[Ballerina-l] About chemical weapon sunk at the bottom of the Baltic Sea

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Subject: About chemical weapon sunk at the bottom of the Baltic Sea

About the chemical weapon sunk at the bottom of the Baltic Sea and
the proposal on the constant monitoring of its condition

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1. INTRODUCTION

Surveys, assessments and forecasts of the ecological state of the Baltic Sea in places of burial of the German chemical weapons (CW) captured in the war, as well as the ways of utilization of the army poisonous substances (PS) present in sunken chemical ammunitions together with the products of decomposition, have gained vital importance for over 40 million people living in 9 countries on the shores of the Baltic Sea in immediate vicinity to the burial sites. This situation is caused by the extreme ecological danger, which threatens people in case of possible penetration into human organisms of even infinitesimal quantities of the poisonous substances sunk in the sea. For over 50 years already, the sunken chemical weapons have been lying and rusting at the seabed. Metal casings covering them have already rusted through to a considerable degree. Necessity of taking effective actions for liquidation or burial of these weapons is quite obvious. Unfortunately, until now, no measures have been adopted in this connection.

2. Historical data on sites, quantities, techniques and dates of burials of the chemical weapons.

At the end of the World War II, on the occupied territory of Germany there had been found 296 103 items of the chemical weapons. At the Potsdam War Conference of the Countries of the Antifascist Coalition in 1945, a decision was adopted on destruction these chemical weapons. As a result of this, in the Baltic Sea, its gulfs and straits, there have been dumped 267,5 thousand tons of bombs, shells, mines and receptacles containing 50 to 55 thousand tons of the army poisonous weapons of 14 types. Today, it is clearly doubtful that persons responsible for this action were not aware of the ecological danger posed by their decision. It is also doubtful that sinking was a result of sabotage, because the process of sinking of the chemical weapons had been going on during 10 years.

The Americans loaded 130 thousand tons of the chemical weapons to 42 ships and sent them to the North Sea, however, a storm interfered with their plans and the ships were then scuttled in the Skaggerak and Kattegat straits connecting the Baltic Sea with the Atlantic, only one ship managed to get through these straits and it was scuttled in the North Sea. In 2000, the expedition organized by Russian scientists on ship "Professor Shtokman" found and mapped 27 of 42 ships. They were lying in the Skaggerak Strait near a Swedish fishing port of Lyusechil.

The English have also took part in the Baltic burials. According to some available information, by 1946, they had sunk 8 000 tons of the chemical weapons in the area to the east off the Bornholm Island and another 15 000 tons to the southwest off the Bornholm Island. In confirmation of this information, three shipwrecks have already been discovered and mapped there.

According to the available data, in 1945, in the area of the Small Belt Vermahtom Channel there were sunk 69 000 tons of artillery shells containing tabun and 5 000 tons of bombs with tabun and phosgene.

The USSR took an active part in this process. Its Naval Forces sank 35 000 tons of the chemical weapons in the Baltic Sea. The largest officially confirmed burial site of the chemical weapons (approximately 33 000 tons of the chemical weapons) is located in the area 35 miles to the east off the Danish island of Bornholm in the Bornholm Cavity at the depth of 70 to 100 meters. The second officially confirmed area of the chemical weapons burial, which is considerably smaller with respect to the number of sunken chemical weapons (nearly 2 000 tons), but with a significantly larger area, is located 65 miles off Liepaia to the southeast off the Gotland in the Gotland Cavity at the depth of 70 to 120 meters. This area containing several burial sites lies in the territorial waters of several states (Sweden, Poland and Latvia). The third officially confirmed area of the chemical weaponry burial sites (approximately 5 000 tons) is located to the south off the Small Belt Channel.

In contrast to the English and Americans, the USSR sank the chemical weapons in a non-compact way, spreading them over a large territory, thus, near the Bornholm Island the chemical weapons had been scattered over a territory of 2 800 square kilometers and near the Gotland Island they had been scattered over a territory of approximately 1 200 square kilometers.

3. Possible ecological impact of the sunken chemical weaponry on the environment.

The Baltic Sea is heavily polluted as a result of excessive coastal activity. Nowadays, several measures are being discussed, which are aimed at a decrease of the anthropogenic pressure on the Baltic Sea, eutrophication of the Gulf of Finland and many other solutions dealing with purification of its waters.

Presence of burial sites in the Baltic Sea considerably worsens the ecological state of the environment. To date, there have been a number of incidents, which might be attributed to penetration of the poisonous substances into the water. Thus, there has been registered sharp increase of lung cancer cases among Swedish fishermen and there has been revealed a specimen of a fish, which if used as a food, caused poisoning of people, whereas in some other kinds of caught fish, there have been discovered some mutations of internal organs; in addition, the Baltic seal population has almost disappeared. Poisonous properties of the chemical weapons are beyond any doubts, since this weaponry is specifically designed for massive destruction of people. Researchers have proved that upon penetration into the human organism or other living organisms, even an infinitesimal quantity of the poisonous substances can result in irreversible consequences. Works of an English geneticist Charlotte Auerbakh have shown that even one or two molecules of iprite or luisite penetrated into a human organism can damage the genetic code. In other experiment held on mice she had given them water with traces of the poisonous substances in it, as a result of which all mice died within a short period of time. Russian scientists also, on their part, have confirmed the serious danger posed by even minimal quantities of the poisonous substances to a human organism. The poisonous substances can cause mutations of the genetic code in 2 to 3 generations. Ichthyologists state that even now among various specimens of fishes there has been increase of number of mutants.

Periodically, in the mass media some articles appear, which state that according to the opinion of certain scholars, all the poisonous substances lying at the seabed dissolve in such large quantities of water and so gradually that they cannot seriously influence life of people or existing sea organisms. It is easy to disagree with such conclusions, since aforementioned examples prove the contrary. It must be taken into consideration that the Baltic Sea is a relatively stagnant reservoir, as its body of water changes over 25 to 27 years. The bulk of the poisonous substances lies at the bottom of straits and constant current of the bottom streams in the direction of the Baltic Sea washes them away into the reservoir. In the Baltic Sea proper currents go along coasts counterclockwise with a speed of approximately 4 knots per day. It must be also remembered that the Baltic Sea is shallow with an average depth of 51 meters, and the chemical weapons held in ships are arranged in stacks and destruction of casings can cause a collapse of the stacks and a missive outflow of a large number of the poisonous substances over a short period of time. Thus, all these reassuring articles in the mass media are doing more harm than good, since precious time, which could have been used for accomplishment of active measures aimed at liquidation or isolation of the chemical weapons, is wasted.

4. Situation concerning organization of measures for liquidation or burial of the chemical weapons.

The fate of sunken chemical weapons had been brought to public attention only after almost 50 years from the moment of their burial. The reason of this might be explained by the fact that burial was accomplished by military servicemen, hence all their actions were classified. Russia has been one of the first states to declassify its materials concerning burial of the chemical weaponry, whereas both the USA and Great Britain prolonged time of secrecy for another 20 years. Russian scientists have organized the first scientific expedition to the Baltic Sea, which discovered and mapped some of the burial sites of the chemical weapons, as well as carried out underwater surveying of these objects, and took samples of water and ground soils. Based on materials of the expedition, a report had been drawn up, which was then presented to many western specialists. Works on discovery of the burial sites of the chemical weaponry were undertaken by Poland, Germany and many other Baltic states. In the mass media, there

have appeared several frightening articles, in which burial of the chemical weapons were called "Tchernobyl of sea". This problem has been discussed almost at all ecological conferences. Various commissions were established to deal with this question, some of which on the permanent basis. All these authoritative bodies have consumed large amounts of time, efforts, issued slews of papers, but, unfortunately, have not undertaken any practical or concrete steps. It is difficult to explain, why such a situation takes place. Reasons for such attitudes should, first and for most, be attributed to a lack of a political will. Secondary causes might be connected with existing unsolved organizational and technical problems.

5. Proposals on organisation of permanent monitoring of buried chemical weapons

Starting from 1997, in fact once a year, the research vessel "Professor Stockman" travels round those Baltic Sea areas where chemical weapons are buried. During these expeditions the inspection of buried chemical weapons is made, the samples of water and soil are selected, the sunk vessels are examined and photographed, etc. But this is obviously insufficient as any moment the stacks of chemical weapons kept in holds of sunk vessels may come down under their own weight and due to disruption of metal casing or due some other reasons. This may entail mass-scale ejection of toxic agents into the water, which may cause very serious consequences. When and which of the vessels will suffer such collapse is not known, for it depends on many reasons - thickness of metal casing, chemical composition and temperature of water, etc. To minimise the damage caused by possible volley ejection of toxic agents into the water, it is necessary, immediately after the ejection, to take measures to localise the ejection and confine the ejection volume and to warn timely the population and the fishermen about the situation. This is possible only in case if the ejection of toxic agents into the water is registered without delay and emergency actions are taken. Timely detection of ejection may be made in case of permanent tracing of every vessel containing toxic agents.

To organise permanent monitoring it is suggested to use the systems of monitoring of large water surfaces controlling the travel of submarines, that were developed long ago and proved their best qualities, being produced in USA and Russia. These systems use radio-equipped buoys with autonomous power supply that transmit signals generated by submarines noise, using the in-built sensors. These signals are transmitted on-the-fly to the tracing centres with the help of the satellite, and this makes it possible to control the travel of submarines. In case of chemical weapons this system may be used, with slight modification, to change the sensors reacting to noise for the sensors reacting to changes in the chemical composition of water. There are many more trigger areas in the Baltic Sea, apart from chemical weapons, where permanent monitoring would be desirable. The system involving radio-equipped buoys will make it possible to monitor many other dangerous spots.

Using the suggested system it is necessary to have a special vessel which, receiving an emergency signal, must quickly approach the place of toxic agents ejection, specify the breakdown parameters, inform the relevant services about the possible consequences and dates of their eventual occurrence. Additionally, to constrain the level of ejection of toxic agents in the water, a barge with clay should be on call, that in case of emergency signal could be towed without delay to the place of accident and throw the clay off. Clay may tightly close the surface of the emergency object and cut the flux of toxic agents ejected in the water by many times.

Conclusion:

The proposed scheme will make it possible to reduce the possible negative

effect of the chemical weapons to a great extent, but it is not able to exclude the emergency situations, for that reason the actions aimed at exclusion of such situations would be the most correct and reliable. To exclude the emergency situations it is necessary either to hide the chemical weapons safely on the sea bottom or raise and utilise them.

The proposed scheme is relatively inexpensive and may be realised in short term.

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