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CONSTANTA DIVING CENTRE'S CONTRIBUTION TO PREVENT AND COMBAT TERRORISM IN UNDERWATER CRITICAL INFRASTRUCTURE

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Rezumat. *În concordanţă cu Strategia naţională de prevenire şi combatere a terorismului, cu Strategia de securitate naţională a României şi cu Concepţia de pregătire de luptă a scafandrilor profesionişti se desfăşoară coordonarea eforturilor scafandrilor la nivel naţional, subregional şi internaţional în scopul consolidării reacţiei tuturor forţelor angrenate în lupta împotriva acestei ameninţări grave la adresa securităţii.*

Abstract. *The National Strategy on Preventing and Combating Terrorism, The Strategy of Romanian National Security, and the Concept for combat training of the Romanian professional divers, in conjunction with divers at any level (national, international, regional), all consolidate their efforts to fight against this serious threat to global security. For a correct assessment of the need for better protection of underwater structures and in full accord with European directives, The Diving Centre participates in efficient identification of risks, threats and vulnerabilities in the areas of responsibility.*

Keywords: Terrorist actions, critical infrastructure, divers, antiterrorist fight, diving operations

1. General consideration

Terrorism, or the war of our days, has become a result of the widening gap between democracy and absolutism. Dictatorship brings along people who feel oppressed, most sailing adrift in underdevelopment, prejudices and shortcomings of any kind. Terrorism, with its multiple types and forms, has a global character, focusing on violent religious extremism, political extremism, and the effects of tearing up; being a specific phenomenon of our times it overturns our society, adding new, and serious problems to the existing ones.

The causes of this phenomenon are very different and complex, and they may be sought in economic, social, cultural crisis, etc., as well as in the contradictory relationships that appear in the influences exerted by democratic civilizations on those societies, which are still tributary to totalitarian regimes.

Based on such ways of interpreting terrorism, experts around the world, as well as Romanian ones, have developed in recent years, legal and organizational -

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functional juridical bases of antiterrorist activity, of the forces involved in combating terrorism. Complex training of SOF fighter, and EOD operator, which allows interoperability of the Romanian divers with those of other partner countries in countering terrorism is conducted in accordance with laws, policies and specific regulations in force, being a complex, costly and long-term (approximately 3 years) process proper to special forces. The National Strategy on Preventing and Combating Terrorism, The Strategy of Romanian National Security, and the Concept for combat training of the Romanian professional divers, in conjunction with divers at any level (national, international, regional), all consolidate their efforts to fight against this serious threat to global security.

Over the past 30 years, global society has met with the terrorist phenomenon, and its different forms of manifestation. Terrorist actions aiming ay and achieving targets in all environments (aircraft, subway, boats, telecommunications, schools, offices of institutions, politics, business, crowds of people, etc.) lead to the conclusion that they are created by evil, whose results are hard to predict. Countering the terrorist phenomenon is a necessity of our days.

Fig. 1. Antiterrorist protection of the infrastructures from Navy area of responsibility.

2. Prevention and combating of terrorist actions

Preventing and combating terrorism in the aquatic environment and coastal areas (sectors under the jurisdiction of the Navy) is a complex operation carried out by groups of military divers working in special conditions, in large and difficult to control areas such as: The Danube Delta and the neighboring marshes, the river, dams, lakes, marine platforms, etc. Activities are conducted in compliance with NATO standards and represent a permanent task for the professional divers of the Divers Center.

These actions include: the study of the expertise area, information gathering, analysis and selection of data, preparing prevention measures, control and response, establishment of working procedures and equipment necessary for task accomplishment, fast and reliable execution of interventions. Typically, these activities are held secret, and use specially trained groups of counterterrorist operations. Here are some anti-terrorist protection measures: ensuring safety of the fairway, of port berths, locks, river and maritime vessels, convoys, bridges (as obligatory crossing points), of offshore drilling and production platforms and related facilities, of underwater oil and gas storage tanks, of communication and power transmitting cables located under water, of warehouses, of personnel and VIPs, etc. The training of divers for preventing and managing terrorist actions, that may affect critical national or European infrastructure in their area of responsibility, is carried out in a planned manner and in compliance with European standards. The conflicts that can escalate into terrorist actions are usually of low intensity, regional and limited in space, but many of them last for a long time and can have a major psychological effect (amplified by media coverage) on non - combatant. Preventing and combating terrorist attacks that threaten the marine area is permanent tasks of the military and civilian divers in the Divers Centre.

According to the provisions specified in the "Directive 2008/114/CE" issued by the Council of Europe on December 8, 2008 concerning the identification and designation of critical European infrastructure and the assessing of the need to improve their protection, it is to be noted that Romanian divers are properly trained to act, on order, both on the river and at sea to protect against terrorism in the following sectors specified in [4] Annex 1:

- energetic (production – Nuclear Plant Cernavoda, hydroelectric power plants, etc., transport - underwater cables),
- naval, road, rail transport (fairway, berths, locks, bridges feet, bridges etc.),
- oil and gas (drilling and production platforms, facilities, pipelines and storage tanks located under water etc.).

One of the methods of prevention and combating of terrorist actions is performing the "risk analysis". It involves the analysis of the threat scenarios so as to assess vulnerability and potential impact of disruption or destruction of critical infrastructure. The need for protection of national and European infrastructure is a permanent task that should be evaluated in such a way so as to cover all possible risks, giving priority to the terrorist threat. [4]. The Directive states that: "under this approach, man-made or natural disasters, as well as technological threats should be taken into account in the protection of critical infrastructures (CI), giving priority to the fight against terrorism". In this respect, groups of divers of the Divers Centre (DC) can make a vital contribution.

3. Anti-terrorist protection of national and European infrastructure

The analysis of the area and threats leads to the identification and designation of national and European infrastructure groups in the Navy's area of competence, and to the evaluation of the need for better anti-terrorist protection that can be achieved with the help of specially trained divers.

The main infrastructure to which incursion divers, mine defusing deep sea and river divers groups are regularly called upon to conduct anti-terrorist control or effective intervention operations are: port areas, fairways, iron ore and cargo berths, passenger embankments, offshore drilling and production rigs, oil and gas pipelines, underwater communication cables, navigable canals, locks and flood gates, the coastal zone, the river and the Danube Delta (inland waterway route, bridge legs as strategic points for crossing the Danube), the Cernavoda nuclear power plant, hydropower plants, etc.

To improve the national and European level of preventing, limiting and dismantling terrorist attacks and their response to these, divers, as intervention groups of the Naval Forces, constantly prepare and train at the highest international operational standards.

Supervision, control and anti-terrorist intervention operations are conducted in different locations: offshore platforms, submerged tanks and structures, oil and gas pipelines, power transmission cables and communications, lock gates at the foot of bridges, control operations at berths and sea or river fairways, etc. Non-damaging checks are carried out for the submerged parts of ships; all these are materialized in national and multinational military and civilian exercises of the DC divers, and operational NATO forces. (See 8.)

4. Main action methods of divers

The methods and processes of action groups of divers are consistent with [1] National Strategy for Terrorism Prevention and Control, [3] Romanian National Security Strategy of Security and [2] The concept of combat training for divers.

To establish the optimal methods of intervention and action during tasks divers take into account the size, weight and nature of the target, and the existing facilities available within the operating group. In sending a certain group of divers and the adequate and equipment to the location where action should be taken, one should take into account a lot of factors: depth and water features, sea bottom nature, topography of the area, weather conditions, target characteristics (size, material, nature of the accident that may occur, etc.)

Regardless of the method chosen, it should be as simple and safe as possible. For this reason divers missions must be planned very carefully.

5. Situations that require divers specialized in antiterrorist fight

The Diving Centre sees to it that the intervention plans be efficient and safe whenever emergency situations occur. The main situations that require the existence and action of divers specialized in antiterrorist fight are acts of God cases. Among them mention must be made of:

- natural disasters
- major damage arising from: underwater plants in Cernavoda Nuclear Plant, hydroelectric dams etc.,
- damage at military or civilian ships,
- locks gates,
- buffer underwater tanks,
- oil and gas pipelines etc.

Actions taken by specialized groups of divers - continuously, according to a unitary concept, and closely related to the importance of underwater structure that undergo regular and special anti-terrorist checks, which are specially required at:

- river and marine fairways, river and marine ships;
- military and civilian ships berthed in Constanta military port;
- military berths, lights;
- locks;
- drilling and extraction platforms;
- bridges and bridges feet.

6. General principles used in planning diving operations

It is customary for divers to act within a short period of time (quick interventions), small targets, fewer and well – trained and equipped forces. The skill in battle, determination and discipline are essential for the success of each and any operation. Divers intervention operations can be grouped as follows:

- research, reconnaissance and surveillance at strategic and operational level by using the methods, means and specialized systems - launches and leaps with parachute using naval capabilities (SRS's, speedboats, ships), helicopters and/or airplanes, quick and safe transport of divers groups and specific equipment to the critical working points, etc.;
- underwater control – visual (done by divers) , or taken by cameras, using own equipment (RHIBs, lateral scanning sonar (portable or hauled) ROVs, etc.;
- underwater non-destructive control using ultrasounds;
- rescue operations of a damaged submarine crew, of equipment and facilities etc.;
- operations of destroying those pieces of equipment that can threat collective security (using underwater explosives), blasting rocky ground (using underwater hydraulic equipment;

- recovery of damaged documents from shipwrecks or abandoned vessels;
- extraction of force by using joint or mixed forces.

Releases of divers (specially trained groups belonging to SOFND) are done by vessels or aircraft, through leaps with or without parachute, from aircraft, helicopter, or speed boats.

When planning terrorist operations with divers withdrawal of force should be held in view and in advance. Usually these operations are of a "joint" type (joint forces), they can be national or multinational. Hence the need for some equipment and logistical means compatible with other structures used by partners (forces) participating in these activities.

Depending on the depth and immersion in planning diving operations, the necessary logistical support necessary for treatment of decompression accidents must be chosen very carefully. For decompression accidents decompression rooms are used. They are equipped with specific pressurized equipment and are used for simulated training purposes, for training, experiments, tests in the hyperbaric field, medicine, treating various diseases by using oxygen. There exist single-seater decompressing chambers for immediate decompressing and transportation of casualties to the closest hyperbaric centre for adequate treatment.

The components of a single-seater chamber are: the chamber itself (that can be a cylinder or cone shaped), the cover of the chamber (sealed opening), the control panel, air lock for drugs, two air storage cylinders, safety valve, a coupling device to the single –seater chamber, some rings to help lifting , flexible pipe connecting the cylinder and control panel, the sliding device, portholes, porthole for lighting with a torch, manodetentor and flow meter, intercom, fine gauge 0 ÷ 25 meters, gross gauge 0 to 50, meter gauge for ventilation, drain valve for quick drain, fine fixture, device for fixing the chamber's cover, vent valve.

Intervention in deep waters around dams or at marine platforms feet require the use of tools and equipment adequate to working in deep waters. All these activities require specialized systems and equipment for working at big depths.

Forces participating in operations are not numerous, but are perfectly trained, using the latest technique, with an innovative concept of action, assuming the exercise of a certain level of control on land and underwater areas done by control teams . It is planned so as to minimize risk and to safely withdraw from theaters of operations where the forces were been deployed.

7. Basic and advanced, individual and team professional divers training

Divers intervention suppose the existing of well – trained specialists, work involves intense schooling and duration.

Basic training is aimed at integrating the military in small teams, as well as and learning the basics of the collective training. Advanced training is aimed at training joint performance with the group/detachment and their full integration in these structures in complex exercises.

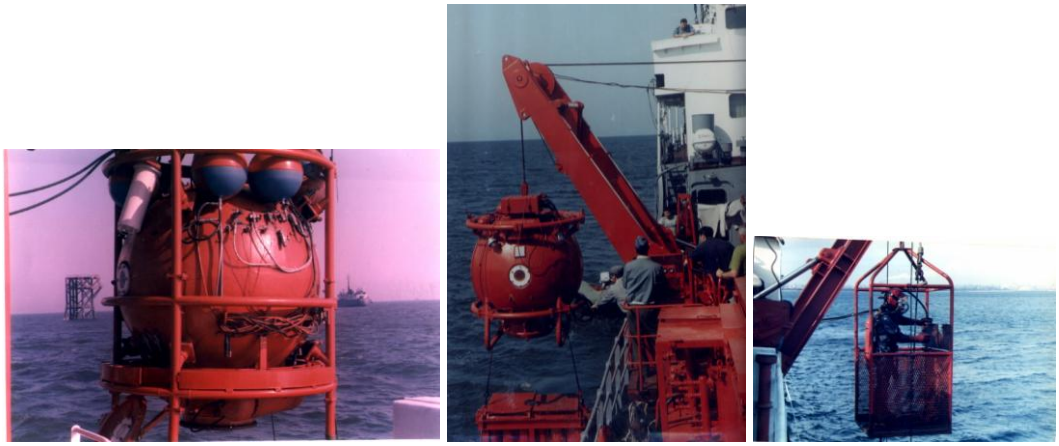

Fig. 2. Tools and equipment for working in deep waters.

The IED evolution and modern technology used in explosives, as well as the increase of the terrorist phenomenon, as a major threat, require professional divers, able to use the techniques, procedures and cutting edge equipment to locate, neutralize and destroy them. Divers go through a strict theoretical preparation and practical training, which is both strenuous and expensive. Their training spans over 3 years, during which they get skilled in diving techniques, become accustomed with group/individual practical and psychological skills (divers need to know each other very well, so as to have full confidence in both their own forces and their partners', with whom they share missions, be them underwater). Their tasks may include search, evaluation, classification, deployment of buoys, transportation, neutralization/destruction (in terms of minimum risk taking) of sea mines, of Unexploded Explosive Ordnance (UXO), and IED, that may lie submerged, and which cannot be tracked down, or dredged by mine sweepers. Attention should be paid to selecting personnel who will be part of those groups of divers, so as to reach maximum success in any operation. The selection process begins with the military person's will to be part of these structures. Then, physical tests with high difficulty are taken; most often they are not easily reached by everybody. One needs perseverance and systematic individual training to be able to fulfill such requirements. Finally the pressure tests (oxygen tolerance of the body) are taken in the live chamber of the Hyperbaric Laboratory. They are necessary for the treatment of decompression accidents. After all these stages are achieved the individual training period begins within the courses listed below. From previous experience, we can state that 30-50% of candidates graduate these courses.

Individual training

The following individual standards need to be achieved in order to become a good SOF fighter: autonomous diver 3rd category, SOF Course – Buzau, Climbing Course, Parachuting Courses, Survival courses under extreme conditions, Combat diver course, Sniper course.

Ensuring physical and mental training is just one aspect of the many needed for the training and education activities of future professionals' divers.

To achieve individual performance standards, the EOD operator must take the following courses: autonomous diver 1st category, 3 months, Combat divers course, 4 months, Course for recognition of mechanisms, one and a half month, Basic EOD course – Râmnicu Vâlcea, 4 months, Diver 2nd category, 3 months, IED course, based on accurate knowledge of all mechanisms and explosives which a diver may encounter in real situations, 1 and a half month, Sniper course, 1 and a half month, Driving course, 3 months.

Above all, the basic training process of an EOD operator consists in the theoretical and practical knowledge about explosives and ammunition. Complete and correct understanding of the properties of explosives and situations affecting detonators, explosives identification and their nature is one of the main conditions of accreditation. Without these conditions procedures and specific techniques can not be applicable. Considering the above, training of individual SOF, and EOD operators is a complex, costly, long-term process (approximately 3 years).

Team Training

After completion of individual training military people have the basic knowledge and skills on specific activities carried out by combat divers. They are able to execute training dives with open, closed and semi-closed circuit equipment, using the existing techniques and facilities, etc. (See MS Course). From this stage on the military participating in a group/team start a training program from simple to complex, at the end of which, the group/team must act as one to carry out missions specific to all structures. Training programs will include theoretical and practical diving activities, parachuting, jumping from helicopters and speed boats, special firings, specific procedures with real explosives, training camps, rallies, survival situations, etc., organized within tactical framework , with the enemy marking along.

Stages of team training for professional divers are either basic or advanced. Basic training is aimed at integrating the military in small teams and acquiring basic knowledge in collective training.

Advanced training aims at group/detachment instruction, and their full integration into these structures, in complex exercises.

Both periods end with the execution of the evaluation exercises. They are particularly important and certify that group/detachment is ready for the next stage of training. Evaluation results are recorded and filed, thus proving at any time the quality of their training. Accurate assessment made at the end of advanced collective training certifies that group is ready to meet real missions.

The next stage of training Navy SOF and EOD divers is participating in joint exercises, with other forces involved in counter-terrorism actions, at national or international level, to increase interoperability between these structures.

At the end of this period of training both individually and collectively, a diver must meet minimum performance standards set out in current documents for a combat/professional diving operator specialized in the neutralization and destruction of ammunition/IED mounted on submerged structures, secured or not, set in mud, sand, or among rocks on the seabed, etc.

The Diving Centre is responsible for ensuring, through thematic courses, the conditions for NATO's standards and requirements. Continuous and planned training maintains a high level of knowledge and training of Special Operation Forces (SOF) divers, EOD operators' divers, Explosive Ordnance Reconnaissance (EOR) agents, in compliance with the actual standards and coordination in time and space of these forces specific actions.

8. Actions taken by specialized groups of divers

Participation in NATO anti-terrorist operations - EU outside the country shoulder to shoulder with coalition forces, participation in regional initiatives, missions and training exercises at home and abroad; all these are specific activities of deep sea and river SOFND and EOD divers. The main military activities involving Special Operations Forces Naval Group (SOFNG) in the theater of operations in Afghanistan with a Special Operations Battalion Tg. Mures mixed structures were:

- 25.06 - 17.08.2009, operation IRAQI SUNSET 09,
- 14.03 - 10.07.2009, in hot theatres of Afghanistan,
- ROUSOF DET 9 – 24.05.2010 – 14.02.2011,
- ROUSOF DET 10 – 27.01.2011 – 30.08.2011
- Ensuring protection of school ship Albatros during the march Constanta - Kuwait for the transportation of materials from Iraq 26.06.-15.08.2009,
- 01.11.- 06.11.2010 Active Endeavour,
- 04.10.-15.10.2010 Afghanistan,
- 13.09.27.09.2010 – Jackal Stone (NATO exercise).

Participation of EODNG divers in NATO, EU, regional or national activities have resulted in:

- NRF 14 – 01.01-30.062010,

- MarRRIC 01.09.-31.10.2011, any diving team is able and anytime ready to act whenever the European Union Major Staff (EUMS) require,

- The constant task of EODNG is searching, discovering and neutralizing mines floating adrift on the sea surface or between waters, since WW II.

Divers prepare for future participation in the ROUSOF DET 12 any SOFNG missions (01.2012-08.2012) etc.

Missions involving military divers have been fulfilled in good conditions.

With current threats note should be taken about the complex and dynamic nature of the missions the divers carry independently or in cooperation with other types of forces. In modern conditions we should not minimize the role of any existing current geopolitical and geostrategic context in the Black Sea area that requires new types of actions for divers.

Finally there is an increased role and importance of the Diving Center - standard unit and unique centre in Romania - in pursuit of responsibility in the Navy.

9. Conclusions

The paper presents in its first part, generalities on prevention and management of specific terrorist actions in the aquatic CI, to ensure security and stability of the coastal region, as well as situations and actions that require divers, specialized in countering terrorism. After this, some of the main methods and procedures used by groups of divers are presented, together with methods of prevention and combat of terrorist actions, and some general principles used in planning diving operations. Not in the least, the technical and logistical support necessary for initial and pressure tests, as well as specific decompression diving activities, which may occur anytime to anyone, are presented.

The second part of the work shows how divers are selected and trained, as well as how responsibilities for establishing antiterrorist intervention group members are shared. Basic training is aimed at integrating the military in small teams and acquires basic knowledge in collective training. Advanced training supposes group training, and divers' integration into these structures through complex exercises.

The end of the paper concludes briefly, by presenting: the need to equip divers with specific equipment and technique compatible with those of allies, as well as some of the real drills and missions, in the country and out its borders our divers.

They represent a wide range of actions taken by specialized groups of divers - continuously, as a unitary concept, according to the importance of each Critical National or European Infrastructure.

We considered this paper worth writing since terrorism is a serious threat of our contemporary society, and the world is characterized by high instability and unpredictability, while aquatic Critical Infrastructure security is poor. For a correct assessment of the need for better protection of underwater structures and in full accord with European directives, The Diving Centre in Constanta participates in efficient identification of risks, threats and vulnerabilities in the areas of responsibility.

Special Operations Forces (SOF) must ensure the normal state to which society, people, communities and the state aspire - on the basis of efforts aimed at introducing full legality, building economic prosperity, social balance and political stability.

Another objective of this paper is to highlight that there are differences between land and underwater antiterrorist interventions, and that due to geographic placement of Romania, to the EU's eastern border, entailed the development and operationalization of military divers (worth mentioning that diver groups were the first to be operationalized). Our nation's future development is closely linked to the Black Sea coastal area and by the liaison with the Centre of the European Union, provided by the Danube. To ensure peace and security in the area it is necessary that the Romanian military divers carry out a sustained activity.

Through their work, skill, discipline, discretion and professionalism Romanian divers contribute to the development of the Romanian Black Sea coast (EU border) as a safety and secure area.

Abbreviations

CE = Council of Europe,
CI = Critical Infrastructure,
DC = Diving Centre,
EOD = Explosive Ordnance Disposal,
EODNG = EOD Naval Group,
EOR = Explosive Ordnance Reconnaissance,
EU = European Union,
EUMS = European Union Major Staff,
IED = Improvised Explosive Devices,
SOF = Special Operations Forces,
SOFND = SOF Naval Detachment,
SOFNG = SOF Naval Group,
SRS = Rapid Rescue Launch,
UXO = Unexploded Explosive Ordnance,
WW = World War.

R E F E R E N C E S

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[11] ATP-10(D) - Search and Rescue.

[12] ATP-43(A) - Ship to Ship Towing.

[13] MTP-57 - The Submarine Rescue Manual - STANAG 1390.

[14] PCP-1 - PfP Naval and Air Maritime Communications Instructions.

[15] EXTAC's series - manuals used in NATO/PfP exercises.