Analysis of the state of financing of the Armed Forces and its impact on the defence acquisition system of arms and military equipment of Ukraine

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The article provides a comparative analysis of trends in financing the defence acquisition of equipment system in Ukraine and some of the leading NATO countries; highlights the problematic issues for Ukraine in terms of defence capabilities and the impact of defence acquisition of equipment on them (defence capabilities); and establishes that by performing the regulatory function, the defence equipment acquisition system not only ensures the development of the Armed Forces but also gives the market economy additional stability, if the management of mentioned system is efficient and adapted to the new economic conditions.

Keywords: defence acquisition, procurement, weapon, military equipment, defence industry, defence ministry.

Introduction

The issue of ensuring an adequate level of defence capability in the context of hybrid war with the Russian Federation (RF) for Ukraine is quite acute. A well-functioning defence acquisition system for the weapons and military equipment (hereafter ‘equipment’) and the level of funds allocated for the procurement and creation of equipment play a significant role in this matter. According to official data, the cost of equipment acquisition in the Ministry of Defence (MoD) of Ukraine over the past five years (2014 to 2018) increased by 9.6% (from 15.8% to 25.4%), and in 2018, this expenditure amounted to UAH 24.095 billion [1-5]. There is a need to compare the extent to which this expenditure meet the NATO standards in this area, how the specified level of funding affects Ukrainian defence capability, whether it is sufficient and what are the issues where attention should be paid in this area.

Material and Method

Research on various aspects of the public procurement system include dedicated works by authors such as M. Bublii, A. Halushchak, V. Heiets, N. Drozdova, V. Zubar, Y. Kindzerskyi, N. Konashchuk, I. Liutyi, O. Melnykov, O. Miniailo, O. Osviansiuk-Berdadina, V. Oparin, H. Pinkas, M. Pysmenna, I. Smotrytska, N. Tkachenko, I. Shkolnyk and others. Ukrainian scientists such as V. Badrak, V. Behma, R. Bodnarchuk, V. Horbulyn, Ye. Krasnykov, I. Chepkov, A. Shevtsov, V. Shemaiev and others question the systematic basis of the essence of the military-technical policy of the State, the development of its defence-industrial component, and examine the approaches to the formation of the state defence order. However, in the field of scientific research of the defence acquisition system, specifically equipment, these scientists are considering separate areas, but there is no scientific experience with a comprehensive study of the mentioned system.

Setting a task. The purpose of this article is to analyse trends in financing of the defence equipment acquisition system in Ukraine and to compare it with existing trends in this area.
of the leading NATO member countries. Moreover, there is going to be highlighted the problematic issues for Ukraine on defence capability and the impact of the defence equipment acquisition system on strengthening the defence capability of the country.

Results and discussion

Events around Ukraine in recent years, starting from 2014, namely the conduct of anti-terrorist operation (hereafter ATO) and then the Joint Forces Operation (hereafter JFO) in the east of the country, has identified gaps in the national security system. The experience gained by the State in countering external armed aggression required the construction of a fundamentally new system of national security, in particular, the immediate ordering and resolution of issues of enhancing the state defence capability, reforming the Armed Forces (hereafter AF) of Ukraine and other military formations, as well as the development of the defence industry. As a result, in May 2015, the National Security Strategy of Ukraine (hereafter Strategy) was approved and is expected to be implemented by 2020. The purpose of this Strategy is to create a new system of national security and defence, which can guarantee the protection of state sovereignty and territorial integrity of Ukraine from the whole complex of possible threats, first of all from armed aggression.

A decree of the President of Ukraine, based on the results of the analysis of contemporary military conflicts, principles and ways of preventing their emergence, preparation of the state for the threat of military conflict, use of military force for protection of state sovereignty and territorial integrity, approved a new version of the Military Doctrine of Ukraine [6]. On this basis, in 2015, an essential priority of the Ministry of Defence (hereafter MoD) of Ukraine has been providing the AF with weapons and equipment. This is an essential prerequisite for the strategic development of this industry and for enhancing its competitiveness.

Based on the experience of the countries that have proven their defence capabilities on the world stage, it is possible to conclude that the future of any AF should be based on modern research and developments (hereafter R&D), and specific projects should be based on a serious analysis of the world tendencies of development of breakthroughs in the defence sphere, advanced national developments, trends in the development of the world market for equipment and, of course, the current needs of the national AF as well. Increasing funding for these R&D activities will allow enterprises of the national defence industry to have a future view. In recent years, R&D by Ukrainian scientists has not been in demand, but it was saved. With increasing funding for the development of equipment, they can accordingly be further developed [7].

The seems the appropriate time to analyse what trends have been observed over the past five years among the leading NATO member countries in the financing of the AF and the defence acquisition, which place Ukraine occupies there, and what specific problems it faces.

In the article for review and analysis was chosen countries that have developed defence industry and extensive experience in the defence equipment acquisition system, namely the United States of America (USA), the United Kingdom of Great Britain and Northern Ireland (the United Kingdom or UK), French Republic (France) and Federal Republic of Germany (Germany).

To begin with, we consider the absolute and relative indicators of military expenditure of countries; see Table 1 (Table 1 data on foreign countries were calculated based on data provided by the World Bank using the Stockholm Institute for World Studies (SIPRI) statistics).
Table 1. Military expenditure from 2014 to 2018

| Countries | Years              | 2014   | 2015   | 2016   | 2017   | 2018   |
|-----------|--------------------|--------|--------|--------|--------|--------|
|           | USD bn* % of GDP   | USD bn* % of GDP | USD bn* % of GDP | USD bn* % of GDP | USD bn* % of GDP | USD bn* % of GDP |
| USA       | 609.9              | 3.50   | 596.1  | 3.29   | 600.1  | 3.22   | 609.8  | 3.14   | 648.8  | 3.16   |
| UK        | 59.18              | 1.97   | 53.86  | 1.88   | 48.12  | 1.84   | 47.19  | 1.84   | 49.99  | 1.78   |
| France    | 63.61              | 2.23   | 55.34  | 2.27   | 57.36  | 2.33   | 57.77  | 2.26   | 63.80  | 2.29   |
| Germany   | 46.10              | 1.19   | 39.81  | 1.18   | 41.58  | 1.20   | 44.33  | 1.22   | 49.47  | 1.23   |
| Ukraine** | 1.03               | 1.77   | 1.88   | 2.67   | 2.21   | 2.57   | 2.75   | 2.53   | 3.43   | 2.85   |

* current USD  
** Ukrainian military expenditure is recalculated from the UAH exchange rate to the USD established by the National Bank of Ukraine at 31.12.2018  

Note. Data is recapitulated by the author, based on sources [1–5, 8, 9].

As it is seen, the undisputed leader from all the countries included in the study is the USA for the last five years. This conclusion is based on the size of the relative (percentage of gross domestic product – GDP) and absolute indicators of military expenditures (see Table 1 and 2) and middle-sized expenditure per AF personnel (see Table 3, table data to foreign countries calculated based on annual reports from the NATO and the World Bank).

Table 2. Military expenditure of the USA, the United Kingdom, France and Germany during 2014-2018 according to the data of NATO`s report*

| Countries | Years   | 2014   | 2015   | 2016   | 2017   | 2018** |
|-----------|---------|--------|--------|--------|--------|--------|
|           | USD bn* % of GDP | USD bn* % of GDP | USD bn* % of GDP | USD bn* % of GDP | USD bn* % of GDP | USD bn* % of GDP |
| USA       | 660.1   | 3.73   | 641.2  | 3.52   | 651.2  | 3.52   | 626.4  | 3.31   | 642.0  | 3.30   |
| UK        | 61.23   | 2.16   | 59.49  | 2.05   | 62.26  | 2.11   | 63.36  | 2.11   | 65.13  | 2.14   |
| France    | 43.91   | 1.82   | 43.47  | 1.78   | 44.22  | 1.79   | 44.92  | 1.78   | 46.57  | 1.82   |
| Germany   | 39.30   | 1.18   | 39.81  | 1.18   | 41.14  | 1.19   | 43.58  | 1.23   | 44.34  | 1.24   |

* the expenditure presented in the NATO report are calculated at constant 2015 prices and exchange rates  
** The end date for the information used in this report is June 20, 2019. Figures for 2018 - budget estimates.  
Note. Data is recapitulated by the author, based on sources (Table 2: Defence expenditure and Table 3: Defence expenditure as a share of GDP and real annual change) [12]

The Welsh Summit Declaration was signed during the Welsh Summit (agenda of the Welsh Summit was Russia’s aggressive actions against Ukraine) in September 2014. The Declaration emphasised the decision to increase military expenditure up to a minimum of 2% of their GDP over the next ten years (by 2024) and minimum 20% of their defence budgets on major...
equipment, including related R&D [10]. Only the USA and France (from studied countries) comply with the mentioned criterion, and the United Kingdom was very close to it (1.78% in 2018) at the end of 2018, see Table 1. At the same time, according to a NATO report released in June 2019, according to NATO experts who used 2015 constant price and currency rates to calculate data, see Table 2, only the USA and the United Kingdom met the 2% of GDP criterion, and France was very close to the desired criterion (1.82% in 2018). Indicators of Ukrainian military expenditure, both relative and absolute, have been steadily increasing, but not sufficient for the belligerent country (relative ones have increased 1.6 times from 1.77% to 2.85%, in turn, absolute ones have increased three times, though even in such circumstances, total figures are not comparable to the expenditure of leading NATO members).

**Table 3.** The size of the armed forces, the expenditure per capita of the armed forces personnel and the expenditure of equipment, including related R&D annually during 2014-2018

| Countries | Роки | 2014 | 2015 | 2016 | 2017 | 2018² |
|-----------|------|------|------|------|------|-------|
| USA       |      |      |      |      |      |       |
|           | AF (K people) / expend. per capita of AF personnel (USD m)³ | expend. for equipment % | AF (K people) / expend. per capita of AF personnel (USD m)³ | expend. for equipment % | AF (K people) / expend. per capita of AF personnel (USD m)³ | expend. for equipment % | AF (K people) / expend. per capita of AF personnel (USD m)³ | expend. for equipment % | AF (K people) / expend. per capita of AF personnel (USD m)³ | expend. for equipment % |
|           | 1338 | 1314 | 1301 | 1307 | 1323 | 27,06 |
|           | 0,49 | 0,49 | 0,5  | 0,48 | 0,49 |       |
| UK        |      |      |      |      |      |       |
|           | 169  | 141  | 139  | 137  | 229  | 24,23 |
|           | 0,36 | 0,42 | 0,45 | 0,46 | 0,45 |       |
| France    |      |      |      |      |      |       |
|           | 207  | 205  | 208  | 208  | 208  | 23,66 |
|           | 0,21 | 0,21 | 0,21 | 0,22 | 0,22 |       |
| Germany   |      |      |      |      |      |       |
|           | 179  | 177  | 178  | 180  | 183  | 14,13 |
|           | 0,22 | 0,22 | 0,23 | 0,24 | 0,24 |       |
| Ukraine   |      |      |      |      |      |       |
|           | 204  | 204  | 204  | 204  | 204  | 25,4  |
|           | 0,005| 0,009| 0,01 | 0,013| 0,017|       |

¹ expenditure for the defence acquisition of equipment as a percentage of the country total military expenditures
² the end date for the information used in the NATO Report is 20 June 2019. Figures for 2018 are budget allocations (for NATO countries)
³ estimated average expenditure per capita of the armed forces personnel given the size of the military expenditure and the size of the AF of the countries of study

Note. Data is recapitulated by the author, based on sources [1-5, 12].
World experience shows that countries with advanced defence spheres increase military expenditure during wars and military conflicts by 1.3–1.4 times, and less developed countries 3–4 times what they spend during peacetime [11].

Concerning the expenditure of defence acquisition of equipment, the standards of NATO are adhered to by the USA, France and the United Kingdom, and Germany has been gradually increasing its percentage over the past five years (see table 3).

However, in indicators of middle-sized expenditure per capita of the AF personnel in terms of the size of the AF, the best cost indicators among European countries is the UK (but it should be noted that the AF in the country is decreasing, in 2018 alone increased by 8 thousand people compared to the previous year, but compared to 2014, it is still lower by 24 thousand people). The indicators of Germany and France are almost the same, but in Germany are even higher and steadily increasing, in turn, the indicators of Ukraine are far behind the European leaders’ ones, although they have been steadily growing and have more than tripled in the last five analysed years (see table 3).

Considering Ukrainian indicators in more detail, see Table 4. Thus, since the beginning of 2015, there has been an increase in the financing of expenditure for the defence equipment acquisition system. A financial resource was provided for the development of equipment, which was almost 2.5 times the amount of funding in 2014. This fact enabled new samples to be taken into service, procured, upgraded, and restored to about 27,000 items of equipment.

### Table 4. State of financing military expenditure during 2014-2018

|                  | 2014   | 2015   | 2016   | 2017   | 2018   |
|------------------|--------|--------|--------|--------|--------|
| Military expenditure, UAH bl | 26,968 | 49,334 | 58,025 | 72,126 | 94,983 |
| Expenditure for equipment, UAH bl | 4,254  | 10,309 | 9,37   | 17,142 | 24,095 |
| Military expenditure, % GDP    | 1,77   | 2,67   | 2,57   | 2,53   | 2,85   |

Note. Data is recapitulated by the author, based on sources [1-5].

In the State Budget of Ukraine for 2015, the MoD of Ukraine provided an allocation of UAH 46.736 billion (2.53% of GDP). The MoD received virtually UAH 49.334 billion (2.67% of GDP) or 105.6% of annual appropriations. This amount takes into account in-kind contributions to the national defence in the form of aid, humanitarian and international technical assistance from foreign countries of UAH 1.696 billion (which was taken into account in the increase of the special fund). In 2015, compared to 2014, the received financial resource increased by UAH 22.3 billion, or 1.8 times. The allocated funds were earmarked, in particular, for the development of equipment for UAH 10,309 billion (20.9% of the total) [2]. An analysis of the breakdown of expenditure shows that for the first time in recent years, there has been a trend towards a gradual, albeit slow, approach in recognised positions to NATO standards. Due to the significant financial resources allocated in 2015, the AF began to recover. For the first-time in recent years, there has been an approximation of the distribution of expenditure to the practices of the leading countries of the world [2; 13].

The State Budget of Ukraine for 2016 provided expenditure for the MoD for UAH 59.4 billion or 2.63% of GDP [14]. The approved expenditure (UAH 59.4 billion) compared to 2015 (UAH 49.3 billion) increased by UAH 10.1 billion or by 20%. The MoD received virtually UAH 58.025 billion (2.57% of GDP), or 97.6% of annual appropriations, respectively, as compared to 2015, the amount of MoD financing increased by UAH 8.7 billion (almost 1.2 times). In the structure of the MoD expenditure for the development of equipment was provided UAH 9.37 billion (16.2% of the
total amount), 93% of the allocated funds were earmarked for the modernisation of the existing and the procurement of a new equipment, and 7% for the financing of the R&D, which are under development documentation, production of a prototype, and carrying out state (preliminary) tests. It should be noted that in 2016, the MoD developed the State Targeted Defence Program for the Development of Weapons and Military Equipment for the Period up to 2020 (here) as the only medium-term planning document for the development of equipment for military units formed under the laws of Ukraine. [3]

The State Budget of Ukraine for 2017 (as amended) provides for an allocation of UAH 69.175 billion (2.43% of GDP) for the MoD [15]. This expenditure is slightly more than UAH 11 billion, or 19%, compared to 2016 (see Table 4).

According to the Department of Finance of the MoD, in 2017 the expenditure of the AF was increased in almost all major areas. However, funding (compared to last year’s indicators) increased the most for the needs of the development of equipment. 18% of the defence budget is earmarked for the creation of the advanced equipment, R&D of the cutting edge equipment, which is UAH 11.7 billion, which is almost UAH 3.6 billion more than last year. It is essential that the Ministry of Finance of Ukraine has passed the schedule for the planned statistics for the implementation of the Program [16]. In fact, in 2017, the MoD received UAH 72.126 billion (2.53% of GDP) or 104.3% of annual appropriations, and UAH 17.142 billion (23.8% of the total sum) was allocated for the acquisition of equipment [4]. Thus, the funding of the MoD of Ukraine increased by UAH 14.1 billion or 24% compared to 2016.

The State Budget of Ukraine for 2018 (as amended) has set aside the allocation for the MoD for UAH 91.557 billion (2.75% of GDP) [17]. The MoD received virtually UAH 94.983 billion (2.85% of GDP) or 103.7% of annual allocations, and UAH 24.095 billion (25.4% of the total) was allocated for the development of equipment in 2018. It should be noted that the MoD received free support in the form of aid, humanitarian and international technical assistance from foreign countries for UAH 3.355 billion, which was credited to the special fund of MoD [5].

During 2014–2018 the MoD was receiving aid, humanitarian and international technical assistance from foreign countries for UAH 10241.6 million, including 2014 – UAH 426.2 million, 2015 – UAH 1696.1 million, 2016 year – UAH 2083.8 million, 2017 – UAH 2679.8 million, 2018 – UAH 3355.7 million. [5]

Nowadays, the AF of Ukraine has a significant part of the AF equipment remaining after the collapse of the USSR, and much of this equipment requires modernisation or replacement. According to experts [18-20], in 5-10 years, many items of the equipment will become unusable.

Back in the early 1990s, Ukraine had to make a strategic decision regarding equipment, namely: which equipment is needed for the AF, which needs to be modernised and repaired and possibly mothballed, and which should be transferred to the national economy or disposed of it. It was necessary to implement this comprehensively, based on the national interests of Ukraine. However, due to the prolonged absence of a proper state mechanism, our state’s security potential has turned into a potential for danger.

According to experts [21], the current level of logistic support and funding will allow the AF only to continue the modernisation and repair of old types of Soviet equipment with the further commissioning of it, in order to maximise support of the military units in the area of JFO. At the same time, some of the experts [22] predict the emergence of new types of equipment in the AF.

From the above analysis, we can conclude that now and in the short term the proper level of combat capability of the AF is possible by the modernisation of equipment, such as: “restoration” of equipment with simultaneous increase of combat and operational characteristics, prolongation of warranty service life, carrying out current and major repairs.

An essential aspect of the further development of Ukraine as an independent State is the development of its AF and other military formations, capable of guaranteeing the
sovereignty, territorial integrity of the country, and providing reliable protection of national interests against military threats.

In fulfilling its regulatory function, the defence equipment acquisition system not only ensures the development of the AF but also gives the market economy additional stability. However, it should be noted that the regulatory function of the defence equipment acquisition system will achieve its goal if the management of this system is effective, and adapted to new economic conditions. Currently, these conditions mean for the customer the loss of the absolute priority of state defence order and the shifting of restrictions from research and production to financial area.

Efficient management in this area not only increases the defence capability of the State but also significantly stimulates the economic development of the country, allowing the rational use of budget funds.

Conclusions

The input of the study found that:
  - the defence equipment acquisition system is a means of government regulation of the economy to meet the scientific and logistical needs of national security and defence by planning the volume of financial resources, identifying types and amounts of products, works and services, as well as concluding with government contractors for supply (procurement) of the equipment, works and services related to the creation and maintenance of the equipment;
  - in fulfilling its regulatory function, the defence acquisition system gives the market economy additional stability, the function will achieve its goal but only if the system’s management is effective and adapted to the new economic conditions.

In the context of military aggression and the conduct of JFO in Ukraine, the problem of improving the efficiency of managing the defence equipment acquisition system becomes especially relevant. In many cases, the issue of the effectiveness of government bodies in the defence equipment acquisition system becomes reduced to a low level of funding for defence acquisition of the equipment programs and inefficient use of budget funds for these purposes. But for such solution, the problem with the attention of scientists and practitioners remains the most important – the improvement of the mechanism of management of the defence acquisition system of the equipment.

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