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OBJECTS OF MILITARY ACTIVITY

Since the Soviet Union time, more than 3,000 military bases of different sizes and degrees of secrecy were stationed on the territory of Ukraine. There were such bases on the territory where tens of thousands of people lived. In the context of conversion, many acute and complex environmental problems relevant to almost all former military bases located in Ukraine remain unresolved. The specifics of military activity and the military department need are still to be classified. However, not many governmental structures have known how the military bases function. As a result, there is a great number of relevant consequences happen almost everywhere after leaving the territories by the military.

I think everyone knows that every year there are many cases of finding old warehouses with ammunition from the time of World War II. For example, in Donetsk region on December 14, 2017, near Olginka, or on November 8, 2019, a WWII an ammunition depot was found near the Shuliavskyi pipeline during the engineering networks. And there are a lot of such cases throughout Ukraine, which endanger the life and health of the citizens.

There are also problems with the explosion of military warehouses in different parts of Ukraine. Over the years of independence, ammunition depots exploded more than two dozen times. The damage caused to the country's defence capability is difficult to estimate, and material losses are estimated in billions of hryvnas. The infrastructure and housing stock were destroyed as well and soldiers and civilians were killed and injured.

Basically, the main reasons for all the explosions are the following:

- Negligent attitude of the military to the norms and rules of storage of military ammunition;
- Cases of sabotage or terrorist attacks on the military units territory;
- Unsuccessful or untimely work on the ammunition destruction, which led to the ammo combustion;
- Property theft or assignment, which led to the integrity damage or fire near the boxes with projectiles.

There is also a big number of military objects on the territory of Ukraine such as military bases, towns, arsenals, weapons and fuel stores, aviation and all-military polygons, landfill and disposal of hazardous waste, former miner launchers and also radioactive ones. Most of these objects create a real and potential danger for population and environment pollution with chemicals, in particular heavy metals, enhance radiation background that leads to degradation of natural complexes.

Taking into account the urgency of such problems, the Ukrainian Ministry of Defence together with the Ministry of Ecology and Natural Resources developed the Rehabilitation Program for territories contaminated as a result of military activities of

2002-2015 approved by the government resolution in July 2001. The purpose of this document is to implement a set of measures to restore the territories contaminated by military activities and return them to the general land-use fund. In order to prevent emergencies, the Ministry of Defence has compiled a list of potentially dangerous objects and developed a Plan of measures and works on the prevention of technological emergencies at potentially dangerous objects. Today the ecological state of objects of storing strategic and operative ammunition is unsatisfying due to such reasons:

- Lack of earth shafts around rocket ammunition storage sites in many cases – 57%;
- Insufficient protection of objects of military activity against lightning – 88%;
- Poor provision of fire equipment and means of fire fighting – 68%;
- 1.4 times overload compared to established standards. As a result, some of the ammunition remains insecure from the influence of atmospheric factors:

For example, there are 45 military units of the Ministry of Defence of Ukraine on the territory of Zhytomyr region. The state control provision of nature-security activities of these objects revealed new violations of nature-security legislation requirements in 2001:

- Lack of permission for the emission of harmful substances in the air from the stationary sources (except military units A-2038, A-2365, A-1735);
- Lack of permission for the placement of waste, accounting and control of their forming as well (100% military units);
- Non-compliance with requirements for zones of sanitary protection of water intake wells (except of A-3258, A-2038).
- Lack of permission for special water use (except of military units A-2038, A-2365);
- Pollution of land with demolition and household waste, metal scraps, and sludge (100% of military units);
- Lack of cleaning and water recycling systems (100% of military units and education institutions);
- Lack of laboratory control of wastewater;

The other problems are the overload of sewer cleaning systems working without normative cleaning of wastewater provision, while the cleaning systems require major repairs (military units A-2038, A-2365). The lack of welding seams flow detection of the tanks in the stores of fuel and lubricants. The term of their maintenance is 20 and more years (100% of military units). Also, the lack of contracts for exporting household wastes, the absence of the pollution evaluation and accordingly payment (except military institutions) should be considered.

The issue of compliance with environmental legislation in military units subordinated to the Air Force of the Ukrainian Ministry of Defence, according to the materials of the state eco-resources department, was considered at a meeting of the Commission on Technologic and Environmental Safety and Emergencies of the Regional State Administration. According to the Commission decision on the 01.02.2001 No. 2 the attention of the commanders of military units A-3123, A-2038, A-2053 is drawn to the unsatisfactory implementation of the commission's decision and the regulations of the state department of environmental resources in compliance with environmental legislation and they are obliged to take practical measures for the elimination of the existing serious shortcomings.

The commission's decisions together with the certificate on the state affairs of military units were sent to the Deputy Minister of Defence, the commander of the Air Force of Ukraine and the military prosecutor's office for appropriate response.

Commanders of most military units of the air force of Ukraine took practical measures for the elimination of these shortcomings, such as the permissions for special water use were obtained, an inventory of stationary sources of pollutant emissions into the atmosphere was carried out and the permissions for pollutants emissions into the atmosphere were obtained, the water meters on artesian wells were installed, and the water use accounting was established.

But the next issues are still open: cleaning systems biofilters of military unit A-2038 don't work and complex cleaning systems require major repairs. Not enough cleaned wastewater is diverted to the river Guiva. At the control check of cleaning systems the pollutants overrun from nonreactive indicator is defined and the indicator of ammonium salt is 4 times bigger than required, the indicator of biochemical oxygen using is 2.5 times higher than normal. Also, the problem of flaw detection of the tank welding seams in the stores still exists and there is no laboratory control of wastewater as well.

Due to transferring of a significant number of land (objects) in the region from the military units of the Ministry of Defence of Ukraine to local authorities (87 objects in total), the state department of environmental resources conducted a survey of these territories on their environmental condition.

Thus, after the inspection of the territory of the former military unit A-1482 of the Committee of the Border Forces of Ukraine (currently military unit A-1471), the radiation sources of 20-550 $\mu\text{R/h}$ were found. According to the provided injunction, the place with this radiation sources is fenced and guarded by the departmental paramilitary guard of the military unit A-1471. The issue of the radiation sources disposal and the prescribed territory decontamination is solved. The work on the inspection of military units was carried out in cooperation with the military prosecutor's office of the Zhytomyr garrison.

The main reasons for violation of environmental legislation in military units located in the region are:

- Insufficient level of the command staff training on the environmental safety ensure of the units and institutions entrusted to them;
- Disregard by individual commanders of military units of the legal requirements of the State Department of Ecology and Natural Resources in Zhytomyr region on the elimination of violations of environmental legislation of Ukraine;
- Insufficient funding of environmental measures by the Ministry of Defence of Ukraine.

As we can see at best we have more than 3,000 environmental problems due to military activity. In this paper only some areas like Zhytomyr region with the problems of the land contamination visible with the naked eye are mentioned, but I, as a person who has lived in this country for more than 17 years, am sure that there are a lot of other problems like that that are being silenced. So, we need to understand that all objects of military activity must follow certain rules and we should be ready to deal psychologically and financially with the mentioned problems of this magnitude at the personal and state levels.

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