

DESTRUCTION OF CHEMICAL WEAPONS IN POLISH MARITIME AREAS - LEGAL OBSTACLES AND POSSIBLE SOLUTIONS

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Abstract

The problem of post-war chemical weapons lying on the seabed of the Baltic Sea is an issue which, in addition to posing environmental threats, may soon also have a direct impact on the realisation of many investments planned to be located in Polish maritime areas. In the nearest future this problem will concern in particular investors connected with the construction of offshore wind farms. Despite the fact that these investments are located outside the official sites of chemical weapons dumping, it is necessary to take into account the risk of the presence of chemical weapons in the area of the realised investment during its realisation, in particular at the stage of geological, and construction research. This is due to the fact that to date there is no comprehensive inventory of the Polish maritime areas in terms of estimating the total amount of dumped chemical weapons, the types of chemical warfare agents filling them, and the exact locations of their deposition. The presence of chemical weapons in the area of the planned investment may significantly delay its implementation, thus exposing investors to enormous losses associated with the downtime necessary to remove the threat. In the current Polish formal, and legal State, there is no specific legal basis for taking actions aimed at clearing sea areas designated for economic use of dangerous objects, such as dumped chemical weapons. There is no entity responsible for coordinating such activities, no entity capable of extracting, and destroying chemical munitions with their contained toxic warfare agents in accordance with the law in force, and there are no identified sources of funding for such activities. It is already necessary to take appropriate legal, administrative, and organisational steps for the extraction, and destruction of dumped chemical munitions in the areas of investment activities so that, among other things, the offshore wind farms can start producing energy as planned.

This article analyses the legal obstacles to the clean-up of maritime investment areas from chemical weapons, and identifies the need for legal, and organisational changes to enable investors to safely carry out their planned investments in Polish maritime areas. The aim of this article is not to analyse the issue of the clean-up of chemical weapons in the Baltic Sea, although this problem is also the subject of numerous discussions on the international forum, in particular the European Parliament.

Keywords: Chemical weapons, Baltic Sea, Chemical Warfare Agents, Chemical Weapons Convention

1. INTRODUCTION

After World War II, more than 350,000 tonnes of chemical weapons were seized from German territory by Allied forces (Fabisiak, 2019). The vast majority, as much as 170,000 tonnes, was dumped in the Baltic Sea, and Skagerrak Strait (Fabisiak, et al., 2017). It is estimated that approximately 40 thousand tonnes were dumped in parts of the Central Baltic Sea (Fabisiak, 2019), although other sources indicate that it may be even more than 60,000 tonnes (Senate Office, 2021; Beldowski, et al., 2014). Three official dumping areas are known in the area: the Little Belt, the Bornholm Deep - east of Bornholm - and the south-western part of the Gotland Deep. However, not all information on the sinking operations, including the sinking locations, is fully available, and reliable. To date, the archives of the former Union of Soviet Socialist Republics have not been declassified, nor has material on chemical weapons dumping operations after 1947 been made available. Relatively recently, the Russians have admitted that they also dumped chemical weapons mixed with conventional weapons in the Gdansk Deep Sea area (Senate Office, 2021). Everything that happened thereafter, up to the 1970s, unfortunately still remains unknown. Only witness accounts of the dumping of ammunition by Warsaw Pact troops are known, mainly by Soviet Army soldiers, and German sailors from the army of the former German Democratic Republic (Senate Office, 2021).

Research projects carried out between 2011, and 2021 (e.g. CHEMSEA, MODUM, DAIMON, and DAIMON 2) have shown that a certain amount, unfortunately unknown (lack of source archive documents), was dumped at sea already during transport to the targeted dumping sites. This practice was particularly intensive in areas such as the Šlupsk Trough or the route from the German port of Wolgast towards Bornholm (Beldowski, et al., 2014; Kasperek, 1999; HELCOM, 1985; Knobloch, et al., 2013). In the figure below (**Fig.1**) presents the official chemical weapons discharge areas, the official, and unofficial routes for transporting chemical weapons to the designated drop sites, and the locations of accidental extraction of chemical weapons outside the designated drop areas. The bombs, missiles, mines, barrels, and containers that were dropped into the water drifted, so today's maps, indicating the locations of chemical weapons on the bottom, show the sites only indicatively.

The above circumstances have resulted in chemical weapons being dispersed over an area much larger than that designated for their dumping. These regions, certainly, have also expanded as a result of bottom trawling, for example, during sea fishing. At present, scientific research indicates that there are about 60 sites, in addition to the official dumping regions, where chemical weapons are deposited (Senate Office, 2021). By 2022, only 31% of the Polish maritime areas have been bathymetrically identified, which makes it impossible to assess the real scale of threats, and challenges related to deposited hazardous materials, including chemical weapons, and chemical warfare agents (CWA) in Polish maritime areas in the context of the safety of the population, the marine environment, and the broader maritime economy.

In conclusion, the legally designated chemical munitions dumping areas are arguably the areas with the highest concentrations of chemical munitions, but it must be taken into account that different dumping practices, different methods of dumping, and economic activities on the Baltic seabed (bottom trawling) mean that currently chemical munitions are dispersed over much larger areas than indicated by the nautical mapped areas designated as chemical munitions dumpsites.



Fig.1 Chemical munition dump sites in the Baltic Sea

Source: Map from the DAIMON 2017 conference presentation (Helsinki)

That dumped chemical warfare agents (components of chemical weapons) pose a threat, both to the fragile, and sensitive Baltic Sea ecosystem, as well as to the health, and lives of the Baltic Sea population has been conclusively proven by large-scale scientific research, both in the Baltic Sea region (e.g. MERCW, CHEMSEA, DAIMON), and in other marine areas around the world (e.g. HUMMA - Hawaii region) (Edwards & Carniel, 2017; Edwards, et al., 2016).

For some time now, in addition to ecological threats, submerged hazardous objects have posed another threat to the economic use of the Baltic Sea, especially when investments involve ingress into the seabed: gas pipelines, power cables, offshore wind farms.

For the first time, the issue of dumped chemical weapons became relevant during the decision to build the Northern Gas Pipeline. Its route was to run close to one of the official Baltic dumps of dumped weapons - in the Bornholm area. During the preparatory work, at least 10 naval mines, and dozens of 'unrecognised explosive objects' were found at the bottom of the Gulf of Finland, including KC-250 chemical bombs filled with sulphur iperite (Fabisiak, 2019; Nord Stream, 2009). The presence of munitions along the route of the planned pipeline necessitated the need to change the originally envisaged route of the project to avoid hazardous munitions dumps. This resulted in a significant increase in investment cost. Currently, investors in the energy sector may face the same problem when constructing, for example, offshore wind farms in the Polish Exclusive Economic Zone (PEEZ), gas pipelines or power cables. As can be seen in the figure below (**Fig. 2**), the plots of land where OWFs are planned to be built are located close to the transport routes of chemical weapons to the dumping area, and some of them intersect these routes.

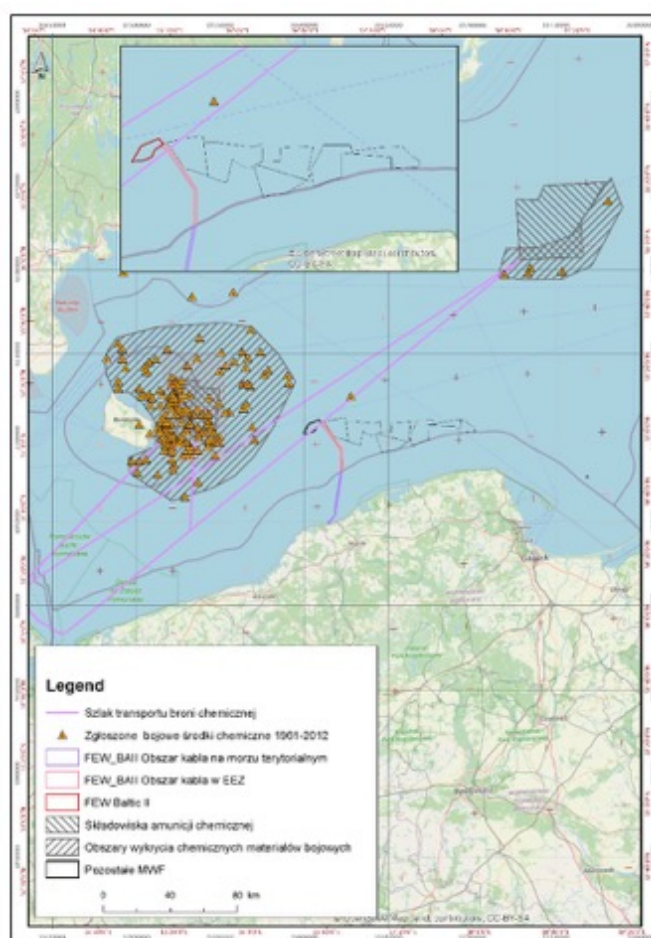


Fig. 2. Routes of transport of chemical weapons to targeted dumping sites against the background of future OWFs in Polish EEZ.

Unfortunately, in the case of these investments, it is not possible to change the location of the plot, as was the case for the Nord Stream 1 gas pipeline. In the event of the presence of chemical weapons in the area of the investment, the investor will have to solve the problem with the hazardous object on his own, as Poland currently lacks any legal, organisational or technical regulations which would enable the efficient, and safe disposal of the hazardous object in order to ensure the continuation of the investment works.

Investors who have started preparatory work to erect wind turbines in the PEEZ will soon be faced with this problem. Today, they are at the stage of obtaining the necessary permits, but once this stage is completed, work on the offshore wind farms will enter the next stage of their physical construction. This activity will involve interference with the seabed. In addition to the foundation system for the turbines, and transformer stations, construction will also involve the laying of hundreds of kilometres of transmission lines for various purposes. It is only a matter of time before investors carrying out their projects come across dangerous objects of military origin, some of which will be chemical weapons. Therefore, what should an investor do in such a situation?

The aim of the article is to point out the obstacles, mainly legal, which may hinder many maritime investments for a long period of time in case chemical munitions are deposited on the seabed in the area of investment works. The authors of the article proposed a possible solution to the problem, which unfortunately is difficult to overcome as it requires the involvement of public administration bodies, which are rather reluctant to deal with the subject of excavation, and destruction of dumped chemical weapons. It should be noted at this point that the author's intention is not to indicate directions for clearing the Baltic Sea of all chemical weapons lying on its seabed, but only to indicate the possibility, without breaking the law in force, of intervening when chemical weapons may stop investment works in areas of their presence for a long time.

2. THE PROBLEM OF CHEMICAL WEAPONS IN BALTIC SEA ECONOMIC UTILIZATION AREAS

Chemical munitions dump sites represent diffuse point sources of contamination of unknown magnitude that are difficult to control, so therefore, have a negative impact on certain areas of the maritime economy. For this reason, the Baltic Sea has been identified as less safe, and potentially more costly in terms of investment compared to other seas (Romowicz, 2021a).

Of course, potential investments in the Baltic are located outside hazardous areas, including those in which chemical weapons are deposited. However, as demonstrated during the research, chemical weapons are dispersed on the bottom of the Baltic Sea as a result of various activities, and processes. There are places where chemical weapons are more or less likely to be found, but there are also places where the probability of their occurrence was considered to be zero, and yet chemical weapons were found in these places as well. Therefore, even if the area to be developed will be designated outside of known chemical weapons dumping areas, there is always some risk of encountering these weapons there.

Any offshore development must be preceded by an assessment of its environmental impact. One element of such an assessment is to assess the risk of chemical weapons being present there, and the degree of risk during the construction, and operational phases. Even if this assessment shows that the risk is insignificant, the developer must still outline in the assessment the actions that will be taken if chemical weapons are encountered during the works.

Also, the provisions of the Spatial Management Plan for Polish maritime areas together with spatial analyses state that the munitions dumped in the Baltic Sea after World War II pose a significant problem for both sea users, and the environment. Conclusions to the spatial development plan for Polish maritime areas indicate that the existing threat should be taken into account, and closed or restricted use zones should be designated in areas of dumped chemical weapons storage, and any studies for investments in Polish maritime areas should also assume a search for potential dumped munitions elements (Maritime Institute, 2015).

Also, the decisions on environmental conditions for investments, e.g. related to the offshore wind farms in Polish maritime areas, in the section "Obligations of the applicant in terms of actions minimising, and mitigating negative environmental impacts related to the possibility of discovering military remains", oblige the applicants to perform a study in terms of actions minimising, and mitigating negative environmental impacts related to the possibility of discovering military remains. In addition, they oblige the implementation of procedures to prevent accidents related to unexploded ordnance, and in particular to chemical warfare agents, at each stage of the project. Procedures are mandated to cover the ongoing identification of such objects during geotechnical investigations, and construction activities, to provide for possible first aid in the event of contamination, to establish communication, and notification procedures, and to establish clearance procedures for the vessel. The same procedures, to a limited extent, must be developed by developers for situations involving the accidental excavation of conventional military objects. However, due to the impossibility of assessing the type of extracted weapon, all the precautions that apply to chemical weapons must be observed. The discovery of such an object must be reported to the territorially competent Director of the Maritime Office, and to the relevant services of Naval (Romowicz, 2021a).

As can be seen from the above documents, any survey conducted prior to the commencement of any investment in Polish maritime areas should also include a search for potential dumped munitions, including chemical munitions. The purpose of each of these documents is to take care of the safety of workers, and the environment. Unfortunately, the guidelines to these documents do not indicate procedures for dealing with a hazardous object so that it will not be an obstacle during investment works, in other words there are no established procedures for destroying objects which are chemical munitions.

If a hazardous object is found in the area of underwater investment works, work must be stopped until the hazard is removed. What can be done in such a situation? Several solutions exist, and are applied:

The first, which is very costly, and not always feasible, especially at the advanced construction stage, is to change the location of the project to avoid areas where chemical weapons have been found.

The second is to move the hazardous object to a distance so that it does not pose a risk. This solution is technically feasible (this was probably done during the construction of the Nord Stream pipeline), but expensive, and additionally dangerous for the people involved in the operation to move the hazardous object, and for the environment. This solution requires diving specialists, and appropriate equipment. In addition, and importantly from an environmental risk point of view, the activities involved in moving the object may damage the structure of the object, and consequently release poisons into the environment posing a risk of contamination to the environment, and to the operators. It has been estimated that if one-sixth of the poisonous warfare agents dumped in the Baltic Sea were to be released from the tanks, life in, and around this sea would be completely destroyed for approximately 100 years (Senate Office, 2021). This solution seems unlikely to be feasible, as it contradicts the provisions of the Law of the Sea Convention, the provisions of which prohibit the relocation of hazards to another region away from the area in which the development is taking place.

Another solution is to excavate, and destroy the dangerous object. Like the previous projects, it is costly, but the use of a professional service for this purpose (e.g. an emergency response team, which does not yet exist in Poland) with appropriate equipment, and resources would make such operations safe both for people, and the environment. At present, there are no legal obstacles to the extraction, and disposal of chemical weapons. While the extraction, and destruction of chemical weapons is not prohibited, it does have legal implications related to the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons, and on their Destruction (CWC), the provisions of which must be taken into account during the chemical weapon (CW) destruction process. In addition, it is necessary to develop a comprehensive technology covering the process of precise location, identification, extraction, and disposal of chemical munitions, and CWA lying on the seabed in commercially used areas.

Although the developer should develop procedures to deal with contact with chemical weapons (chemical warfare agents), he is not obliged to have the means, and equipment on board to carry out decontamination processes. In such a situation, the Search, and Rescue Service (SAR) should provide

support. Unfortunately, the SAR service does not have the trained personnel, and specialised equipment to carry out operations in an area contaminated by chemical warfare agents.

Up to now, in situations of accidental fishing or discarded on the beach of chemical warfare agents intervention actions have been taken by the Polish Navy, precisely by chemical subdivisions professionally prepared to counter threats generated by CWA. Unfortunately, these actions are implemented in a very limited way. Firstly, they will only be undertaken in the event of an accidental landing of chemical munitions, and secondly, only on land. It should also be noted that the Navy, although it has specialists for destroying CWs, does not have the equipment to deal with chemical contamination in a manner consistent with the provisions of current law, in particular the CWC guidelines.

The existing legislative, and technical deficiencies related to the effective solution of the problems generated by dumped chemical weapons, and often also the hostile attitude of the State administration, which seems to either fail to recognise or ignore the dangers of dumped chemical weapons, result in a private investor, once a threat related to the presence of chemical warfare agents or the mining of chemical munitions is located, being left alone with the need to solve the problem.

Given the high complexity of the process of neutralising chemical warfare agents deposited in the marine environment, the requirement to obtain the relevant national, and CWC permits, the need to involve highly specialised equipment, and personnel, the involvement of private entities offering such services, de facto expensive, will result in a significant increase in the response time for cleaning up the area, consequently blocking investment for many months.

3. LEGAL ASPECTS

The primary piece of legislation in the area of maritime law is the United Nations Convention on the Law of the Sea (UNCLOS), drawn up in Montego Bay on 10 December 1982. According to Article 123, States should cooperate with each other in the exercise of their rights, and duties with respect to the protection, and preservation of the marine environment (UNCLOS, 1982). Subsequent provisions of the Convention (Article 192) oblige States to take action in the field of protection of the marine environment, and (Article 194) to take measures to prevent, reduce, and control pollution of the marine environment from any source (i.e., it is to be presumed, including dumped chemical weapons), using the best practicable means at their disposal to do so (UNCLOS, 1982; Romowicz, 2021b). It is also worth noting the provision of Article 195 of the Convention, which introduces the obligation not to displace damage or hazards, and not to transform one type of pollution into another, which means that if a hazardous object is located in the area of the investment, it is not sufficient to move it to another area away from the area where the investment is carried out at a safe distance. It is therefore necessary either to destroy the hazardous object on site or to excavate, and destroy it with the applicable legislation. This issue was addressed in the previous chapter.

The most important piece of legislation directly related to the environment of the Baltic Sea is the Convention on the Protection of the Marine Environment of the Baltic Sea Area of 9 April 1992. It refers to the protection of the marine environment of the Baltic Sea area covering, importantly, water, and the seabed including its living resources, and other forms of marine life. The Convention obliges the contracting States to take legislative, administrative, and other measures to prevent, and eliminate pollution with a view to the ecological recovery of the Baltic Sea area. The Convention also obliges the contracting parties to prevent, and eliminate pollution of the marine environment resulting from harmful substances from all sources.

The Helsinki Convention introduced, relevant to the problem of the disposal of dumped chemical munitions, definitions: "harmful substance", "hazardous substance", and "pollution incident". As Romowicz rightly pointed out when looking at these definitions, through the prism of UN General Assembly Resolution 68/208 'Cooperative measures to assess, and increase awareness of environmental effects related to waste originating from chemical munitions dumped at sea', they allow to look at the

subject of dumped chemical warfare agents in the Baltic Sea from a different perspective, as waste lying on the bottom of the Baltic Sea, and posing a threat to it (Romowicz, 2021b).

A major contribution to the assessment of the threat to the Baltic environment was made by the Baltic Marine Environment Protection Commission, also known as the Helsinki Commission or HELCOM, proclaimed by the Convention as its implementing body. To investigate the threat of dumped chemical weapons, the commission established working groups in 1994. HELCOM CHEMU, and then in 2010. HELCOM MUNI. The first group concluded as one of its final conclusions that the munitions do not pose a serious risk to the environment, and therefore no work should be undertaken to extract, and destroy them on land. This finding has resulted in the fact that to date (with the exception of the early 1960s), none of the Baltic States have undertaken to clean up their maritime areas of dumped chemical weapons there (Fabisiak, 2019). The issue of the extraction, and destruction of dumped chemical weapons was not addressed in the Second Group report. However, it should be taken into account that the recommendation of the Helsinki Commission not to extract chemical weapons from the bottom of the Baltic Sea refers primarily to areas of known dumped chemical weapons, and not to interventional action in life-threatening or economic situations.

Another important legal document in the field of marine environmental policy for the Baltic Sea is Directive 2008/56/EC of the European Parliament, and of the Council of 17 June 2008, which sets out a framework within which Member States shall take the necessary measures to achieve or maintain good environmental status of the marine environment. The directive directs states to develop, and implement marine strategies to protect, and preserve the marine environment, prevent its degradation or, where practicable, restore marine ecosystems in areas where they have been adversely affected, and prevent, and progressively eliminate pollution of the marine environment so as to preclude or significantly impair marine biodiversity, marine ecosystems, human health, and legitimate uses of the sea. In addition, and importantly for the subject matter of the article, the Directive establishes a framework within which Member States shall take the necessary measures to achieve or maintain good environmental status of the marine environment, including, inter alia, the prevention of hindrance to marine activities, including fishing, tourism, and recreation, and other legitimate uses of the sea.

As can be seen, the legal acts presented above are regulations focused on aspects of marine environmental protection. Despite the fact that the notions of chemical substances, hazardous substances, and threats repeatedly appear in them, they often indicate the necessity to eliminate or minimise their negative impact on the marine environment, none of the legal acts directly regulates the aspect of extraction, and neutralisation of harmful substances from the Baltic Sea, including toxic warfare agents, which are components of dumped chemical weapons.

Recently, the problem of chemical weapons dumped in the Baltic Sea has received attention at the level of the European Union, which has placed a very strong emphasis on the problem of pollution of the Baltic seabed. With the resolution adopted by the European Parliament, in 2021 (P9_TA(2021)0123 - Chemical residues in the Baltic Sea), the EU calls on Member States to jointly address the problem of chemical weapons as part of EU, and NATO-led efforts. In the document, the European Parliament, among other things:

- Stresses that the threat to the environment, and health posed by munitions dumped in the Baltic Sea after World War II is not just a regional or European issue, but a serious global problem with unpredictable short- and long-term transboundary consequences;
- Calls on all parties who have classified information about submerged objects, and their exact location to declassify that information, and, as a matter of urgency, allow access to it by the countries concerned, the Commission, and the European Parliament;
- Calls on the Commission, and the Interreg Baltic Sea Region Joint Programme Committee to ensure adequate funding for the research, and action needed to eliminate the threat posed by dumped munitions in the Baltic;
- Calls on the Commission to take concerted action to tackle the pollution of the Baltic Sea;

- Calls on the Commission to set up an expert group with the following tasks:
 - investigating the exact location of contaminated areas, and mapping them;
 - propose appropriate, environmentally friendly, and cost-effective monitoring, and pollution reduction solutions with the ultimate goal of removing or fully neutralising hazardous materials where extraction is not possible;
 - developing reliable decision-support tools;
 - conducting an awareness campaign to inform affected groups (such as fishermen, local residents, tourists, and investors) of the potential health, and economic risks;
 - developing guidelines for environmental disaster plans.

When analysing the provisions of the petition, one would have expected concrete actions aimed at funding research, and developing effective technologies for the safe extraction, and disposal (neutralisation) of dangerous objects. Unfortunately, to date these activities have been reduced to meetings within various teams, and any activity by companies wishing to support investors by offering them services such as the safe destruction of dangerous objects on site in a short space of time is unfortunately not supported.

Another activity related to the issue of the lingering toxic warfare agents on the seabed in the Baltic Sea is the update of the Baltic Sea Action Plan (BSAP), 20 October 2021, which is HELCOM's strategic programme of measures, and actions for achieving good environmental status in the marine environment. At the Helsinki Commission conference preceding the adoption of the Baltic Sea Action Plan update, special attention was specifically given to the lingering, at the bottom of the Baltic Sea, chemical warfare agents. As a result, the updated BSAP included such provisions as:

- By 2024, develop a regional strategic approach, and, based on this, an action plan for HELCOM's work on hazardous substances;
- Development of national programmes with a focus on hazardous substances that are not adequately regulated by other policies;
- Submit to HELCOM by 2023 as accurate a description as possible of the measures planned, and implemented to reduce releases of hazardous substances into the environment, including available knowledge of their effects;
- From 2025 onwards, establish a mechanism to manage the HELCOM list of priority substances, and respond to the results of screening, and assessments indicating regional challenges to the Baltic Sea environment, and pollutants of increasing concern;
- Develop further appropriate monitoring of the biological effects of hazardous substances by 2028 to facilitate a reliable assessment of the state of the ecosystem.

4. THE CWC, AND THE EXTRACTION, AND DESTRUCTION OF DUMPED CHEMICAL WEAPONS

In legal terms, the most important international act regulating chemical weapons is the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons, and on their Destruction, drawn up in Paris on 13 January 1993. That is, its main objective is to rid the world of such weapons of mass destruction.

And how do the provisions of the Convention relate to chemical weapons dumped in the seas, and oceans, i.e. those that have been "destroyed" by dumping?

The provision of paragraph 2 of Article III of the Convention, indicates that the application of the provisions of Article III, and Annex IV, at the discretion of the State Party, may not apply to chemical weapons that were buried in its territory before 1 January 1977, and which remains buried or which was dumped at sea before 1 January 1985. Unfortunately, probably due to lack of confirmed data, Poland

has not declared the possession of dumped chemical weapons on its territory (Polish maritime areas) under the provisions of Article III of the CWC with regard to old chemical weapons, and abandoned chemical weapons. Such a position resulted in Poland closing the way to initiate activities aimed at destroying chemical weapons by a State Party to the Convention, which was identified as an Abandoning State Party, which in turn would be obliged to provide all necessary financial, and technical resources, technical assistance, and know-how, as well as other means for their destruction. At this point, it should be mentioned that in the event that it was not possible to identify the Abandoning State Party (currently such States de facto do not exist), Poland had the right to request the Organisation for the Prohibition of Chemical Weapons (OPCW), and other States Parties to provide assistance in the destruction of abandoned chemical weapons or to enter into agreements or make arrangements with other States Parties to the Convention, on the destruction of abandoned chemical weapons.

As mentioned above, under the provisions of the Convention, chemical weapons dumped prior to 1985, if not declared as chemical weapons by the states in whose areas they were dumped, are not treated as chemical weapons regulated by the Convention. How then should it be treated, in the event of its extraction? Does it change its status, and become subject to the Convention's regulations once it has been extracted? When deciding on the extraction, and destruction of dumped chemical weapons, this all-important legal aspect must also be taken into account. In order to answer this question, the following is an analysis of the definitions introduced for the interpretation of the Convention's provisions, which will be helpful when trying to resolve the issue. Thus:

"Chemical weapons" means occurring together or separately:

- (a) Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes
- (b) Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in subparagraph (a), which would be released as a result of the employment of such munitions and devices;
- (c) Any equipment specifically designed for use directly in connection with the employment of munitions and devices specified in subparagraph (b).

'Old chemical weapons' means:

- (a) Chemical weapons which were produced before 1925; or
- (b) Chemical weapons produced in the period between 1925 and 1946 that have deteriorated to such extent that they can no longer be used as chemical weapons.

"Abandoned chemical weapons" means chemical weapons, including old chemical weapons, abandoned by a State after 1 January 1925 on the territory of another State without the consent of the latter.

"Toxic chemical" means: any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions or elsewhere. (For the purpose of implementing this Convention, toxic chemicals which have been identified for the application of verification measures are listed in Schedules contained in the Annex on Chemicals.

"Precursor" means: any chemical reactant which takes part at any stage in the production by whatever method of a toxic chemical. This includes any key component of a binary or multicomponent chemical system. (For the purpose of implementing this Convention, precursors which have been identified for the application of verification measures are listed in Schedules contained in the Annex on Chemicals.)

"Riot Control Agent " means any chemical not listed in a Schedule, which can produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time following termination of exposure.

"Chemical weapons buried on its own territory" means chemical weapons buried in the ground on the territory of a State Party or located in its internal waters.

"Sea-dumped weapons" is understood to mean chemical weapons dumped in all parts of the sea, including the territorial sea of a State Party (including in archipelagic waters).

In the light of the above definitions, how do we classify weapons filled with chemical warfare agents lying on the bottom of the Baltic Sea?

In the author's opinion, based on the available data on post-German chemical weapons dumping operations, we are undoubtedly dealing with chemical warfare agents as well as "old chemical weapons", and "abandoned chemical weapons". In the light of the provisions of Annex IV B, it is also relevant to categorise these weapons under group (a) or (b). It is presumed that weapons produced before 1925 may have been dumped in the Baltic Sea, but certainly, given the type of munitions, also those produced between 1925, and 1946. Therefore, it can be classified without any doubt in group (b), as chemical weapons produced between 1925, and 1946.

The second aspect necessary to be resolved is whether the technical condition of the dumped chemical weapons has deteriorated to the point that they can no longer be used as chemical weapons?

The current state of the dumped chemical weapons is evidenced by field surveys conducted over the years in the areas where they were dumped (DAIMON, MERCW, and others), which indicate that these weapons are in a very poor state of repair. This is hardly surprising, as these weapons have been in the marine environment for more than 70 years. In the figures below (Fig. 3, Fig. 4, Fig. 5, Fig. 6) present the technical condition of the munitions recovered from the sea nearly 10 years ago. The photographs presented undoubtedly demonstrate that the current technical condition of the dumped chemical munitions makes it impossible to use them as weapons. Also, the chemical warfare agents contained in the munitions have decomposed or taken forms that make it impossible to use them for chemical weapons. However, this fact does not mean that CWs have lost their toxic properties. They are still dangerous, as evidenced by ongoing research (Beldowski, et al., 2014; Beldowski, et al., 2016; Missiaen, et al., 2010; Knobloch, et al., 2013).

Given the above, and the fact that the provisions of Article III(2), and Article IV(17) of the Convention, at the discretion of the State Party, may not apply to chemical weapons that were dumped at sea before 1 January 1985, in practice this should mean that the CWC does not regulate chemical weapons dumped before 1985. Unfortunately, this is not the case. No matter what, the fact of the extraction of chemical weapons must always be reported to the national authority responsible for implementing the Convention, and liaising with the organisation. Currently, such an authority is the Ministry of Development, and Technology. In the case of units, and organisational units subordinated to the Minister of Defence, the information must be forwarded to the Minister of Defence, and then through the Ministry of Foreign Affairs to the OPCW. Further proceedings, and the manner of destruction of the extracted chemical weapons will depend on the determination of their status.

Whether it is a 'chemical weapon' or an 'old chemical weapon'. The determining features are:

- Type of CWA;
- Its date of manufacture;
- Technical condition of ammunition;
- The qualitative state of the CWA.



Fig. 3 Lumps of solidified sulphur iperite fished out with hooks

Source: Maritime Surveillance Centre South on Bornholm

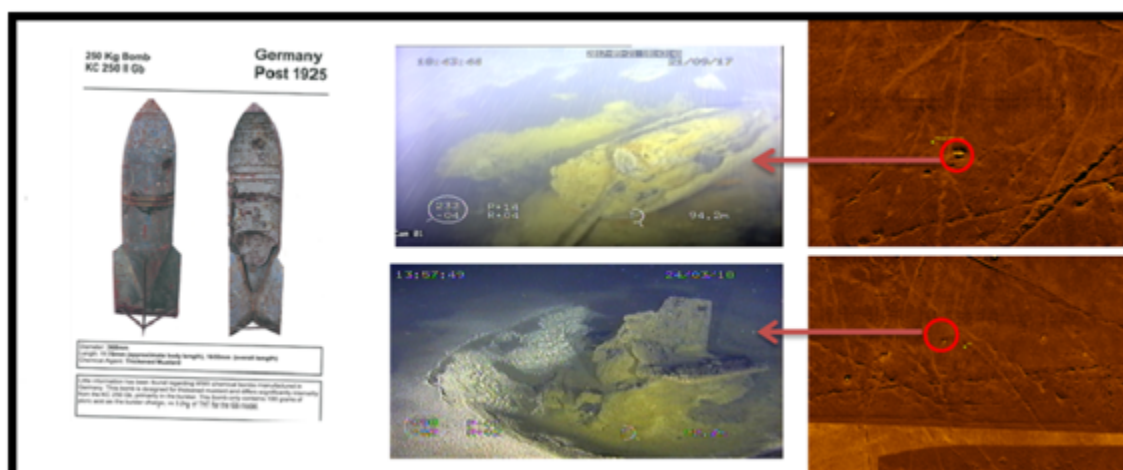


Fig. 4 KC-250 aerial bomb detected in the Bornholm Deep

Source: Prepared on the basis of: OPCW, Handbook of pre-1946 chemical weapons, vol. 1, 2011, and sonographic, and ROV images provided by M. Grabowski, IO PAN.



Fig. 5 Chemical munitions fished from the Baltic Sea - technical status

Source: Maritime Surveillance Centre South on Bornholm

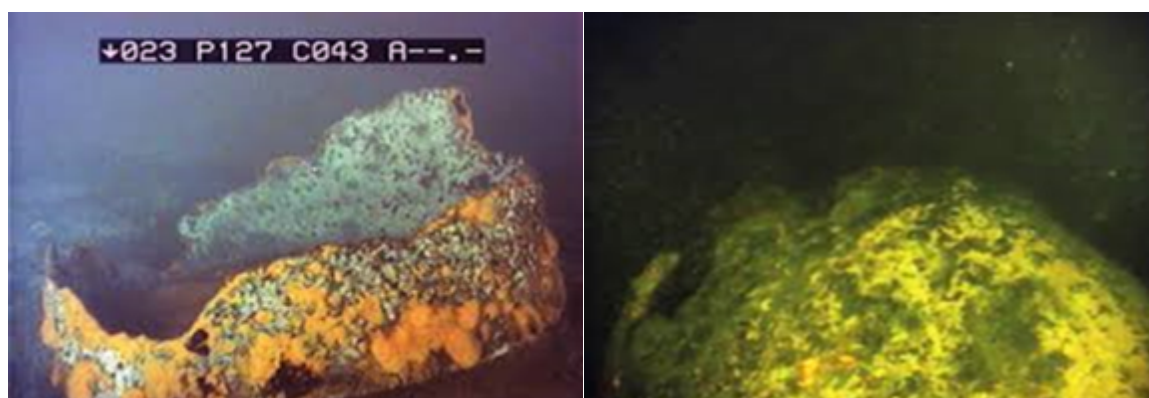


Fig. 6 Chemical munitions dumped in the Baltic Sea - state of repair

Source: Materials of CHEMSEA project (Beldowski, et al., 2014).

If a State Party discovers old chemical weapons after the entry into force of the Convention, it must, within 180 days of discovery, submit information to the Technical Secretariat (TSC) on: location, type, quantity, and condition. This information shall not be submitted in relation to weapons buried before 1971, and sunk before 1985, although States Parties have the option to report this. However, in the event of a decision to extract chemical weapons from the sea, the State extracting the dumped chemical weapons decides to declare these chemical weapons at the same time, which involves submitting the relevant information to the TSC.

Following notification to, the Technical Secretariat of the Convention shall carry out an initial inspection, and any subsequent inspections that may be necessary to verify the accuracy of the information provided in the information, in particular to determine whether the chemical weapon meets the definition of an old chemical weapon, and to assess its degree of possible use. If the Technical Secretariat identifies a weapon as toxic waste (this applies only to chemical weapons produced before 1925), the State Party is required to inform the Technical Secretariat of the measures taken to destroy or

dispose of such chemical weapons, already as chemical toxic waste. The destruction of these agents may be carried out by the State concerned in accordance with its legislation.

Unfortunately, according to the Convention's provisions, old chemical munitions manufactured between 1925, and 1946 (and such mostly rest on the bottom of the Baltic Sea) must be destroyed after verification by the Convention's Technical Secretariat, in accordance with the Convention's recommendations. However, does this have to be the case for dumped chemical munitions whose technical condition shows no indication of use as chemical weapons? The Convention offers some possibilities. Namely, *'at the request of a State Party, the Executive Council may amend the provisions with respect to the timing, and order of destruction of such chemical weapons if it determines that doing so would not pose a risk to the object, and purpose of this Convention. Such a request shall include specific proposals to amend the provisions, and a detailed explanation of the reasons for the proposed amendment.'* In the case of abandoned weapons, and such is undoubtedly the one dumped in the Baltic Sea, the Convention's provisions allow: *"In the case of abandoned chemical weapons that also meet the definition of old chemical weapons in paragraph 5 (b) of Article II, (weapons produced between 1925, and 1946), the Executive Council, at the request of the Territorial State Party, made alone or jointly with the Abandoning State Party, may modify or, in exceptional cases, suspend the application of the destruction provisions if it considers that this would not pose a risk to the object, and purpose of this Convention."* The best solution would be to request that dumped chemical weapons produced between 1925, and 1945 be recognised as well as those produced before 1925 as toxic waste. Some arguments in favour of such a decision are summarised below.

Some of the CWA dumped in the Baltic Sea, e.g. adamsite, chloroacetophenone, CLARKs (I, and II), are currently of no military significance, hence many of them are not included (as a chemical compound) in the lists of the Convention, nor do they appear on the list of the so-called Australian Group. Currently, all such agents that were produced after 1946 are categorised as chemical police agents, which are subject to separate legal standards, and are therefore not subject to verifiable destruction, in accordance with the provisions of the Convention. Unfortunately, this rule does not extend to these agents if they were produced between 1925, and 1946, and such were mostly dumped in the Baltic Sea. Although chemically they are the same substances (today referred to as police agents), they must be destroyed according to the rules imposed by the Convention, i.e. in a verifiable manner. What is the implication of this? According to the Convention, the concept of chemical weapons is also defined by the intention to use them, which is why today chloroacetophenone, adamsite, Clark I, and Clark II (considered police agents), were produced for military use until the end of the war, hence they must be treated as chemical weapons, and destroyed according to the requirements imposed on these weapons.

By far the majority of CW dumped in the Baltic (sulphur iperite, lewisite, tabun, arsenic trichloride), are on the Convention list, and the Australia Group list, and are therefore subject to verifiable destruction, although this may not necessarily be the case. This will be determined by their date of manufacture, and the technical condition of the weapon.

The chemical weapons dumped in the Baltic are those produced during the First, and Second World Wars, i.e. before 1946. At least that is how it should be. Chemical weapons were dumped in the Baltic as late as the 1950s, and 1960s, so it should be reckoned that chemical weapons produced after 1946 (e.g. Russian, as Germany was not allowed to produce weapons after the war) may be lying on the bottom. The status of chemical weapons dredged from the sea is decided by the TSC, which will, as part of its initial inspection, check whether the chemical weapons were produced before 1925, between 1925, and 1946, or after 1946. The Technical Secretariat of the Convention will also check the technical condition of the chemical weapons, and the quality of the CW they contain. On this basis, a decision will be made whether the chemical weapons retrieved from the sea meet the conditions of useless old chemical weapons or chemical weapons, as defined by the Convention.

The manner of destruction of the extracted chemical weapons will depend on the decision of the Technical Secretariat of the Convention, which may consider the extracted chemical weapons as "old chemical weapons" or as "chemical weapons" Thus:

- If the TSC considers that an excavated chemical weapon was produced before 1925, it will automatically be considered an 'old chemical weapon'. In this case, regardless of its condition (technical, and quality of the poisonous agent), it will be allowed to be destroyed as chemical toxic waste. The advantage of this situation is that the destruction company has more freedom to choose the method of destruction, but one that would meet the requirements of occupational safety, and environmental protection.
- If the TSC considers that the excavated chemical weapons were produced between 1925, and 1946, their status, and consequently how they are destroyed, will be determined by their technical condition, and the quality of the CWA.
- If the technical condition of the extracted weapon, and the quality of the contained warfare agent indicate that it could be used as a chemical weapon, the TSC will declare it a 'chemical weapon', and oblige the state that extracted it to verifiably destroy it;
- If the technical condition of an extracted weapon, and the quality of the contained warfare agent have deteriorated to such an extent that it cannot be used as a chemical weapon, the TSC will consider it to be an 'old chemical weapon', but in this case too, verifiable destruction will be required. However, as mentioned above, a State may request that the provisions for its destruction be modified or suspended. Perhaps it could be destroyed as a chemical toxic waste, in accordance with the laws of the country.
- If the TSC determines that the excavated chemical weapons were manufactured after 1946, then regardless of their technical condition, the type of CW agent contained in them will determine their status:

The description of activities presented above refers to the deliberate clearing of bodies of water of chemical weapons dumped there. Therefore, before deciding on the extraction, and destruction of dumped chemical weapons, it is necessary to assess the situation in detail, first of all to inventory the dumped weapons, assess their technical condition, determine the type, and condition of the dumped CWs, in order to provide the Technical Secretariat of the Convention with as much comprehensive data as possible to determine the status of the extracted chemical weapons, and consequently, to determine the method of their destruction.

A significant simplification of the destruction operation of a mined chemical weapon would be the construction of such an installation, and the use of such destruction technologies in that installation that the Technical Secretariat of the Convention would consider to meet the requirements set out in the Convention. Then, regardless of the status of the mined weapons (old chemical weapons or chemical weapons), they could be destroyed in this installation.

An even better solution would be for the Convention to recognise pre-1985 dumped chemical weapons as 'old chemical weapons', which would simultaneously allow them to be destroyed as chemical toxic waste. Unfortunately, as mentioned earlier, such a step would require an amendment to the Convention, and this is an arduous, and lengthy process.

As can be seen from the analysis presented above, the extraction, and destruction of dumped chemical weapons is possible. Unfortunately, the process is costly, but what may be of most concern to investors is the length of time involved. As outlined in the report of the Inter-Ministerial Team on Hazards Arising from Hazardous Materials Deposited in the Maritime Areas of the Republic of Poland (Inter-Ministerial Team on Hazards from Hazardous Material Backlogs in Polish Marine Areas, 2022) " *each of the hazardous materials deposited on the seabed must be treated on an individual basis - an examination of its current state must be carried out, and the optimum method selected to neutralise the threat it poses. Two years should be allowed for such a procedure for each object. In addition, in the case of the extraction of chemical weapons for their neutralisation, we are obliged to take into account the procedures related to the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons, and on the Destruction of their Stockpiles in Connection with the Extraction, and Plans for the Neutralisation of Chemical Weapons, which significantly extends the period between extraction, and neutralisation, and enforces the appropriate*

manner of securing, and indicating the place of storage of the hazardous material before its neutralisation". Unfortunately, the investor cannot afford a two-year hiatus due to procedures, or rather the lack thereof.

5. THE INVESTOR'S ACTIONS IN THE EVENT OF THE PRESENCE OF CHEMICAL WEAPONS IN THE INVESTMENT AREA

What about the accidental drawing or dumping of chemical weapons on the beach? Unfortunately, such a situation has not been regulated by the Convention. There is still an unresolved status of caught or discarded chemical weapons in the context of the provisions of the Convention. The dilemma is: does the catching of, for example, a 150 mm artillery shell filled with 3 kg of sulphur iperite make a state a possessor of chemical weapons? What is the status of this projectile? What destruction procedures should be undertaken in the context of the provisions of the Convention? Where, who, and how should the poison be destroyed? Who is to finance such actions? There are still no clear answers to these, and many other questions, simply because as long as obsolete chemical weapons lie at the bottom of the pile, the existing legislation on the elimination of chemical weapons will not address them.

The following is the procedure for dealing with a chemical munitions object accidentally found on the seabed in the project area. This procedure is not a recommended action by state authorities. The individual steps have been developed on the basis of applicable Polish law.

- Informing the maritime authorities (the Maritime Authority with jurisdiction over the maritime area) of the presence of chemical weapons in the area of the ongoing investment works;
- The Maritime Administration provides information on the find to the Ministry in charge of the economy (currently the Ministry of Development, and Technology), which supervises activities related to the implementation of the provisions of the Convention on the territory of the Republic of Poland. In this respect, the Ministry cooperates with the Ministry of National Defence, and the Ministry responsible for internal affairs (currently the Ministry of Internal Affairs, and Administration). At the same time, the competent maritime office designates the zone (basin) dangerous for navigation, and fishing, and introduces appropriate restrictions, and prohibitions on navigation;
- The minister responsible for economic affairs shall forward this information to the minister responsible for foreign affairs, which shall act as the national authority ensuring effective liaison with the OPCW, and other States Parties;
- The minister responsible for foreign affairs shall report the finding to the OPCW;
- Once the applicable find notifications have been completed, the relevant, aforementioned authorities will have to decide on the further handling of the object. Before this can happen, however, it will be necessary to carry out painstaking, lengthy, and very expensive investigations into the current state of the object, after which, perhaps, they will authorise the excavation of the dangerous object, and its destruction;
- If a decision is taken to extract chemical weapons, the investor will have to apply to the relevant military authorities (probably the Ministry of Defence) for a permit to extract military or adopted military property;
- Upon receipt of such approval, the developer will be able to proceed with undertaking the hazardous facility. Unfortunately, as of today, there is no entrepreneur with the appropriate authorisations to carry out such activities. The aforementioned specialist sub-divisions of the Navy intervene to take over such objects, but in situations where they are thrown ashore by the sea or are brought on ships to port. (It has not been possible to remove the object overboard - according to procedures, in a situation of accidental extraction of chemical weapons, the object must be immediately removed from the deck into the sea (Maritime Office in Gdynia, 2019). Currently, the only option is to support foreign contractors (e.g. from Germany) who are prepared to carry out such activities.

- Unfortunately, the extraction of a hazardous object, and its transfer for neutralisation does not mean that the developer will be able to continue subsea work. It is likely that the relevant authorities will suspend investment while investigations are carried out to determine whether other chemical weapons facilities are present in the area. This is another months of downtime.

The further handling of the excavated object, which is a chemical weapon, is outlined below for clarity:

- Transporting the object to a storage, and security site. There is a storage facility for CWA found in Poland;
- Assessment of the facility by CWC Technical Secretariat inspectors, and categorisation of the facility: old chemical weapons produced up to 1925, old chemical weapons produced between 1925, and 1946 whose condition has deteriorated to the point that they can no longer be used as chemical weapons, chemical weapons produced between 1925, and 1946 whose condition indicates that they can already be used as chemical weapons, chemical weapons produced after 1946;
- OPCW inspection of the site where the found/extracted CW is stored - there is no set time for the inspection, and the number of inspections until a final decision is made;
- Once the category of a chemical weapon has been established, depending on it, decisions are made on how to neutralise the dangerous object that has been retrieved from the sea;
- CW disposal - it is likely that, as has been the case to date with residual buried chemical weapons, neutralisation will be carried out by a hazardous waste disposal company awarded a tender or, more likely, it will be agreed that destruction will be carried out by the investor through a company hired by him to excavate, and destroy.

This diagram deliberately does not address the question of costs, and indicate sources of funding for such a project, as there is currently no legal regulation in this area. All intervention work on the destruction of chemical weapons found ashore, and dumped on shore has so far been financed from the state budget. But it must be remembered that no find has been attributed to any owner. In the case of an investment, the costs of cleaning up, and destroying chemical weapons are likely to be attributed to the investor.

An important aspect, which will prolong the process of destruction of CW is the fact that there is no single authority, which will control, and supervise the proper securing or taking up, and destruction of chemical weapons, and their decay products (CWA). In the current formal-legal state, there is no entity responsible for conducting activities involving the planned extraction, and destruction or securing on the bottom of hazardous materials lying in Polish maritime areas. Within the government administration there is a clear division of responsibility for the tasks performed by individual ministries. Therefore, there is an urgent need to prepare special regulations (at the statutory level) comprehensively regulating the issues related to the removal of hazards caused by hazardous materials dumped in Polish maritime areas. The regulations should take into account issues concerning, in particular:

- A permanent monitoring system of the maritime area of the Republic of Poland in order to track threats related to chemical weapons lying on the seabed;
- The principles of exercising control, and supervision over the proper securing or taking up, and destroying of hazardous materials lying in the maritime areas of the Republic of Poland, including chemical weapons;
- The responsibility of the investors to survey the seabed for the planned installation, and, if necessary, clear it of any deposited hazardous materials before starting to install the structures;
- Determine how to finance the emergency neutralisation of dumped hazardous materials, including chemical weapons;
- To make the necessary amendments to existing legislation.

6. CONCLUSIONS

The problem of chemical weapons lying on the seabed of the Baltic Sea is an issue that in the near future may have a direct impact on the realisation of offshore investments, including in the near future the construction of offshore wind farms in Polish maritime areas. The presence of chemical weapons in the area of the investments may significantly delay their realisation, exposing investors to huge losses related to the downtime that will be necessary to remove the threat.

There is a lack of legal, and administrative regulations which would define clear rules of conduct relating both to ad hoc countermeasures in investment areas, and also in the context of the seabed clean-up programme, and the destruction of chemical weapons. The constant reiteration of the inadequate competence of the authorities, together with the absence of any activity to change this state of affairs, will sooner or later prove disastrous for the entire Baltic Sea region, and for investment plans in, for example, Polish offshore wind energy.

Already today it is necessary to take appropriate legal, administrative, and organisational steps related to the destruction of dumped chemical weapons in the areas of investment activities, so that, among others, the OWF start producing energy as planned. It should be remembered that the lack of appropriate approach of entities investing in Polish OWF to the problem of chemical weapons at the bottom of the Baltic Sea may lead to many legal implications, e.g. withdrawal of the permit for the construction of an OWF, or actual ones, e.g. causing an ecological disaster in the Baltic Sea.

It should be noted that, despite the absence of an implementing entity for neutralisation in the sense of the deliberate, systematic removal of chemical weapons from the bottom of the Baltic Sea, there are legal solutions of a preventive nature that are applicable to situations that adversely affect the marine environment. These regulations can generally be categorised under the section of national law dealing with emergency management, and disaster recovery, with the jurisdiction of the Maritime Offices under the Maritime Areas Act. However, these activities are mostly limited to the Polish coastal zone. Currently, only in case of accidental catching or extraction of CW from the sea by vessels during marine works, Maritime Offices have issued relevant instructions on how to deal with such an event. These instructions are directed primarily at fishermen, due to the fact that until now it has been this professional group that has been most exposed to contact with dumped chemical weapons. Today, a much broader group of traders is affected. Despite the issuance of instructions on how to proceed, there is currently no training for sea users in Poland, and no imposition to equip research or investment vessels or even fishing boats with the equipment, and means necessary to provide first aid in case of contamination with toxic warfare agents.

None of the legislation in force indicates the public administration body responsible for undertaking, and/or supervising activities related to the comprehensive/planned extraction, and neutralisation of dumped hazardous materials deposited in the maritime areas of Poland.

It is necessary to prepare guidance for operators on how to deal with identified hazardous materials, including in the event of a breach or damage to chemical warfare agents. The development of a handling procedure indicating the principles of handling chemical weapons objects, the identification of the services responsible for extraction, the location of storage of the hazardous material prior to its neutralisation until the arrival of CWC inspectors, and finally, a destruction technique in accordance with the Convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons, and on the Destruction of Chemical Weapons Stockpiles.

Without decisive action by our state, aimed both at ratification of the relevant sources of international law, and at systematising domestic law, e.g. by undertaking further work on amendments to the Maritime Code, and a number of other acts directly touching upon the problem, activities related to offshore wind farms in Polish maritime areas will remain only activities on a purely theoretical level, which are repeatedly discussed in isolation from the obstacles, and problems described above.

The best solution to the problem of chemical weapons dumped on the seabed of the Baltic Sea would be a legal decision, in the light of which accidentally caught/found chemical weapons (e.g. during fishing, discarded on the beach, dumped in investment areas) should be treated as chemical toxic waste,

without the need for "on-the-spot" verification by the Technical Secretariat of the Convention. At present, there are technical possibilities of live video transmission, which would allow inspectors to remotely decide on the classification of a dumped chemical weapon. Then, under current Polish law, its destruction would be dealt with by specialised companies engaged in the destruction of chemical toxic waste on land.

With regard to the financing of these projects, it is difficult in the current state of the law to find a basis for demanding the attribution of responsibility, or more precisely of its financial dimension, to the entities from which the dumped chemical weapons originated, and to those who dumped them. These entities de facto do not exist.

An analysis of the handling of chemical munitions fished out or dumped on the beach to date leads to the conclusion that, as usual, activities related to the neutralisation of the threat of chemical warfare agents in the Baltic Sea will be ad hoc, on the basis of 'if a problem arises then we will think how to deal with it.

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