreement between Chile and Argentina have been mostly used, that is, the Combined Antarctic Patrol.

Relevant examples of cooperation are mentioned below:

- a) On January 31, the Ushuaia MRCC informed the Punta Arenas MRCC that the Barbados flagged B/P "Polar Star", bottomed out in the Antarctic area, with 35 crew and 80 passengers on board. After a number of rescue measures on Feb 05, the Ushuaia MRCC took control of the ship, the pilot boarded in the Beagle Channel, deactivating the SAR case.
- b) During the first half of 2014, Peruvian smaller vessels transiting the area of SAR responsibility of Chile had undergone emergency that required the rescue of the crew due to sinking. In these cases, once activation was known by the Chile MRCC, contact was established with Peru MRCC, immediately delivering factual background.

2.- Aeronautical Field.

As originally stated by the Convention on International Civil Aviation of 1944, participating countries undertake to regulate a system that allows survivor assistance following a plane crash. In this context the member countries of the next Conference of Defense Ministers of the Americas have been part of this commitment and internally have developed an aeronautical search and rescue system that gives shape to the undertaken agreement with ICAO on this matter. However, there are aspects that are not consistent with the general spirit of international agreements and will need to be addressed in order to design an efficient and supportive system in the region.

Issues to resolve

In each of the annual meetings organized by the ICAO South American Regional Office, based in Lima, Peru, specifically to analyze the SAR system of each country, in terms of structure, organization, instruction and training, among others, we see that each country has a structure according to the SAR regulations.

In general, it contributes and addresses the problem as a country and according to their reality, being essential for each country to adopt a joint conduct in this matter, whose ultimate goal will be to participate in combination, under a single coordination command in case of taking the difficult task of addressing the SAR work during an event of this nature that, by its characteristics, recommends the participation of human and material resources from different nationalities.

In this respect, there are necessary issues to be address, which reflect an unfavorable situation in the region around joint and/or combined actions of the resources of each state, which are indicated below.

1. Coordination among States for combined SAR operations.

There is a Multilateral Agreement on Search and Rescue that is a comprehensive and detailed document which fulfills the purpose of significantly coordinating and simplifying the process of cooperation among States in the event of a requirement of resources to address a SAR operation.

This agreement was signed by only fifteen countries of the region and has been registered by ICAO as Doc. 6685, making it valid for compliance. Its application is essential to facilitate cooperation among States when they need resources support from another country when the situation exceeds their own capacities.

The South American Regional Office has been requested to ask Member States of the Region in which legal step they are, the result is unknown to date. This paper will allow designing detailed contingency and particular procedures for each country, in order to know in detail the publication and dissemination of all information necessary for the entry into their territory of the search and rescue brigades from other states.

2. Instruction and training.

To achieve the most efficient SAR service possible within a certain region, it will be necessary to supplement resources from different sources, which under a single centralized command, add the human and material efforts towards a successful outcome in the delicate task of saving lives.

This view is reflected in the current regulations and for that, Contracting States should organize the implementation of joint training and instruction exercises involving their search and rescue brigades and those of other States. This would unify the common operation criteria and standardize procedures.

If there is no regional official confirmation on the validity of the Multilateral Agreement on Search and Rescue in the respective states, this activity is difficult to implement because there is no legislation that regulates.

It is worth noting that SAR operational exercises, with deployment of resources, are occasionally conducted among neighboring States. However, they are the result of individual initiatives rather than overall planning.

3. Information on SAR experience.

Information is a vital decision-making element. In this context, the current regulation promotes the exchange of personnel belonging to the Rescue Coordination Centers among States and the establishment of focal points among them. It would provide us with experience information on SAR operations of other States, which can be positive or negative.

These experiences can tell everything that was expected to happen, events or deviations that occurred, analysis of the causes of these deviations and what can be extracted from it to improve and avoid mistakes in future SAR operations.

It is again worth mentioning how important it is to have a cooperation system among States in the region in SAR matters to have ready access to SAR exchange experiences, which are for the benefit of the SAR system as a whole.

By the mere fact of not having yet established a true regional cooperation structure among SAR services, we are missing this vital tool that means a real contribution to each organization.

As an example to be considered regarding this need, it is worth mentioning the plane crash of the Air France Airbus on the northeastern coast of Brazil on June 1, 2009, in flight from Rio de Janeiro to Paris, where many resources were used, both air and sea, including submarines, for the work of finding survivors.

Naturally, the complexity of operations in terms of participating resources means weather conditions, sea currents and much uncertainty; the lessons this operation has left for the SAR system is extremely useful to take into account and obtain lessons learned and relevant aspects to be considered in similar operations in the future, if any.

If there is a constant exchange of personnel belonging to the RCC, the said information should flow and be regarded as an element of the highest professional value that would benefit the regional SAR system as a whole.

C. Positive aspects.

One of the vital aspects in a SAR operation is the "response time" factor. This works against the lives of survivors of a plane crash; one minute can make the difference between life and death.

The COSPAS-SARSAT satellite tracking system is framed in this context, which allows satellite detection by a distress beacon from a crashed aircraft, allowing rescue resources to go to the site with fairly precise information on the location of it, which can significantly reduce the response time of SAR resources.

It should be stated that not all countries in the region have a ground segment of the system, which allows receiving information, processing and submitting it in geographic coordinates, detailing the site of the accident. However, those countries that have developed this ground segment can give full coverage to the region (and in practice they actually do) and these are Argentina, Brazil, Canada, Chile, United States and Peru. Moreover, the aforementioned countries provide operational support to each other, delivering higher robustness to the system.

According to what is stated above, we can conclude that from the point of view of satellite coverage through the COSPAS-SARSAT system, the region is supported in its entirety.

V.- CONCLUSIONS

1.- SAR Evaluation in Central America

After analyzing the current situation in Central America regarding the Maritime SAR, it is deemed necessary to develop an action plan to consider measures for the establishment of a robust and efficient regional organization working in what refers to the maritime activity similarly to what currently exists for air traffic.

To this end, two major working lines have been identified: Organization and GMDSS.

It should be noted that a real interest in moving forward on these matters has been identified in all the countries of the region, establishing national MRCCs and collaborating in the creation of a regional organization. To achieve this common goal, it is necessary that all States formalize their interest, ratifying pending international agreements, while preparing their internal organizational structures to establish their MRCCs. For the effective operation of these MRCCs, each country should prepare their personnel on the management of Maritime SAR operations and conduct the necessary coordination among all agencies involved. Only then it will be possible to establish effective relationships with other States in the process of establishing a regional organization.

In terms of participation in the GMDSS, it is estimated that, given the geographical characteristics of the evaluated Central American region and the existence of a common will to move forward on these issues, it is best to create a regional network of safety coastal radio stations to provide coordinated services from the cooperation among all stations established by each country.

2.- General SAR Situation

There are existing international regulations governing aeronautical and maritime SAR procedures, which in most American countries have been adopted and transformed into own legislation, improving the safety of recreational, commercial and tourism vessels, contributing to decreased maritime and aeronautical accidents.

In general, aeronautical and maritime search and rescue services of American States have a similar organization, enabling networking of joint cooperation, and also using common procedures relating to search and rescue operations, using IAMSAR manuals.

At the regional level, from the maritime point of view, there are bilateral cooperation agreements among States that have SAR adjacent sea areas.

During the preparation of this work, the existing international legal rules that transversely regulate the aeronautical search and rescue activity have been identified.

Derived from the content of these legal bodies, a regional diagnosis was made on the current situation of the SAR systems of the countries of the region, based on aspects that, by their size, are considered to be implemented by an efficient regional SAR system.

From the above description, we can draw certain conclusions and accordingly suggest certain courses of action.

Indeed, there is a legal standard at international level issued by ICAO on aeronautical search and rescue, whose purpose is to standardize all internal regulations of each country and to urge Member States of the region to be an integral part of a SAR system and to allow combined interaction in case of aeronautical disasters requiring simultaneous participation of resources from different nationalities in favor of a particular operation.

Despite this international standard for aeronautical search and rescue services, not all countries have expressed their willingness to join this higher purpose, which dismantles the concept of cooperation among states in a given SAR operation.

Current experiences have shown that upon the occurrence of certain air disasters, as it was the case on the northeast coast of Brazil in 2009, it is essential to have the participation of SAR resources belonging to other States that can provide different technology experiences during similar events and finally to add operational resources that are integrated under a single coordination command.

Despite the negative aspects identified in the region, there is a great search capacity related to the total coverage delivered by the COSPAS-SARSAT satellite tracking system by considerably reducing response times for recovery of survivors and that these can receive necessary medical care in the shortest possible time.

VI.- SUGGESTIONS

1.- **Creation of a Working Group for the Coordination of Search and Rescue.**

The establishment of this Working Group is seen as a previous and necessary step for what in the future could be established as an Inter-American System for Search and Rescue.

To have a search and rescue cooperation system at regional level, it will be necessary to integrate, if not all, the vast majority of countries in the region. Together they will achieve the synergy that will allow addressing an aeronautical or maritime accident with the use of maximum operating capacity at any given time, whose purpose will always be to save lives, considering that this is the reason for all SAR services anywhere in the world.

To accomplish this, it is suggested the establishment of a **Working Group for the Coordination of Search and Rescue** integrating the aeronautical and maritime fields areas, to be directed by the country chairing the Pro Tempore Secretariat of the Conference of Defense Ministers the Americas, and seconded by two other countries.

The tasks of this working group could be the following:

- a) Exchange of information;
- b) Planning of operational exercises;
- c) Conduction of seminars:

- d) Promotion of exchange of experiences and lessons learned;
- e) Instruction and training of personnel working in the Search and Rescue Coordination Centers;
- f) Creation of a website to maintain information on focal points and an archive of maritime and aeronautical SAR cases.

The Working Group will propose to the Conference of Ministers a work methodology to carry out their tasks.

2. Urge countries that have not signed or ratified the international conventions, to join those legal instruments of cooperation.