

Research on the Evaluation of Weapon Equipment Assets Value

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Abstract: Weapons and equipment are the core components of our state-owned assets, so accurately grasping their value is of great significance to strengthening the management of the value of equipment assets. First of all, this paper analyzed the problems existing in the current valuation of weapons and equipment assets in our army, then discussed the basis of the valuation of weapons and equipment assets in terms of the specificity of weapons and equipment assets, the purpose of evaluation, and the principles of evaluation. Combining the issues with the assessment foundation, this paper reshaped the weapon asset value evaluation system that includes improved assessment methods, standardized assessment procedures, improved organizations and regulations, and established a monitoring system.

1. Introduction

With the continuous increase in the construction of weapons and equipment, the number of weapons and equipment in our army has continued to increase and the quality has continued to improve. At the same time, with the deepening of the reform of the military establishment system, a large number of units have been laid off, withdrawn, lowered, and reformed. These issues involve the valuation of weaponry assets.[1]But at present, there are still many problems in the valuation of weapons and equipment assets in terms of systems, systems, methods, and procedures. Carrying out research on the valuation of weaponry assets is not only the basis for the scientific management of weaponry assets, but it is also conducive to the military's overall deployment and strengthening of centralized management of major resources.

2. Status and Problem Analysis

2.1. Related Systems Are not Perfect

The evaluation of equipment asset value is a systematic and standardized work. In practice, equipment assets should be evaluated and estimated in accordance with prescribed procedures and methods. However, Relevant regulations only specify the application nodes and scenarios of asset

evaluation, there is no specific operating rules for the evaluation work. Clear regulations severely affected the quality of the assessment.[2]

Supervising the entire evaluation process can effectively ensure that the evaluation conclusions are true and scientific. However, there is still no corresponding supervision mechanism. With the increase in the type and quantity of our military's equipment assets and the update of high technology, the professionalism and complexity of assessments are increasing. If a corresponding monitoring system is not established, it will inevitably breed corruption such as fraud, deliberate overestimation or underestimation.

2.2. Management Issues in Assessment

Because of our military's long-standing thinking of "emphasizing money, but light things, and heavy objects and light pipes," leaders at all levels do not pay much attention to the economic value of equipment assets. They believe that equipment assets belong to state-owned assets, and their value has nothing to do with the interests of individuals and units. A considerable number of units only check the amount of equipment and the initial value of the accounting book when handing over equipment assets. Even when value evaluation is conducted, there is a phenomenon of "hello", which interferes with the evaluation work according to individual wishes, resulting in a lack of independence in the evaluation.

At present, the equipment assets of the units below our army are usually jointly managed by the business department and the financial department. The business department is responsible for the physical management of daily use, and the financial department is responsible for the valuation of equipment purchase, maintenance, and disposal. There is no full-time management agency and Staffing. Therefore, the inability to provide comprehensive and detailed data during the evaluation link has affected the judgment of the appraisers on the types and valuation methods of equipment assets to a certain extent.

2.3. Evaluation of the Qualifications and Personnel Capabilities of the Institution

It is clearly stated in the regulations that the evaluation of equipment assets shall employ independent evaluation institutions with corresponding qualifications. However, due to system construction, management structure, staffing and other issues, equipment asset management departments often select personnel from the financial, audit, disciplinary, confidentiality and related business departments to form temporary assessment teams before the assessment.[3] Although the subject of this evaluation is reasonable and representative, from the perspective of the professional nature of the evaluation, such an evaluation team is obviously not qualified. According to the regulations, a qualified third-party evaluation agency outside the military can be hired for the evaluation of equipment assets. However, due to the issue of confidentiality and the unfamiliarity of the personnel with the characteristics of the equipment, the evaluation agency of the military cannot usually complete the evaluation of the asset.

Our army is obviously inadequate in the professional construction and personnel training of equipment asset evaluation. Most of the appraisers are concurrently employed by financial assistants or other positions. They lack the corresponding professional knowledge training and assessment mechanisms. The professional competence of appraisers often fails to meet the standards, which largely limits the quality of appraisal results and the development and construction of appraisal theory and practice.

2.4. Technical Issues in Assessment

The four mainstream methods for the valuation of machinery and equipment are listed in the "Evaluation Code for Assets Evaluation-Machinery and Equipment" implemented in 2017, but for weapons and equipment assets, because of their public service, military, and confidentiality, they are different from general equipment. The applicability of the above method is poor. The corresponding value type must be determined according to the evaluation environment, evaluation purpose, and data of the weapon and equipment, and then a suitable evaluation method is selected. [4]

It is difficult to determine the value composition and index parameters of weapon assets during the evaluation process. The economic value of weapons and equipment not only lies in their own material composition, but also is highly related to the technical advantages of the equipment, smooth operation and use efficiency. [5] Therefore, the valuation of weapons and equipment assets requires not only relevant financial knowledge but also a certain understanding of weapons and equipment.

3. Determination of the Basis for the Valuation of Weapon Assets

3.1. The Particularity of Weapons and Equipment Assets

3.1.1. Public Goods

As one of the core sources of combat effectiveness, weapons and equipment are mainly used to provide security services for the entire country. Therefore, what weaponry "outputs" is combat effectiveness. In the value estimation, the performance indicators of weapons and equipment should be taken as an important consideration in the estimation of equipment assets. Weapons are used in military daily training and battlefield operations and are consumable products. No revenue will be generated in the process of use, and no value-added phenomenon will occur except for technical updates.

3.1.2. Technical Updates

With the continuous development of China's science and technology and national defense industry, the high-tech contained in weapons and equipment is becoming more and more sophisticated, and the technical content is becoming more and more abundant. At the same time, the technology update rate is getting faster and faster, and the overall or partial technology of one or a class of weapons and equipment is often updated. Therefore, we must pay attention to the update of weapons and equipment during the assessment.

3.1.3. Comparative

As the saying goes, "Wu Wu second", the economic value of weapons and equipment is not only reflected in itself, but also has a lot to do with the relatively advanced level of technology. Even if the weapons and equipment developed and produced have no technological advantage among similar weapons in the world, their economic value will be greatly reduced. Therefore, the evaluation index should include the performance ranking of similar weapons and equipment.

3.1.4. Holistic

Weapons and equipment are becoming more and more integrated, especially large combat flat equipment such as ships and aircraft, which are often composed of combat platforms and various sub-systems. Some of the components can run independently, and some must rely on other systems, and the overall benefits of the equipment are usually greater than the simple total benefits of the sub-systems. Therefore, in the evaluation of weapons and equipment, we must fully consider the value of weapons and equipment as a whole and in the sub-system.

3.2. Evaluation Purpose

3.2.1. Find out the Bottom Number to Prevent Loss

After decades of development of our military's weaponry and equipment construction, the quality, quantity, and architecture of the weaponry and equipment have made great achievements. However, at the same time, due to the relative lag in the development planning of weapons and equipment and the acceleration of the rate of technological update, our army currently has a lot of idle equipment assets. Some of them are not accounted for, and their economic value is unknown. Through the evaluation of equipment assets, the true value of idle and scrap assets can be sorted out, which is of great significance to prevent the loss of assets.

3.2.2. Timely and Standardized Disposal

At present, our army only uses the initial cost to calculate and account for the installation of weapons and equipment and calculates the expenditure according to the project. After the completion of the purchase of weapons and equipment, it reports to the final account and ends the accounting work. Failure to perform subsequent financial calculations has resulted in unclear use periods of equipment assets, obsolete nodes, and irregular asset disposal. The value assessment is based on the "output" of the asset for a certain period of time, so the results of the value assessment can effectively reflect the future life of the weapon and equipment and the dynamic situation of value consumption.

3.2.3. Weaponry Equipment Asset Value Management

The premise of asset value management of weapons and equipment is that the value of weapons and equipment can be clearly measured and familiar with the law of value consumption. The asset evaluation process takes into account the internal and external environmental factors of weapons and equipment, and comprehensively estimates the true value of weapons and equipment, laying a foundation for weapon equipment valuation, depreciation calculation, and disposal income.

3.3. Evaluation Principles

3.3.1. Independence

The equipment asset assessment agency is an independent institution between the asset transferor and the asset transferee, and is responsible for the authenticity of the value assessment results of the equipment assets. Therefore, during the evaluation process, the evaluation agency and appraisers cannot be interfered by stakeholders, and the appraisal should be performed independently

according to the appraisal procedures and specifications to ensure the accuracy of the value of equipment assets.

3.3.2. Scientific

In the determination of the purpose of evaluation, the judgment of value types and the selection of evaluation methods, adhere to the scientific and appropriate principles. We will classify weapons and equipment according to the purpose of evaluation, whether there is a trading market, whether they are highly integrated, etc., and select the most scientific evaluation method for comprehensive evaluation purposes, weapon classification, and historical data collected during the evaluation preparation stage. [7]

3.3.3. Military

Weapons and equipment are tools to achieve military purposes, and military nature is the most important feature. The economic value of weapons and equipment is closely related to their military benefits. Therefore, it is necessary to follow the general market laws and determine reasonable evaluation indicators based on military performance.

3.3.4. Confidentiality

Weapons and equipment are the core resources for generating combat effectiveness, and highly sophisticated strategic weapons represent the strategic deterrence capabilities of a country. Therefore, the quantity and performance of many internationally leading weapons and equipment are military secrets. During the entire evaluation process, operations must be implemented in accordance with relevant confidentiality regulations to prevent loss of confidentiality to the army.

4. The Restructuring of Weapon Assets Valuation System

4.1. Improve the Evaluation Method

The evaluation results obtained by using different evaluation methods for the same weapons and equipment assets are quite different. Therefore, when selecting an appraisal party, we must fully consider the impact of various factors such as the evaluation environment, access to information, and value types. At present, the mainstream methods recognized by the state are the market method, replacement cost method, and present value method.[8]

Different types of assessment methods are applicable to different types. According to the particularity of weaponry assets, weapons and weapons output "combat power" and cannot be specifically quantified. Therefore, the main methods applicable to weapons and equipment assets are the market method and the cost method. With the continuous increase in the types and quantity of China's arms exports, the armed equipment of our army has gradually become active in the market. In selecting the evaluation method, the market method is used to estimate the value of the same or similar weapons and equipment that can be found in the international arms market. At the same time, the types of weapon equipment assets that apply the market method are further subdivided, and the most applicable value evaluation method in the market method is selected.

The cost method can analyze each asset, and it is easier to collect information and data. However, the workload is large and it does not consider the impact of future economic conditions on the value of assets, which is suitable for special purpose assets. [9] For weapons and equipment assets where effective prices cannot be found in the open market, the economic value of weapons and equipment

assets can be reasonably estimated using the improved cost method. For example, the fuzzy comprehensive evaluation method considers not only the weapons and equipment entities themselves but also performance indicators and external influences in the evaluation of value.

At present, the evaluation of our military's weaponry assets is still in its infancy. The applicability between the evaluation method and the value type of the evaluation object is not strong. Therefore, it is necessary to strengthen relevant theoretical innovations and improve the evaluation environment for weapon assets.

4.2. Standardize Evaluation Procedures

The improvement and standardization of operating procedures can effectively avoid the randomness of the evaluation work, and can effectively improve the efficiency and effectiveness of the evaluation. According to the time division of the evaluation work, it can be divided into the asset evaluation preparation phase, the implementation phase, and the reporting and management phase. [10] According to the content of the business process, it is divided into continuous operation steps at different stages.

4.2.1. Evaluation Preparation Stage

The evaluation preparation phase is mainly to complete the relevant preparations before the formal evaluation of weapon assets and assets, including four steps: evaluation project application, selection of evaluation agency, signing of a commission evaluation agreement, and asset inventory.

According to the "Regulations", for asset transfer, replacement, sale, donation, lease, lending, or loss or retirement, the relevant departments shall organize the asset evaluation in advance and perform the approval procedures in accordance with regulations. Relevant units should submit project applications to higher-level departments first, and organize the implementation after the higher-level departments agree. In selecting and appointing a qualified third-party independent evaluation agency, it is also necessary to take into account the characteristics, convenience, and professional expertise of the evaluation agency and the quality of historical practice in assessing the assets of the weapon and equipment, and try to take the invitation as long as it meets the conditions of confidentiality and military. The method of public bidding or even public bidding improves the openness and fairness of the selection process. After the appraisal agency is selected, the equipment asset appraisal client signs an appraisal agreement with a third-party appraisal agency to clarify the responsibilities and appraisal costs of the parties. Asset inventory is divided into self-assessment by asset-occupying units and verification by appraisal agencies. Before the appraisers enter the appraisal unit, the entrusting unit establishes an appraisal assistance group. The work of the team personnel mainly includes checking the accounting accounts and physical assets, and preparing relevant raw materials. Check the actual amount of assets to be evaluated relative to the actual accounts, and deal with the assets that have gained or lost in accordance with relevant regulations. After the inventory is completed, fill in the Asset Inventory Evaluation and Registration Form as required by the assessment agency.

4.2.2. Evaluation Implementation Stage

The evaluation implementation stage is the core stage of the entire evaluation work, and is directly related to the authenticity, scientificity and validity of the evaluation results. At this stage, the evaluation executives, with the assistance of the auxiliary working group, follow the steps of

formulating the evaluation plan → collating the evaluation data → selecting the evaluation method → value estimation → summarizing the evaluation results.

The formulation of an evaluation plan refers to a schedule specified in accordance with the actual situation of the unit being evaluated and the assets of the weapon and equipment. The formulation of the plan requires the joint participation of the client and the evaluator to determine the overall idea and detailed implementation plan. After the evaluation plan is formulated, the evaluators arrange valuable information from the original data collected by the preliminary auxiliary working group, and guide the relevant personnel to collect other useful information. Based on the collated relevant information, the purpose of the assessment, and the characteristics of the assets of the weapon and equipment to be evaluated, the value type of the weapon and equipment assets to be evaluated is determined, and two evaluation methods or models that meet the value type are selected as far as possible based on the expertise of the assessor. Evaluators are divided into two groups to make separate estimates based on previously selected methods or models, which are independent of each other and share data. After the evaluation results of the two groups came out, they were compared and analyzed. When the results of the two groups are not significantly different, the median value of the two is selected as the final evaluation result; when the results of the two groups are significantly different, discuss the specific reasons collectively and finally determine the most reasonable evaluation result.

4.2.3. Evaluation Report and Management Stage

The evaluation report and management stage is the final stage of the entire evaluation process. It is mainly to organize the evaluation traces to form an evaluation report and working papers, which are provided to the entrusting unit and left for the later review by relevant departments.

The asset appraisal report is mainly composed of an asset appraisal report, an asset appraisal statement, an asset appraisal schedule and related attachments³. The appraisers must submit the appraisal report in accordance with the prescribed format to facilitate the reading and supervision of the report users. According to the "Regulations" for major projects approved by the Central Military Commission and the General Logistics Department, the evaluation report is approved by the entire state-owned asset management department; for major projects approved by the military region-level unit, the evaluation report is approved by the military region-level unit's state-owned asset management department; Appraisal project, after the appraisal report is approved by the state-owned asset management department at the same level, it is reported to the higher-level military state-owned asset management department for the record. After the evaluation report is completed, the working papers of the entire evaluation process, including signed materials, original data and various report data, will be archived in a timely manner for future reference.

Various service branches set up asset evaluation sub-centers, and set up evaluation talent pools and specialized agencies in the sub-centers. The evaluation sub-centers select different professional talents to form specific evaluation teams. They are responsible for the specific implementation of the evaluation business and accept supervision and evaluation guide. At the same time, organize personnel in the talent pool to participate in business training and professional quality assessment at regular intervals. The assessment passes the qualification certificate and implements the elimination mechanism to ensure the professionalism of the talent team.

4.3. Improve the Laws and Regulations

The laws and regulations are the fundamental compliance of the work, but the current regulations mainly include the "Regulations" and "Regulations" which provide provisions for the application of

military asset evaluation, which seriously restrict the development of the military asset evaluation industry. First, from the perspective of the state-owned assets of the entire army, a global regulation should be introduced. For example, the "Regulations on the Evaluation of the State-owned Assets of the Army" determine the definition, status, organization, responsibilities, and rewards of the state-owned assets of the military, and make the development of the state-owned assets of the military more regular and institutionalized.

Secondly, formulate corresponding regulations for the detailed implementation procedures of the evaluation, such as the "Army Assets Implementation Rules," clarify the specific working methods and specifications for each step of the evaluation preparation, implementation, reporting, and management stages to ensure the evaluation of military assets. The whole process runs efficiently, reasonably and truthfully.

Finally, the management methods for the valuation of different components of military assets are formulated. For example, the "Measures for the Evaluation of Weaponry and Equipment Assets" and the "Measures for the Evaluation of Logistics Equipment Assets", implementing different management methods for the characteristics of different asset types is more targeted and more conducive to the supervision of asset evaluation.

4.4. Establish a Supervision System

4.4.1. Internal Control

Internal control is the organization, plan, procedure and method for the various constraints imposed by the assessor during the assessment process and the prevention of fraud. In the selection of assessment agencies and assessors, we must avoid the relevant agencies and individuals of the arms and equipment assets transfer and transferees to avoid interference with the independence of asset assessment to a certain extent. The differences in valuation methods greatly affect the final value results. Therefore, the selection of evaluation methods should be fully democratic, and the appraisers should vote to select the two applicable evaluation methods or models as far as possible, and implement the evaluation separately. In the review of evaluation results, a multi-level review system is adopted, stipulating that all levels are responsible for the true validity of the evaluation results.

4.4.2. External Supervision

The main implementation bodies of external supervision are higher-level assessment departments and audit departments. Among them, the higher-level evaluation department is mainly responsible for the professionalism of the evaluation projects carried out by the lower levels. Through reviewing the working papers and evaluation reports, the determination of the evaluation purpose, the judgment of the value type, the selection of the value index, the selection of the evaluation method, and evaluation through the review of the working paper and the evaluation report. Supervise professional issues such as the accuracy of calculations to ensure the scientificity of the evaluation results.

The audit department is mainly responsible for the standardization of the procedures in the assessment link. By reviewing relevant signed documents and working papers, we supervise the regulatory approval of evaluation procedures, the selection of evaluation agencies and personnel, and the completeness of evaluation procedures to ensure the legal compliance of the evaluation process.

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