APPROACHES TO RISK MANAGEMENT RELATED TO MILITARY LOGISTIC SUPPORT ACTIONS

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In any society, human actions în peacetime involve related risks according to the specificity of each field of activity and external impact factors.

However, from a comparable point of view, military and logistic support actions, depending on the missions to be accomplished and the decisions taken în well-established place and time conditions, involve high complexity risks.

The risks specific to the military logistic support occur both during the preparation of the operations and especially during their carrying. The causes highlight the power and unpredictability of the opponent's actions on logistic resources, with major implications for the proper support of their own driving forces.

Below we will highlight determinations and explanations regarding the phases of the risk management of specific military logistic support.

Keywords: military actions; operational decision-making processes; logistic support; logistic support risk management; phases of logistic support risk management; the decision to prevent the risk of logistical support.

Logistics support management is a complex and continuous process focused on identifying, evaluating and controlling all the risks generated by the specific actions of logistic support for the preparation and conduct of military operations.

In the specific actions to pre-emerge the risks associated with operational logistic support, a specific risk management mechanism is developed, starting from an initial analysis of the context that requires risk management and continuing with risk identification and assessment, designing risk management plans, and finally the implementation of those plans.

In the operational decision making process it is necessary to identify and analyze all risks, not as an additional feature but rather as a completely integrated element of the planning and execution mechanism. Within this framework, the concept of risk management provides protection and preservation of the combat power, as well as maintaining flexibility for bold and decisive military actions. It follows that proper risk management in preparing and conducting operations determines the possibilities of multiplying the potential of offensive or defensive military actions.[1]

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The action risks reveal deviations, usually important, from the results to be achieved, which, if not foreseen to be counteracted, may lead to unexpected failures in military operations. Once produced, these inconsistencies may inevitably involve various forms of costs, caused by decision-making complications and the loss of important resources (human, material, financial, informational). Therefore, the above mentioned deviations lead to the failure to achieve the expected operational objectives in unforeseen situations, before or during the military confrontation with the identified and/or declared opponent[2].

Risks are known to be variables that cause undesirable effects in conducting operations, which are part of a set, and are taken into account only when large-scale operational decision-making processes are taking place. Under these circumstances, risk management processes should result, through simulations, in systematic examinations of the potential results obtained by complex military decisions by tactical and operative echelon planning boards[3].

In the operational environment, military boards are determined to make complex decisions under the extreme pressure of time and fatigue. As such, they should take into account the risks associated with the potential action options, given the continuous research of the opponent and the continuous timely

information with all the details beneficial to the subordinate decision-maker[4].

Dependent on the above mentioned operational precautions, specific logistics risk management actions are required and they have to ensure that optimal logistics support decisions are taken under the overall decisions of operations on the basis of logistic analyses and estimates designed to reflect the actual state of the decision environment in order to avoid and to prevent potential threats, hazards and associated vulnerabilities.

In the United States, guidelines for reducing short-, medium- and long-term risks are visible both in action and in force-generating operations. According to US military experts, it will require a holistic approach and a careful balance of investment in military capabilities. Within this framework, the geopolitical environment and the evolution of threats that will lead to significant efforts, adequate to the status of the forces, the stationary requirements and their preparation, taking into account the capacities of the involved partners, have an important role to play[5].

On the basis of studies, analyses and evaluations, experts have identified the risk as the function determined by three variables, according to the relationship[6]:

R = f (T, V, C)

where:

R = risk;

T = threat;

V = vulnerability;

C = consequence.

The active manifestations of the opponent during the emergence and definition of the crisis in interstate relations show *various threats* with the superiority of the military power, for intimidating the military forces prepared for confrontation and, implicitly, their logistic support structures The measures taken by the boards in charge to fill the deficits and eventually the losses in such situations are established by decisions highlighted in appropriate peacetime plans that will be put in place during the course of the threats.

"We believe that in order to solve the particular decision-making problems necessary for the logistic support under conditions of risk, a risk management process should be carried out, which includes five phases of management, namely: identification of the hazards that can affect the logistic system of force; hazard assessment; development of control methods, determination of residual risk and of the related decision; the implementation of control techniques; routing and evaluation. We will then briefly discuss these phases"[7].

Identifying the hazards that can arise over the logistics system of force

Hazards can be defined as features of the opponent's actions to bring major damage to logistics support structures, as well as its territorial facilities, by systematically hitting with high-precision means, or by the action of special forces infiltrated into the area of logistic responsibility. In order to ensure the prevention of risks, all information obtained for this purpose must be exploited and the potential hazards identified in the areas of logistic support applicability. At the same time, this concerns the experience of logistics managers in managing risk situations, but also the current decisional conduct according to the solutions adopted at the past risk manifestations in the design and implementation of the logistic support.

On the basis of expert analysis, the dangers associated with military operations are mainly determined by the problems caused by the fatigue of decision-makers and by the lack of synchronicity of communication between military organizations belonging to several nations. In this respect, the achievement of the military objectives requires the protection of the civilian population, as well as the environment specific to the operation area, according to the requirements highlighted by the well-established rules of employment[8].

Hazard assessment

Experts in the field of logistics support consider that the determination of hazard from danger is more an art than a science.

For this purpose, logistics managers should use historic data, perform intuitive analyses to estimate the risk posed by each hazard. If the evaluation is done using probabilistic methods, the risk assessment model results from the intersection of the probability column with its degree of severity. The levels of probability and severity are estimated based on the knowledge of the logistics evaluator of the details of chance occurrence and the severity of the consequences once the events occur.

Both in and during military operations, special importance should be given to managing the supply-to-supply chain impact risks from suppliers to end-users (fighters and technicians) by the logistics planners to design procurement, contracting, reception, receipt and transport of products, equipment and materials from suppliers accepted through the logistic support implementation structures.

Managing risks with impact on supply chain partners involves a set of measures to mitigate the effects of uncertainty by coordinating activities (upstream and downstream) to direct input, conversion and output flows and ensure profitability and functional continuity[9] .

According to experts, the supply as a complex activity planned and carried out by a specialized partner in the supply-chain may be negatively influenced by associated risks, also called operational risks or interruption risks. These may include uncertainty about purchases, uncertain costs, disruptions caused by natural or man-made disasters, such as earthquakes, floods, financial crisis etc.[10]

For example, possible risk situations that could seriously affect the provision of logistic support to operational forces deployed in a theater of operations to be considered by military logistics planners would be:

- loss of goods and technical equipment caused by partial or total destruction due to the actions of the opponent;
- obligations owed by companies or individuals due to the impossibility of meeting contractual obligations due to the enemy's attacks on their properties;
- loss of military and civilian staff due to the conflict situation, with foreseeable consequences on the continuous realization of the logistic support.

In order to mitigate the risks with impact on the supply-delivery chain components, appropriate coordination and collaboration between an operational military structure and its suppliers is required. To this end, important ongoing collaborative actions with suppliers and timely exchange of information should be undertaken[11].

In the initial period of the conflict, military structures at the strategic and operational level may consider risk management strategies associated with supply activities identified by the occurrence, impact and period factors, which may be *short, medium and long term*[12]. These strategies can continue during the conflict, but with some simplifications imposed by operational situations.

For example, *a long-term strategy* to avoid or reduce risks related to acquisitions from businesses in the operating area is designed to ensure that rigorous supplier selection processes are carried out by operational military structures, followed by regular audits of facilities, processes and funds spent by these. Another strategy to mitigate the risks associated with supply is the availability of multiple sources. A third long-term strategy is to divide or transfer the risk through sanctions stipulated in the uncertain procurement contracts[13].

A medium-term strategy could refer to specific actions to establish a safety stock, but many bidders avoid this because of the additional costs involved, the risk of physical and moral wear, or the occurrence of surplus product or materials[14].

A short-term strategy identifies actions by the military beneficiaries to monitor the data and quantities delivered by suppliers in order to immediately identify possible non-conformities with the supporting documents[15].

Considering the correlation with the strategies outlined in *Figure 1* we present the elements of risk measurement in the field of supply – the component of military logistic support. All the presented elements reveal a high degree of involvement of the military logisticians to prevent as much as possible the risk situations during the logistic support actions for the fulfillment of the mission received by an operational military structure.

• *The elaboration of control methods, determination of residual risk and of the related decision*

The aspects presented requires logistics managers to achieve the following goals:

– For each hazard, one or more control methods for eliminating or reducing risk will be developed in the design and the implementation of the logistic support;

– For each hazard and for each elaborated control method, the level of remaining risk, namely the residual risk, is determined permanently by acquiring the control procedures to be implemented;

– Only the commander is empowered to decide whether or not to accept the residual risk in achieving logistical support. If the commander considers the risk to be too high from a logistics point of view to continue the mission, he will order the development of additional control techniques or even alter, change or reject the mission[17].

It is clear from the above that, in the logistic support decision making process, logistics planners will take into account the mentioned risk management steps and the *associated vulnerabilities*. In this context, we see that *vulnerability* is understood as a result of combining the existing risks to the logistic structures of execution of the force with

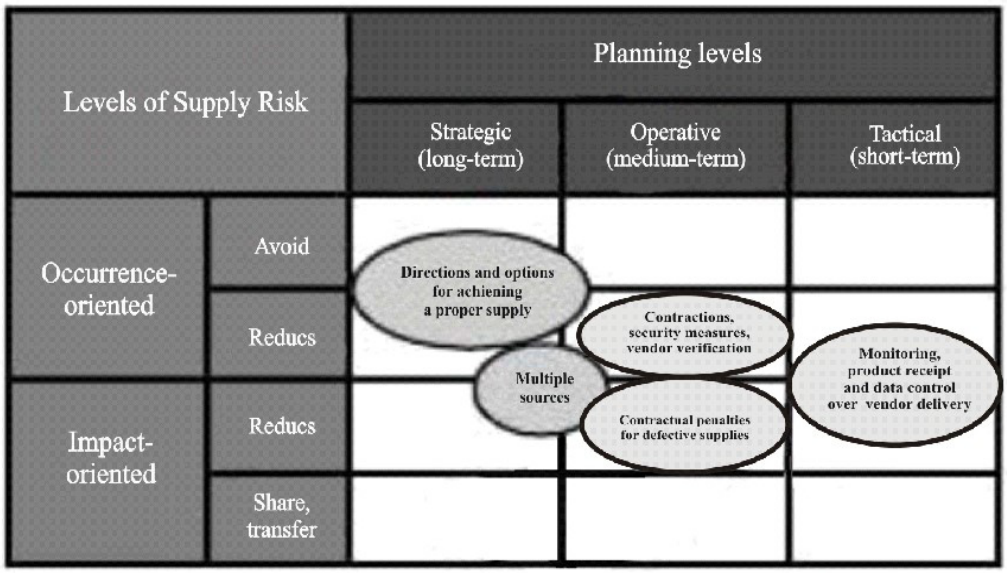

Fig. 1 *Elements of supply measurement in the joint operations area risk*[16]

• *The implementation of control techniques*

According to military experts statements the head of the logistics module of an operational structure must inform logistics planners about how each control technique will be implemented.

• *Managing and evaluating* requires, operationally, the logistics chief and planner's involvement to ensure that the management and implementation structures of subordinate logistic support can adequately manage risk by:

– explaining how each of the control techniques will be monitored and applied in good conditions;

– evaluating the effectiveness of each control technique in reducing or eliminating risk.

We appreciate that each control technique in reducing or eliminating the risk of the operation mainly involves, on the one hand, the application of the appropriate measures to ensure and protect the actions of the big unit, the logistic support units and subunits and, on the other hand, the provision of logistic resources to achieve the success of the military action.

their ability to defend themselves and to provide adequate logistic support for the fulfillment of the operational objectives.

For the design and implementation of the risk management specific actions, logistics managers will be permanently involved, taking into account the guidance received from the higher echelon regarding the risk parameters established for the respective military structure. However, if during the planning process of the logistic support they find insufficient resources available for managing the risk according to the threats, vulnerabilities and obvious consequences, then additional demands will be made for the resources of the echelon, and if the situation imposes it, they will require changing the course of action of the respective operational military structure[18].

Conclusions

The perceived risk on force logistics highlights, first of all, the lack of logistics information about the probable actions of the opponent. Specific risk prevention actions allow the prevention of

adverse events and, as such, create the possibility of taking precautionary measures. The destructive effect of the enemy's actions must be anticipated for counteraction by establishing, for the period of time affected by the deployment of forces, the preparation and deployment of military actions, stockpiles and consumption of specific materials, as well as the pre-positioning and contracting in the area of logistic responsibility of some transport capacities, maintenance, medical assistance and appropriate campaign services. At the same time, an optimal decision, as a result of a judicious planning of logistic support, eliminates as far as possible the risk factors, through a proper achievement of ensuring the actions and protection of the logistic support structures.

In the process of managing the risks, military logistics managers will have to apply the necessary actions to efficiently achieve the objectives of the operational organizations they are part of. From the practice of military actions, the risks associated with logistic activities (established for the individual or team) are directly dependent on the operational objectives of the respective combat structure.

Therefore, the necessity to know the application of risk management as essential for the logisticians in the organic structure of an operational military organization. It is obvious that by this mechanism the maintenance of the parameters of the military power of the respective structure is achieved, based on the timely provision of the necessary logistic resources.

NOTES:

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2 *Ibidem.*

3 Chris Johnson, Glasgow, September 2010., *Military Risk Assessment: From Conventional Warfare to Counter Insurgency Operations,* pp. 10-11, http://www.dcs.gla.ac.uk/~johnson/military_book/MilitaryRiskAssessment.pdf, accessed at 05.09.2018.

4 *Ibidem*.

5 Department of the Army, Deputy Chief of STAFF, G4*, Logistics Strategic Planning Guidance,* April 2014, p. 3.

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12 *Ibidem*.

13 *Ibidem*.

14 *Ibidem*, pp.10 - 11.

15 *Ibidem*.

16 Adaptation by Arne Ziegengein, Jörg Nienhaus, *Coping with Supply Chain Risks on Strategic, Tactical, and Operational Level,"* Proceedings of the Global Project and Manufacturing Management, Symposium, Siegen, May 2004, pp. 165 - 180.

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