INNOVATIONS IN MANAGEMENT OF THE STATE MATERIAL RESERVE

Oleh M. Chechel¹, Alla I. Bashuk²

Management of the state material reserve is one of the key functions of the modern state and plays an important role in ensuring national security, especially in the conditions of full-scale Russia's military aggression in Ukraine. The article examines innovative approaches to the management of the state material reserve and its importance in solving current problems caused by existing problems in the specified area. The study analysed the general issues of the functioning of the system of the state material reserve and the main directions of innovative changes in the state administration that can increase the efficiency and effectiveness of the management of the material reserve. Several key innovations were identified that will contribute to the implementation of relevant state functions. The integration of specialised management systems and advanced technologies can optimise processes, increase the accuracy of forecasts and enable timely responses to various types of emergencies and changing situations. Ongoing review and adaptation of strategies is essential to meet both urgent and changing needs and to ensure the sustainability of the stockpile management system. Effective management of state material reserves is essential for ensuring national security, mitigating the consequences of Russia's military aggression, economic crises, natural disasters and other emergency situations. In addition, the research proves the necessity of developing an appropriate legislative framework and implementing state policy for the successful implementation of innovative approaches. The importance of introducing innovative approaches to the management of state material reserves, especially in the conditions of Russia's military aggression in Ukraine, is emphasised. By implementing innovations (modern analytical tools, digital technologies, risk management strategies), a country can strengthen national security, respond effectively to crises, and ensure the availability of critical material resources to support defence efforts and protect the welfare of citizens. The implementation of innovations will have an impact on the efficiency of spending state resources, contribute to the progressive development of state reserve management systems and achieve a more stable and effective functioning of the entire state.

Key words: innovations, state material reserve, state administration, modern technologies.

JEL Classification: H11, O10, H12

Statement of the problem. Management of state material reserves is one of the key functions of the world's leading states, which are focused on ensuring economic stability, security and well-being of their citizens. Dynamic conditions of national and global markets, rapid technological transformations and development of modern society create the need for constant updating and improvement of approaches to the management of state material reserves. The current problems of states are aimed at the effective use and management of their strategic reserves, and therefore it is necessary to identify new technologies and strategies that can ensure better adaptation to changing conditions and achieve greater efficiency.

Based on the needs of research and implementation of innovative approaches in the field of state material reserves management, the key directions may be the use of modern information technologies, forecasting and analysis methods, as well as the development of effective crisis management strategies. Great attention should be paid to important aspects related to economic efficiency, environmental sustainability and social responsibility of the management of state material reserves. In this sense, great importance should be attached to the analysis of progressive experiences, scientific research and best practices, with the aim of identifying new opportunities and providing recommendations for improving the efficiency and effectiveness of reserve management. Of particular importance for the research direction is the increased requirements for the formation and use of the state material reserve during the introduction of martial law in Ukraine, associated with Russia's military aggression.

In the context of rapid development of digital technologies and complex global challenges, the management of state material reserves is becoming more strategic and requires current approaches to solving urgent problems. The possibilities of using data analytics, blockchain technologies and other innovative tools in the management process can help automate processes, increase accuracy and efficiency, and ensure transparency and efficiency of management.

Analysis of recent research and publications. Questions related to the study of various aspects of the management of the state material reserve and the use

¹ Oleh M. Chechel, Doctor of Sciences in Public Administration, Docent, Associate Director of Ukrainian State Scientific Research Institute "Resource" of the State Reserve Agency of Ukraine, e-mail: zedat@ukr.net
ORCID: https://orcid.org/0000-0002-5092-9593

² Alla I. Bashuk, Doctor of Sciences in Social Communications, Docent, Associate Professor at the Department of Advertising and Public Relations, Taras Shevchenko National University of Kyiv, e-mail: gella_m@ukr.net
ORCID: https://orcid.org/0000-0001-5535-8999
of innovative approaches in state administration were considered by scientists Vashchenko V., Kostenko D., Kotovska I., Lutsykiv I., Talavyria M., Fedorchak O., Chechel O., Shyshak A., Yushchenko L., Yakymenko S., and others. Given the relevance of the issue and taking into account modern needs and requirements, there is a need for in-depth analysis of certain aspects of the management of the state material reserve.

**Formation of the objectives of the article (task statement).** The purpose of this article is to analyse the application of innovative approaches in the field of state material reserve management.

**Summary of the main research material.** In view of the Russia’s military aggression in Ukraine and its consequences, the importance of issues determining the specifics of the management of the state material reserve has increased significantly. The management of the state material reserve is a crucial factor in ensuring national security and defending the country’s sovereignty. An effective system of reserve and supply of material resources helps to ensure the availability of strategic reserves for defence needs and to support stabilisation measures in the economic sphere during the period of martial law. In conditions of military activity and humanitarian crisis, the management of the state material reserve is an important means of providing vital resources such as food, medical equipment, medicines, and other resources for the civilian population and the military. Proper management of the state material reserve helps to ensure the effective distribution of resources in crisis situations. This involves the planning, coordination, storage and distribution of material stocks to maximise the benefit and support to critical sectors of the economy and society.

The state material reserve, as a set of stocks of primary importance for the normal functioning of the national economy and food security, is a rather complex object of management. For this reason, the state must ensure a very high level of relevance of the components of the state reserve, as well as create conditions for their proper, effective storage and periodic renewal. By its very nature, the state material reserve includes a number of things, food, dual-purpose goods, weapons, etc., which together must meet the priority needs of the state in terms of resources to ensure socio-economic stability. This requires complex logistics, operational management based on network planning technologies, project organisation and a functional support system, which must be mobile and effective in responding to situations requiring support from the state reserve [1].

According to the current legislation, the state reserve is a stock of material values created by the state, which should be used to meet the needs in a special period (humanitarian crises, emergency situations, wartime, etc.) [2]. The state policy in the field of state material reserves is implemented by the State Reserve Agency of Ukraine [3]. The structure of the State Reserve Agency of Ukraine provides for a comprehensive system of storage of material assets and their possible processing (Figure 1).

![Figure 1 – State-owned enterprises, organisations and institutions under the management of the State Reserve Agency of Ukraine](source: [4])
Механізм регулювання економіки

The analysis of the nature and content of the management of the state reserve should be based on the following initial aspects: the management of the state reserve is a dynamic process (replenishment, renewal of reserves); the State Reserve is the strategic economic potential of Ukraine, therefore it should be actively involved in economic processes. The management of the state reserve must be centralised, which means the need to coordinate the plan and procedure for ensuring the needs of various state authorities at the expense of the state reserve funds during the performance of their functions and powers, including in emergencies and force majeure situations. This implies the need to implement technologies of network planning, project management and adaptive management [1].

Financing of the State Reserve Agency of Ukraine from the state budget in 2022 was carried out under the following budget programmes 1203010 "Management and Administration of the State Reserve"; 1203020 "Maintenance of the State Material Reserve" and 1203040 "Accumulation (increase) of Material Values of the State Material Reserve" [5].

Consider the situation of the use of the state budget funds under the budget programme "Maintenance of the State Material Reserve" in 2023 (Figure 2). As can be seen from Figure 2, from the planned funds of the general fund of the budget in the amount of 130091.9 thousand UAH, 129662.6 thousand UAH were actually used (99.7% of the plan).

Consider the cycles of the use of state budget funds under the budget programme "Management and Administration of the State Reserve" (Figure 3). According to [4], 93.8% of the planned funds from the general fund of the budget were actually used:

– 10% reduction in expenditures from the General Fund of the state budget on the basis of the Resolution of the Cabinet of Ministers of Ukraine of 01.04.2022 No. 401 [7] for the purpose of allocating these funds to the needs of the Armed Forces of Ukraine and other military formations engaged in repulsing the armed aggression of the Russian Federation and protecting the State;

– forced recovery of oil supply debts by the Head Office of the State Treasury Service of Ukraine in Kyiv based on orders of the Commercial Court in favour of PJSC Ukrnafta, which deprived the State Reserve Agency of Ukraine of the opportunity to use the general fund allocation for its intended purpose.

Here an analysis of the use of state budget funds under the budget programme "Accumulation (increase) of Material Values of the State Material Reserve" is carried out (Figure 4). As a result of the martial law imposed in connection with the full-scale invasion of the Russian Federation on the territory of Ukraine, the State Reserve Agency of Ukraine did not renew and replenish the material assets of the state reserve, which is explained by the absence of a plan to renew and ensure the release of the material assets of the state reserve in accordance with the decisions of the Cabinet of Ministers.
of Ukraine. There was also no need to conduct an expert assessment of the value of the state reserve materiel to be sold because there was no plan to update and hold auctions for the sale of disarmed material assets of the mobilisation reserve [4].

The main financial indicators of the activity of enterprises under the control of the State Reserve Agency of Ukraine in 2022 are shown in Figure 5. The main reasons for unprofitability are a decrease in the volume of provided services, a difficult financial situation, a low load of donor raw materials, a lack of working capital for the purchase of own food raw materials and the presence of debts for services provided for the storage of material assets of the state reserve.

Based on the analysis of the available data for the year 2022 on various areas of management of the state material reserve and the activities of enterprises subordinated to the State Reserve Agency of Ukraine, it is possible to draw a conclusion on the presence of a significant range of both systemic problems and situational complications associated with the introduction of martial law, legal proceedings, etc. It should be noted that such a difficult
situation in the system of state management in the sphere of the state material reserve appeared long ago.

It would be appropriate to refer to the results of the latest audit of the effectiveness of the management of the state material reserve, which was conducted by the Accounting Chamber in 2019 based on the results of the State Reserve Agency of Ukraine in 2017–2018 [8]. The Accounting Chamber found irregularities in the use of budget funds; inefficient management of material assets, which caused damage to the state; provision of free services; poor storage of valuables; failure to impose sanctions on suppliers who breached contracts; and violations in the activities of business entities subordinated to the state reserve. These problems and their consequences are the result of the continued use of outdated approaches to the formation of the state material reserve system, which took into account the European experience of creating state reserves to a limited extent. In addition, the condition of a significant number of objects involved in the system of state material reserves shows significant physical wear and tear and non-compliance with modern energy efficiency and quality requirements. The problem of replenishment of reserves, their refreshment and control over their storage is a difficult one [9].

Scientists confirm a number of existing inconsistencies, which provides for consolidation at the legislative level of the nomenclature of the state material reserve of Ukraine; normalisation of the process of approval of the specified nomenclature; introduction of uniform standards and unification of requirements for material assets; consideration of NATO standards when forming the mobilization reserve. In another direction, there are questions about the possibility of reserving funds, involving producers in the storage of products, speeding up decision-making, increasing the transparency of the use of state budget funds, strengthening the responsibility for maintaining reserves [10–12].

Thus, the problems that have arisen with the replenishment, renewal, system of protection, monitoring and modernisation of the general standards in the System of Material Reserves require the search for innovative approaches to the existing system of management of the state material reserve of Ukraine. These needs should be based on a general vision of innovative models, tools and means used in the public administration system. Their use is appropriate, taking into account the need to implement the general functions of the State, which will contribute to forecasting, organisation, accounting and monitoring in the field of state material reserves.

Scholars note that the public sector is less innovative than the needs of social development require. The public sector demonstrates insufficient innovation due to the lack of incentives. In addition, the institutional environment of the public sector is different from that of, for example, the private sector. The main problems faced by the state are: the need to perform functions and provide quality public services based on the reality of limited resources and operational capabilities; insufficient accountability, transparency and efficiency of state authorities; the need to respond adequately to the demands of individual economic sectors, enterprises and citizens for greater participation of interested entities in the public sector. According to the authors, these challenges require innovative institutional mechanisms and processes, as innovation is a powerful and fundamental driver for reform, modernisation and activation of public authorities [13].

Innovative activities in the system of state administration are considered as relevant projects for implementation of
Innovative forms and methods (normative, organisational) of management functions of state authorities in the context of increasing their efficiency and quality [14].

The main task of implementing innovations in public administration in Ukraine is to develop a conceptual vision and strategy for the formation of a new quality of management, which would develop and implement innovations in conditions of uncertainty. In the context of ensuring national security, it is necessary to cooperate with the business sector of state administration bodies, to finance the development of science, to order and receive an intellectual product [15].

Innovations in the system of public administration include activities aimed at obtaining various positive effects from the introduction of novations (methods, technologies, organisational and management solutions) in any sphere of society [16]. Innovations in public administration can be transformed or new structures, information, financial and legal management mechanisms, models of interaction of public authorities with business and the public, new forms and methods of work of public authorities, management technologies and tools used in solving contradictions and problems [17].

Innovative tools in public administration include: outsourcing; benchmarking; reengineering; electronic governance; balanced indicator system; new state administration; management by results; management by objectives; project management [18]. The main areas of improvement of the innovation process in public administration can be: containment, development, protection, crisis management [19].

Accordingly, the formation and promotion of innovative solutions in the system of management of the state material reserves should be carried out primarily at the level of the legal mechanism by making the necessary changes to the current legal acts and developing new normative legal acts. For example, the adopted strategy for the reform of the state material reserve system for the period up to 2025 [20] aims to conceptually transform the system and adapt it to the consequences of a full-scale invasion of the Russian Federation into Ukraine. The strategy of the reform of the state material reserve system is focused on the problems of the industry that have accumulated in recent years. In particular, it is noted that the state material reserve is insufficient in terms of the volumes provided; the available financial resources do not allow for the creation or updating of the stock of material assets in accordance with the identified needs; the state management of the stock of material assets is ineffective; the sectoral legal framework does not meet modern requirements, etc.

Thus, the reform of the specified area should solve the accumulated problems due to the formation of a modern system of accumulation and storage of the state reserve [21]. It is proposed to create a new central executive body after the liquidation of the State Reserve Agency, which will receive other functions and powers. Formation of the nomenclature of material assets of the state reserve will take place in directions that contribute to the prompt resolution of crisis situations by the state: energy (energy resources, fuel for power generation); defence (fuel and lubricants, means of protection); food (food and related products); medicine (medicines). Innovative approaches to the storage of material assets will be introduced, including diversification of resources (private bases, territories of EU countries). Information on stockpiles of material reserves will be digitised and published in digital resources [22].

In February 2023, the Cabinet of Ministers of Ukraine approved the draft Law "On State Reserves" [23], which will allow for the formation of a modern system of creating material reserves in Ukraine based on flexibility, relevance, manageability, and other modern approaches. The draft law defines the powers of the central government body that implements the policy of monitoring the available values of the state reserve; the concept of reserves, the procedure and approaches to the selection of custodians, etc. The regulatory act improves the procedure for updating material assets and suggests ways to strengthen responsibility for the accumulation, storage and use of reserves [20].

Based on the understanding of innovations in public administration, in the field of state material reserves, it is possible to implement other innovative approaches that can improve the efficiency and effectiveness of the considered processes, which are based on the needs of effective use of state budget funds, the possibility of operational management of stocks, control over entities subordinated to the State Reserve Agency of Ukraine, implementation of tasks facing the state in the field of material reserve management. These areas should make extensive use of digital technologies and software tools in the public administration system.

The creation of networking platforms where different actors can share information, resources and best practices can improve cooperation and coordination in the management of the state material reserve. This may include the creation of electronic databases and the joint development of standards and protocols. The use of digital platforms and portals for the management of national material reserves contributes to the centralisation and availability of information. This allows for the rapid exchange of data between relevant structures, companies and managing authorities. Digital platforms can also include monitoring, analysis and collaborative decision-making capabilities that facilitate more effective and collective management of reserves.

The application of modern scientific tools, such as machine learning, artificial intelligence and data analytics, can help to effectively forecast the needs associated with the state material reserve. This will allow to ensure the optimal number and assortment of reserves, to carry out risk and opportunity analysis, to make more accurate forecasts of the demand for reserves, to optimise the composition and placement of reserves, as well as to plan their use taking into account changing conditions. The implementation of systems based on artificial intelligence can help to automate the processes of state material reserve management (forecasting, inventory management,
The application of data analytics allows the identification of trends, samples, patterns and correlations related to the management of reserves. The use of digital technologies, in particular the Internet of Things (IoT), can improve the processes of preserving, monitoring and managing national material reserves. For example, the implementation of IoT solutions can enable real-time monitoring of stocks and storage conditions. This will allow the monitoring of all transactions related to the reserves, which will contribute to more effective control and prevention of fraud.

In the area of managing the government’s material reserves, it is important to develop and implement risk management strategies, which include the analysis and assessment of potential risks and the development of measures to minimise the impact of risks on the government’s reserves. In this context, tools such as stochastic modelling, scenario analysis and stress testing can be used to assess the impact of various risks on the state material reserve and to take appropriate measures to minimise these risks.

These innovative approaches offer new opportunities for more effective and sustainable management of the national stockpile. Their implementation can help to increase the efficiency of reserve use, ensure security and stability, and reduce the costs and risks associated with reserve management.

Conclusions. The issue of implementing innovations that can affect the efficiency of spending state resources will contribute to the progressive development of state reserve management systems and the achievement of more stable and effective functioning of the state. The use of modern analytical tools, digital technologies and risk management strategies will allow to: ensure optimal planning of reserves and their effective use, improve control over stocks, reduce costs, reduce the number of unreasonable decisions and increase data security, ensure stability and effectiveness of reserves in crisis situations.

By using advanced technologies and optimising processes, it is possible to achieve greater accuracy in forecasting, increase the speed of response to changes and ensure rational use of reserves. Integrating the state material reserve with specialised management systems can help automate processes, improve accounting and reporting, and provide quick access to necessary information. This will make it possible to respond more effectively to emergency situations and ensure the rapid mobilisation of reserves.

Continuous updating and revision of the management strategies of the state material reserve is a key success factor. Taking into account new challenges, changes in the global environment and environmental conditions helps to adapt strategies and ensure the effective functioning of the state material reserve, especially during the period of martial law in Ukraine.

It is important to bear in mind that innovations in the management of government material reserves must be accompanied by an up-to-date legal framework and the implementation of government policy in the field of material reserves. Legislation and political will are important success factors for the implementation of new approaches and for ensuring the stability and reliability of the system for the management of state material reserves.

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ІННОВАЦІЇ В УПРАВЛІННІ ДЕРЖАВНИМ МАТЕРІАЛЬНИМ РЕЗЕРВОМ

Олег Миколайович Чечель1, Алла Іванівна Башук2

Управління державним матеріальним резервом є однією з ключових функцій сучасної держави і відіграє важливу роль у забезпеченні національної безпеки, особливо в умовах повномасштабної російської військової агресії в Україні. У статті досліджуються інноваційні підходи до управління державним матеріальним резервом та його значення у вирішенні актуальних питань, створенням наявної проблематики у вказаній сфері. У дослідженні проаналізовано загальні питання формування системи державного матеріального резерву та основні напрями інноваційних змін у державному управлінні, які можуть підвищити ефективність і результативність управління матеріальним резервом. Використано кілька ключових інновацій, які сприятимуть реалізації відповідних функцій держави. Інтеграція спеціалізованих систем управління та передових технологій може оптимізувати процеси, підвищити точність прогнозування та дозволить вчасно реагувати на різного роду надзвичайні та мінливі ситуації. Постійний перегляд і адаптація стратегій є важливими для задоволення як нагальних потреб, що змінюються, так і забезпечення стійкості системи управління резервами. Ефективне управління державним матеріальним резервом є життєво важливим для забезпечення національної безпеки, поглиблення наслідків російської військової агресії, економічних криз, стихійних лих і інших надзвичайних ситуацій. Окрім того, дослідження доводить необхідність розроблення відповідної законодавчої бази та реалізації державної політики для успішного впровадження інноваційних підходів. Впровадження інновацій матиме вплив на ефективність витрачання державних ресурсів, сприятиме прогресивному розвитку систем управління державними резервами та досягненню більш стійкого й ефективного функціонування всієї держави.

Ключові слова: інновації, державний матеріальний резерв, державне управління, сучасні технології.

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1 Чечель Олег Миколайович, доктор наук з державного управління, доцент, Заступник директора Українського державного науково-дослідного інституту «Ресурс» Державного агентства резерву України
2 Башук Алла Іванівна, доктор наук із соціальних комунікацій, доцент, доцент кафедри реклами та зв’язків з громадськістю Київського національного університету імені Тараса Шевченка