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IMPROVEMENT OF THE EXISTING MISSILES AND AMMUNITION SUPPLY SYSTEM OF THE ARMED FORCES OF UKRAINE IN ACCORDANCE WITH NATO STANDARDS

УДОСКОНАЛЕННЯ ІСНУЮЧОЇ СИСТЕМИ ЗАБЕЗПЕЧЕННЯ РАКЕТАМИ ТА БОЄПРИПАСАМИ ЗБРОЙНИХ СИЛ УКРАЇНИ У ВІДПОВІДНОСТІ ДО СТАНДАРТІВ НАТО

In the article, special attention is paid to solving the tasks of resource provision of the country's defense capability. The author notes that the issue of establishing a closed cycle of ammunition production, analyzing and adapting the experience of NATO countries in the organization of coordination and control of the processes of providing the Armed Forces of Ukraine with missiles and ammunition needs to be resolved as a priority. Ensuring proper financing of measures for the development of the defense-industrial complex will make it possible to implement a comprehensive approach to effective policy, planning and resource management.

The purpose of the work. *The purpose of the article is to analyze the improvement of the missile and ammunition supply system of the Armed Forces of Ukraine in accordance with NATO standards.*

Methodology. *The article focuses on the ammunition storage system according to NATO standards. In this context, the protection of places of storage of weapons against explosive objects is of particular importance.*

Scientific novelty. *It has been proven that the implementation of an integrated approach to effective policy, planning and management of resources with Euro-Atlantic principles and the logistics system of the defense forces in accordance with NATO guidelines, standards and instructions will allow the creation of effective mechanisms for the economic support of the security and defense sector.*

Conclusions. *It was emphasized that the enemy's use of incendiary weapons poses the greatest danger to ammunition storage sites, military equipment, property, and concentration of personnel. It was established that the enemy's use of unmanned aerial vehicles represents a potential threat. Recommendations have been provided on the protection of places of storage of means of destruction from explosive objects. A model of the ammunition storage system according to NATO standards is proposed.*

Key words: *Armed Forces of Ukraine, national security, bases and ammunition depots, NATO, defense of facilities.*

У статті особливу увагу приділено вирішенню завдань ресурсного забезпечення обороноздатності країни. Автор зазначає, що першочергово потребує вирішення питання налагодження замкненого циклу виробництва боєприпасів, аналіз та адаптація досвіду країн НАТО в організації координації та контролю процесами забезпечення Збройних Сил України ракет і боєприпасів. Забезпечення належного фінансування заходів розвитку оборонно-промислового комплексу дозволить запровадити комплексний підхід до ефективної політики, планування і управління ресурсами.

Мета роботи. *Метою статті є аналіз удосконалення системи забезпечення ракетами та боєприпасами Збройних Сил України у відповідності до стандартів НАТО.*

Методологія. *У статті акцентовано увагу на системі зберігання боєзапасу за стандартами НАТО. У цьому контексті особливе значення має захису місць зберігання засобів ураження від вибухонебезпечних предметів.*

Наукова новизна. *Доведено, що впровадження комплексного підходу до ефективної політики, планування і управління ресурсами з євроатлантичними принципами та системи логістики сил оборони відповідно до керівних положень, стандартів та інструкцій НАТО дозволить створити дієві механізми економічного забезпечення сектору безпеки і оборони.*

Висновки. *Наголошено на тому, що застосування противником запалювальної зброї спричиняє найбільшу небезпеку для місць зберігання боєприпасів, військової техніки, майна та зосередження особового складу. Констатовано, що застосування противником безпілотних літальних апаратів пред-*

ставляє потенційну загрозу. Надано рекомендації щодо захисту місць зберігання засобів ураження від вибухонебезпечних предметів. Запропоновано модель системи зберігання боєзапасу за стандартами НАТО.

Ключові слова: *Збройні Сили України, національна безпека, бази та склади боєприпасів, НАТО, оборона об'єктів.*

Formulation of the problem. The analysis of the conduct of hostilities in the area of the operation of the joint forces, and before that the anti-terrorist operation and the territories adjacent to it, indicates an urgent need to constantly increase the level of security of ammunition storage places, primarily at field warehouses of missile and artillery weapons. Representatives of illegal armed formations have repeatedly tried to carry out terrorist attacks on ammunition storage sites, including using unmanned aerial vehicles.

This state of affairs led to the need to implement certain measures aimed at strengthening protection and defense, increasing survivability and fire-explosion safety, and organizing anti-aircraft defense of ammunition storage sites.

The enemy's use of incendiary weapons poses the greatest danger to ammunition storage sites, military equipment, property, and personnel concentration. To solve the tasks of resource provision of the State's defense capability in the conditions of modern external aggression, the issue of improving the military-economic, military-technical and military-industrial policy is relevant.

Analysis of recent research and publications. In accordance with the tasks defined in the National Security Strategy of Ukraine, the Military Doctrine of Ukraine and the Concept of the Development of the Security and Defense Sector of Ukraine, an integral component of increasing the national security and defense capabilities is the modernization of the system of training, retraining and advanced training of personnel for the security and defense sector of Ukraine with taking into account EU and NATO standards. Such modernization is intended to really strengthen the ability of our state to resist any aggression, to guarantee the peaceful future of Ukraine as a sovereign, democratic and legal state, as well as to ensure the functioning of the national system of timely detection, prevention and neutralization of external and internal threats to national security [4; 5; 8–10].

Separate issues of theoretical and practical direction are considered in the works of domestic researchers.

Mechanisms and stages of improving the state of protection of ammunition storage facilities against fires and explosions for the future are defined in [3], in [1; 7] the proposed mechanisms are indirect in nature, they do not take into account the specifics of the modern life activities of arsenals, bases, warehouses for storing missiles and ammunition.

In [2], the problems of reforming the rear support system of the Armed Forces of Ukraine on the basis of modern management approaches in NATO countries are considered.

However, in the works of scientists, due attention is not paid to the issue of improving the missile and ammunition supply system of the Armed Forces of Ukraine, which determines the relevance of the issue.

The goal of the work. The purpose of the article is to analyze the improvement of the missile and ammunition supply system of the Armed Forces of Ukraine in accordance with NATO standards.

Presenting main material. First of all, it is necessary to solve the issue of establishing a closed cycle of ammunition production, analyzing and adapting the experience of NATO countries in the organization of coordination and control of the processes of providing the Armed Forces of Ukraine with missiles and ammunition.

Provision of adequate funding for the development of the defense-industrial complex: purchase of modern production and research equipment, implementation of scientific research on the development of the latest technologies in the production of missiles and ammunition.

In the future, implement the measures of the Plan for the transition of Ukraine to the management of ammunition safety according to NATO standards, which provides for the improvement of the existing system in four main directions: improvement of the regulatory framework according to NATO standards and supervision in the field of ammunition safety; storage, transportation, handling of ammunition; ammunition life cycle management (technical condition control and decommissioning); inventory management (accounting and supply).

In the conditions of increasing activity of the enemy's use of small-sized unmanned aerial vehicles, the question of finding and implementing ways of complex countermeasures against unmanned aerial vehicles (UAVs) arises. The enemy's use of UAVs represents a potential threat not only on the front line of hostilities, but also in the deep rear, where sabotage and reconnaissance groups of the enemy use UAVs to attempt destructive effects on military objects

using incendiary and explosive devices. This state of affairs led to the need to take certain measures, primarily related to sheltering the available ammunition from the effects of incendiary and explosive devices.

For this purpose, experimental tests of individual elements of the protection of field warehouses against damage by explosive objects used by the enemy's attack UAVs were carried out.

According to the results of the tests, it was established that to protect the storage places of weapons against explosive objects used by the enemy's attack UAVs, it is recommended:

1. Storage of stacks of boxes with ammunition should be carried out in caponirs with collapse, under a layer of bags or boxes with sand and under the cover of a canopy with a frame made of metal mesh, located at a height of at least 2-3 m from the upper row of boxes and at an angle to the surface of the ground for the possibility of rolling ammunition, as well as using means of camouflage.
2. Carry out external treatment of the upper and side surfaces of containers stacked and placed in a hood with fire-retardant compounds, with the mandatory covering of the stacks with a layer of sandbags or boxes, which in turn will allow, in the event of a fire, to increase the time for localization and extinguishing of the fire from 15 to 30 minutes.
3. Cover stacks with ammunition with a tarpaulin treated with fire-retardant compounds with a swelling effect on all sides of the stack.

Along with that, the analysis of the conduct of hostilities in the East of Ukraine and its adjacent territories indicates an urgent need to constantly increase the level of security of ammunition storage facilities, primarily at field warehouses of missile and artillery weapons.

The enemy's use of incendiary weapons poses the greatest danger to ammunition storage sites, military equipment, property, and personnel concentration.

In addition, the issue of the organization of the closed cycle of production of ammunition and separate nomenclature of missiles remains unresolved.

Problematic issues of the activity of the domestic defense-industrial complex, which do not allow to ensure the needs of the Armed Forces in the establishment and development of ammunition production, namely:

lack of production capacity and documentation for the development and production of missiles and ammunition;

insufficient financing of measures for the development of the defense-industrial complex: the purchase of modern production and research equipment, the implementation of scientific research on the development of the latest technologies in the production of missiles and ammunition.

This is explained by many reasons, in particular, most of the enterprises of the defense-industrial complex were designed and built during the time of the former Soviet Union and were intended to solve completely different tasks (a different range of products, larger volumes of production, designed to meet the needs of the entire military-industrial complex of the USSR, etc.).

The conducted analysis shows that at the beginning of the 90s of the last century, such an integral economic indicator, which characterizes the efficiency of the use of production capacities, as the return on capital at Ukrainian defense enterprises, depending on their branch affiliation, was 1.45-1.85. That is, the cost of annual production was 1.5-2.0 times higher than the average annual cost of the main means of production that were involved.

Now this indicator is in the range of 0.40 - 0.65. That is, the amount of products is produced per year, the cost of which is approximately half of the cost of the available means of production.

With this state of affairs, it is difficult to build a healthy economy at the vast majority of enterprises of the defense-industrial complex.

The priority tasks in the field of development of the system of comprehensive resource provision of security (survivability, protection and protection) of potentially dangerous objects of the Armed Forces of Ukraine are [6]:

introduction of new types of weapons, military and special equipment to ensure their professional activity and safety;

carrying out full and partial modernization, technical rearmament, renewal of the fleet of weapons and military equipment, other military property, systems and samples of their technical support for survivability, defense and security;

forecasting the development of weapons, military and special equipment of domestic and foreign production, implementation (implementation) of technical tactics for the protection of potentially dangerous objects;

conducting scientific research in the field of creating the latest traditional and non-traditional means of detection, damage, reconnaissance, management, technical and personnel support, including protection complexes based on new physical principles and weapons (means) of non-lethal action, including special technical means of countermeasures against potentially dangerous objects objects.

The National Security Strategy of Ukraine defines that one of the urgent threats to the national security of Ukraine is the economic crisis, depletion of financial resources, which arose due to the lack of clearly defined strategic goals, priority directions and tasks of the military-economic and scientific-technical development of Ukraine, as well as effective mechanisms concentration of resources to achieve such goals [8].

Also, according to the results of the analysis, it was established that the task of forming and implementing the military-economic, military-industrial policy is not assigned to any of the central bodies of the executive power, in contrast to one component of the military policy, namely, the military-technical policy, which is assigned to the Ministry of Defense of Ukraine.

The absence of a single body responsible for the formation and implementation of a unified military-economic, military-industrial policy in the state has led to the fact that currently, the management and coordination of the defense-industrial complex is not carried out by any of the central executive authorities.

This state does not allow effective use of the existing research and production potential of the defense-industrial complex and implementation of measures for its development.

Fig. 1 shows the proposed ammunition storage system according to NATO standards, namely the ammunition safety management project according to NATO standards (regulator).

The Steering Committee – manages and coordinates the activities of various working groups.

His role and responsibilities are as follows: to report progress to senior management; decide/approve or ask questions to the top management of the General Staff/Ministry of Defense of Ukraine, if necessary; appoint project participants; to approve the powers of working groups; to appoint heads of working groups; monitor progress in various working groups; to manage and coordinate tasks between working groups (to redistribute tasks in case of their duplication); determine and approve the information interaction plan; launch an information campaign.

RS1: Regulatory support – aims to facilitate the establishment of a Safety Authority (SA) and Ammunition Safety Board (ASB).

Area of responsibility of RS1:

analyze the relevance of policies, concepts and processes;

adjust policies, concepts and processes in accordance with international best practices;

determine tasks and responsibilities for the Security Authority;

determine rights and responsibilities (competence profiles);

to appoint and train the "temporary acting director" of the Security Authority;

appoint and train key employees;

achieving the initial operational capacity of the Security Authority;

ensure the implementation of the autonomous structure of the Security Authority (which has full operational capacity);

to define tasks and responsibilities for the Ammunition Safety Board;

determine rights and responsibilities (competence profiles);

organize the start of the Ammunition Board.

RS2: Storage, handling and transport - is tasked with assisting in bringing munitions

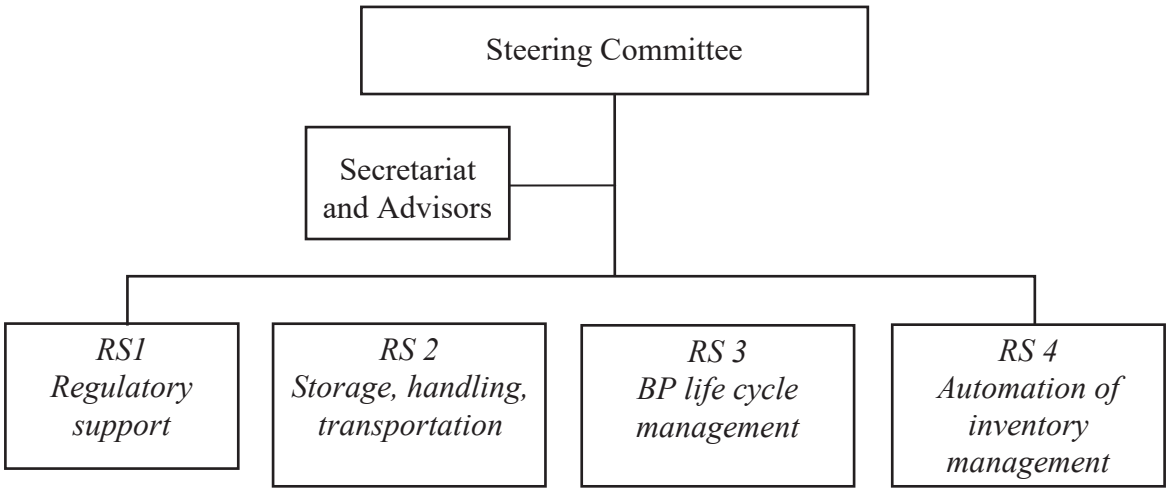

Fig. 1. Ammunition storage system according to NATO standards

storage, handling and transport into compliance with NATO standards.

Scope of responsibility of RS2:

analyze relevant guidance documents, concepts and processes;

bring national guidance documents, concepts and processes into compliance with NATO standards;

create a national database with the classification of threats to ammunition stocks;

to develop the capacity to create an explosion safety plan for places where hazardous substances are stored;

create and implement the Audit Plan for the storage of dangerous substances;

carry out an analysis of the need for professional training;

develop and conduct professional training and educational activities;

plan and implement monitoring of quick positive results in the field of security;

RS3: Munitions Lifecycle Management - is tasked to assist in aligning with NATO standards in the area of Munitions Lifecycle Management.

Area of responsibility of RS3:

analyze relevant guidance documents, concepts and processes;

bring national guidance documents, concepts and processes into compliance with NATO standards;

propose NATO standards for implementation;

analyze the need for infrastructure, material resources, equipment;

deliver equipment;

carry out an analysis of the need for professional training;

develop and conduct professional training and educational activities;

introduce a system of reporting accidents and accidents and a corresponding system of prohibitions and restrictions.

RS4: Stockpile management - has the task of providing assistance and monitoring the introduction of an electronic ammunition stockpile management system.

Area of responsibility of RS4:

monitor the codification of national reserves;

provide support and monitor training of key users;

monitor the practical implementation of the decision;

monitor maintenance and follow-up support.

Monitoring of maintenance and follow-up support involves the following three stages, namely:

Stage 1 - provide support and monitor the further development of the solution;

Stage 2 – provide support and monitor the practical implementation of the decision in the Armaments of the Armed Forces of Ukraine and two pilot arsenals;

Stage 3 – provide support and monitor the practical implementation of the solution at twelve arsenals and at least one combat unit.

Conclusions. Thus, in order to increase the rate of return on capital in the domestic defense-industrial complex, it is necessary to either increase the volume of output, or decommission a certain number of the main means of production. In our opinion, the implementation of an integrated approach to effective policy, planning and management of resources with Euro-Atlantic principles and the logistics system of the defense forces in accordance with NATO guidelines, standards and instructions will allow the creation of effective mechanisms for the economic support of the security and defense sector.

Bibliography:

1.Алексеенко О.В., Багдасарян Н.К., Гаврилюк А.О. Організація безпечного функціонування арсеналів, баз і складів боєприпасів. Київ: НАО України, 2010. 188 с.

2.Нагорнічевський О. Державне управління реформуванням системи тиловогозабезпечення Збройних Сил України в контексті досвіду країн НАТО. *Державне управління та місцеве самоврядування*. 2015. Вип. 2(25). С. 191–199.

3.Програма забезпечення живучості та вибухопожежобезпеки арсеналів, баз та складів озброєння, ракет боєприпасів Збройних Сил України на 1995-2015 роки: постанова Кабінету Міністрів України № 472 від 28 червня 1995 року (з відповідними змінами і доповненнями). URL: zakon.rada.gov.ua/laws/show/472-95-%D0%BF#Text

4.Про рішення Ради національної безпеки і оборони України від 04.03.2016 р. «Про Концепцію розвитку сектору безпеки і оборони України» : Указ Президента України No 92/2016. URL: https://zakon.rada.gov.ua/laws/show/92/ 2016#n2

5.Про Стратегію воєнної безпеки України: Указ Президента України № 121 від 25 березня 2021 р. URL: https://www.president.gov.ua/documents/ 1212021–37661

6.Рогов П.Д., Мєзєнцев О.Г., Онопрієнко О.А. Концептуальне проєктування і платформовий підхід – основа сучасної технічної тактики та військового способу забезпечення безпеки особливо важливих і потенційно небезпечних об'єктів. *Бизнес и безопасность*. № 2. 2021. С. 48 – 55.

7.Стоєцький В. Ф. Управління техногенною безпекою об'єктів підвищеної небезпеки. Тернопіль: ТзОВ "Видавництво Астон", 2006. 569 с.

8.Стратегія національної безпеки України. Затверджена Указом Президента України від 14 вересня 2020 року № 392. URL: https://zakon.rada.gov.ua/laws/show/392/2020.

9.Сьомін С.В., Резніков О.О. Система підготовки кадрів для сил безпеки України: проблеми та перспективи розвитку: аналітична доп. Київ: НІСД, 2016. 50 с.

10. Eder W.E., Hosnedl St. Design Engineering. A Manual for Enhanced Creativity. CRC Press. London, New York, 2008. 588 p.

References:

1.Alekseenko O.V., Bahdasarian N.K., Havryliuk A.O. Orhanizatsiia bezpechnoho funktsionuvannia arsenaliv, baz i skladiv boieprypasiv. Kyiv: NAO Ukraïny, 2010. 188 s.

2.Nahornichevskyi O. Derzhavne upravlinnia reformuvanniam systemy tylovohozabezpechennia Zbroinykh Syl Ukrainy v konteksti dosvidu krain NATO. *Derzhavne upravlinnia ta mistseve samovriaduvannia.* 2015. Vyp. 2(25). S. 191–199.

3.Prohrama zabezpechennia zhyvuchosti ta vybukhopozhezhobezpeky arsenaliv, baz ta skladiv ozbroiennia, raket boieprypasiv Zbroyĭnykh Syl Ukraïny na 1995-2015 roky: postanova Kabinetu Ministriv Ukraïny № 472 vid 28 chervnia 1995 roku (z vidpovidnymy zminamy i dopovnenniamy). URL: zakon.rada.gov.ua/laws/show/472-95-%D0%BF#Text

4.Pro rishennia Rady natsionalnoi bezpeky i oborony Ukrainy vid 04.03.2016 r. «Pro Kontseptsiiu rozvytku sektoru bezpeky i oborony Ukrainy» : Ukaz Prezydenta Ukrainy No 92/2016. URL: https://zakon.rada.gov.ua/laws/show/92/ 2016#n2

5.Pro Stratehiiu voiennoï bezpeky Ukraïny: Ukaz Prezydenta Ukraïny № 121 vid 25 bereznia 2021 r. URL: https://www.president.gov.ua/documents/ 1212021–37661

6.Rohov P.D., Miezientsev O.H., Onopriienko O.A. Kontseptualne proiektuvannia i platformovyy̆ pidkhid – osnova suchasnoï tekhnichnoï taktyky ta viy̆skovoho sposobu zabezpechennia bezpeky osoblyvo vazhlyvykh i potentsiy̆no nebezpechnykh obiektiv. Byznes y bezopasnost. № 2. 2021. S. 48 – 55.

7.Stoietskyy̆ V. F. Upravlinnia tekhnohennoiu bezpekoiu obiektiv pidvyshchenoï nebezpeky. Ternopil: TzOV "Vydavnytstvo Aston", 2006. 569 s.

8.Stratehiia natsionalnoï bezpeky Ukraïny. Zatverdzhena Ukazom Prezydenta Ukraïny vid 14 veresnia 2020 roku № 392. URL: https://zakon.rada.gov.ua/laws/show/392/2020.

9.Somin S.V., Reznikov O.O. Systema pidhotovky kadriv dlia syl bezpeky Ukraïny: problemy ta perspektyvy rozvytku: analitychna dop. Kyiv: NISD, 2016. 50 s.

10. Eder W.E., Hosnedl St. Design Engineering. A Manual for Enhanced Creativity. CRC Press. London, New York, 2008. 588 p.