

## MOVEMENT AND TRANSPORTATION – BASIC COMPONENT OF THE LOGISTIC SUPPORT OF MILITARY UNITS DURING PEACETIME

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Movement and transportation are an important component of the logistical support of peacetime military units, which aims to move combat forces and transport the logistics support needed to conduct their training activities in good condition in order to fulfill the basic mission of each military unit. Movement and transport contribute to the constitution of reserves and stocks of goods for crisis, mobilization and war. Planning the movement and transportation of assets and material assets depends on a number of factors that underpin the timely and appropriate placement of logistical support necessary to meet the fundamental and specific objectives of each military unit during peacetime.

**Keywords:** movement and transportation; logistics; logistic support; planning.

The development of Romanian society as a whole, the new content of relationships between states, the growing progress in the field of science, the experience of military thinking and practice, the new physiognomy of war, the constantly modern features and requirements of the armed confrontation are the main factors that leave an increasingly obvious print on the trends and evolution of military actions and their logistic support.

Currently, the national interest in ensuring our own security interferes and subordinates to the objectives of the North Atlantic Alliance. In this respect, the structural and functional modernization of the state and economy structures in order to transpose the country's national security programs into practice requires applicable standards according to the Alliance and European Union strategies, taking into account the specificities and characteristics of the modern war.

The predominantly local and asymmetric nature of future conflicts in which both state and non-state actors will be involved poses great challenges to the ability of managing a military action. The capability

to respond rapidly and jointly, the national and multinational support and, last but not least, the multidimensional protection are supposed to be supported by an integrated modern system, if we take into consideration the physiognomy of future conflicts, the whole variety of choices regarding the information and psychological warfare, as well as the massive use of new generations of *intelligent weapons*.

In this respect, the process of transformation of the Romanian Armed Forces aims at achieving an efficient logistic system that involves the relief of tactical military units from administrative tasks. From this point of view, we consider that the fulfillment of the missions and tasks which are specific to the military units during peacetime is influenced and conditioned at the same time by the functionality of the organizational structures, including the logistic forces, which have a decisive role in ensuring timely and efficient logistic support, necessary for the training of combat forces during peacetime, as well as the smooth conduct of military actions in crisis situations, mobilization and war.

Improving the training of combat forces in peacetime by providing quality logistic support involves the transformation and modernization of current logistic systems to meet the logistic requirements set by the NATO. In this respect, an important component of a modern logistics system that is able to provide efficient logistic

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support to train combat forces during peacetime is movement and transport. This main component of the logistic support chain comprises all the capabilities, specialized structures, facilities and equipment designed to carry out the current activities organized in the "Main Activities Plan" of each military unit, as well as for the deployment, support and re-deployment of the forces involved in the preparation and conduct of military exercises.

Military legislation states that "the movement, as part of a military operation is the activity required to change the geographic position/location of the forces, equipment and materials of their endowment, and assumes the support capabilities necessary for mobility, transport, infrastructure, movement control, and appropriate interdependence relationships"<sup>1</sup>. Closely related to the notion of movement, "transportation is the whole array of activities by means of which specific military and/or civilian means that are endowed and/or contracted from other sources are carried out by the movement of forces, personnel, equipment and materials in the desired geographic location"<sup>2</sup>.

We believe that the movement and transportation of personnel and material assets, which are considered to be an important pillar of logistic support, play an important role in ensuring that the flows between the components of the logistic system function properly, with multiple tasks in economically optimizing the spatial and temporal complexity, in reducing the time required to achieve the initial binomial requirement – the ultimate satisfaction of living needs and training of combat forces in the military units during peacetime.

The movement and transport of personnel and goods in peacetime determines, from our point of view, the existence of two kinds of transport: interior, through which spatial travel is carried out from one military unit to another during the supply process; and commercial, which is in the sphere of circulation between the goods supplier and the military units.

In the current market conditions and in most of the supply activities, the transport of the goods from the supplier to the military units is carried out with the means of transport of the latter. In this respect, we consider that the use of the Franco-deposit-beneficiary clause in the procurement contracts

concluded between the military unit contracting authorities and the suppliers of the goods is an economic, useful and mandatory one. There are also situations when economic agents do not accept this clause, or even if they accepted it, the cost of purchasing the product would become lower only by using the transport facilities of the military units. That is why we argue that the transport of goods, from the supplier to the military unit as well as from the place of storage in the military units to that of the final consumer (unit, subunit, formation, fighter, etc.) is an extremely important component of the logistic support of military units during peacetime. Movement and transport are, in our opinion, one of the essential activities of physical distribution to the final consumer, namely the military unit in the process of training and initiation, and is therefore considered to be the most important component of the logistic support of peacetime activities.

Movement and transportation in peacetime must be viewed from a different perspective when dealing with the transfer of equipment, materials and personnel from sources of supply / receipt to combat forces that are participating in the preparation and conduct of applied military tactical exercises, as well as for maneuvering the military forces, from the place where they are stationed during peacetime, to a district where the military exercises are planned to be carried out. The need for transport of the goods and for the fighting forces in the area of preparation and conduct of the military exercises is usually ensured by means of transport from the military units specialized in transport.

Depending on the period in which they were planned, the type and place of training and deployment of the military exercises, transports are carried out for: the deployment/re-deployment of the fighting forces; supply/replenishment with equipment and materials and evacuation shipments. Starting from this reasoning, we argue that when it is necessary to move the combat forces in an area of military exercises which are more distant from the initial placement of the military unit, besides car transport, it is possible to call on the railway, airlines, ships or a combined transportation method. The basic principle in the execution of the movement and transport consists of the use of endowed transportation methods for the benefit of subordinate echelons. During the preparation and conduct of the military exercises, large quantities of

goods from different supply classes are consumed, which implies their re-supply in short time. We therefore believe that military units participating in military exercises need to assess their own and external transport means on a continuous basis, they need to know the sources of support for transport in the area of the military exercises and submit requests for transport to the upper echelons, according to the needs of participating military units. Coordination of the activities carried out for the planning, organization, monitoring and control of the execution of the movement and the transport within the military exercises is performed by the structure of movement and transport within each military unit participating in the military exercises.

The movement and transport of personnel and material assets in current military activities and during military exercises is based on the capabilities and organizational structures of military units specialized in transport and their higher echelons and we believe that it is influenced by at least three components: movement control, transport infrastructure and shipment security planned for the conduct of specific current activities and military exercises.

*Movement control* can be defined, in our opinion, as a group of activities that comprises planning, guiding, programming and controlling staff and materials on communication lines, while maintaining transit visibility and tracking initial planning requirements. That is why we believe that permanent blockages in the area of the current military activities and military exercises must be always identified and avoided, and the possible interruptions of the flow to be minimized. One of the greatest challenges of movement control is rapid adaptation to changes in road conditions and weather conditions.

*The transport infrastructure* required to carry out the movement and transport of personnel and goods is made available by central and local public authorities through one of the forms of transport: air, rail and road. As far as we are concerned, the capacity of the transport network must be balanced according to traffic requirements, so that means of transport and routes are neither saturated nor insufficiently exploited.

*The shipment security* during the current specific activities and military exercises relies on the norms imposed by the upper echelon of each

military unit, and execution is carried out by the military police structures in the composition of military units or specialized military units. Based on these considerations, we state that the work of coordinating the movement and transport aims at executing such transfers of people and goods from one place to another, to be carried out in a timely manner and at the lowest costs, to determine an exchange value that is as low as possible.

We also consider that these components have an important influence on the unitary management of the movement and transport system, while the logistics bodies together with the bodies of movement coordination aim to increase the share of movement and transport in order to meet the material needs of the military units during peace, through modernization of the movement and transport system at a global state. In this respect, the leadership of military units must make decisions at a high frequency and those decisions often need to be reconsidered at short intervals due to the changes that occur. Also, for the efficient management of this important logistic area, logistics managers need to keep in mind the transport costs, which include all costs directly related to the movement of goods from one military unit to another and from their own stores to the final consumer, respectively the military units that train during peacetime. Based on these transport costs, the choice regarding the means of transport is considered, which is a fundamental part of logistic support management, due to its impact on the operational efficiency of the military unit. Failure to identify the most appropriate way of transport can lead to higher costs than originally expected. The means of transport used must fulfill a number of conditions, including: regularity, transport capacity, speed and low cost.

Each of the transport methods used (rail, road, water, air or special) responds specifically to these requirements according to their technical and economic particularities. Under these circumstances, the choice regarding the means of transport becomes a problem whose correct solution makes it possible to further optimize the transport.

We believe that the main decision-making aspects of transport optimization refer to the evaluation and selection of means of transport, the scheduling of transport and the establishment of supply routes. Transport officers must propose optimal transport solutions to logistics managers

and commanders, so that they take strategic and operational decisions that directly influence the achievement of the fundamental and specific objectives of the military units during peacetime. We consider the major objective of the transport and movement conception to be the insurance of current military activities and combat forces during the training and the conduct of the military exercises, in the time and at the established place and at a reasonable cost for the military unit. This fundamental objective is in close correlation with a number of specific objectives, including the following: maintaining the quantity and quality of the logistic support at initially set parameters; the efficient use of means of transport during military exercises, by taking into account the positioning of the supply sources and economic agents who supply goods. We claim that important transport optimization decisions also refer to routing the transport activities over a longer period of time, compared to tactical (operational) decisions that seek to implement concepts and address current issues of movement and transport. From our point of view, the choice of optimal transport options is influenced by many factors, including:

- *the type of goods carried* – refers to the value, density and characteristics of the goods, as well as to the storage requirements;
- *the quantity required by the sub-units* – includes the duration of the demand cycle, maintaining the quality and integrity of the goods to the destination, the information regarding location along the route where the goods are located and the estimated time to arrive at the destination;
- *the logistics structure used to carry out the transport* – it envisages the establishment of transport capabilities and the support activities of the transport operations, as well as the physical distribution of the goods to the fighting forces, which are also the final consumers;
- *territorial area* – refers to the degree of territorial dispersion of combatant forces which undergo training and preparation in peacetime, as well as the dispersion degree of supply sources and goods suppliers;
- *the resources of the military units* – it includes the financial, material and human means available to the military units to carry out the movement and transport with their own means and / or those of the specialized military units provided by the higher echelons.

Taking into account the factors analyzed above, we consider that the main criteria underlying the elaboration of the plan for the movement and transport of personnel and goods during peacetime are the following:

**a. the means of transport and movement** are one of the most important decisions of the military unit's commander, which refers to choosing the appropriate means of transport. The existing options include the following basic means: road, rail, water, air and pipelines. Depending on the type of goods carried, the requirements and needs of the combat forces, as well as the particularities of the means of transport, each military unit resorts to one or more options. From our point of view, the selection of means of transport is based on the following main criteria: costs, transit time, consistency (variability), availability, flexibility, frequency and safety.

**b. coordination of the means of transport and movement.** Any military unit can choose between calling an uncorrelated transport route and coordinating the means of movement and transport. More and more frequent, especially for efficiency and celerity, is the option of intermodal transport. Simply calling in several means of transport, depending on the territorial area or the type of goods carried, does not mean, in essence, intermodal transport. It is necessary to combine means of transport based on standardized special equipment (e.g. containers), which can easily be transferred from one means to another, but in the end the goods have to reach the military unit's depots or directly the subunits, respectively to the forces fighting with some concrete advantages in terms of reducing transport times and costs by using these combined means of transport.

**c. the degree of direct involvement in the movement and transport activities.** Each military unit in need of traffic and transport services has to make a major decision regarding the degree of direct involvement of its own capabilities in transport activities. We believe that the possible options are the following: calling the military units specialized in motion and transport, relying on their own transport capabilities and the option resulting from the combination of the two above-mentioned alternatives in different proportions. The use of its own fleet of transport means has a number of advantages: a) increasing the degree of control

over transport; b) reducing the loss and destruction of goods as a result of the decrease in the number of manipulations; c) using their own means of transport as mobile warehouses, transporting the goods to the fighting forces. However, we know that using our own capabilities can be a disadvantage, due to the costs of their operation, but also those generated by the use of their own human resources.

In order to fulfil the plan of movement and transport, officers in charge with this component of peacetime logistic support, heads of logistics structures and commanders of military units are involved in a number of operational decisions. The type of decisions is influenced to a large extent by the degree of involvement of their own resources in the field of transport movement, i.e. the satisfaction of transport needs through their own fleet and / or on economic bases. Among the most important operational decisions we include the following:

**a. selection of operational and appropriate means of transport** – envisages the choice of transport, following the evaluation of suppliers of goods, on the basis of a set of cost criteria and performance of the means of transport;

**b. scheduling transports** – according to supply needs for current activities, as well as simultaneous support of military exercises in which combat forces are involved;

**c. establishing routes** – comprises the defining of the routes of the goods from the origin point to the final destination, both in the case of transport with its own fleet, or using specialized carriers made available by the superior echelons, especially during military exercises;

**d. making requests for goods** – envisages contacting the specialized carrier and informing them of the pick-up point of the goods, their type, weight and volume of the cargo, as well as the final destination of the goods;

**e. speeding up transport** – consists of making all necessary steps to ensure that a cargo arrives at a destination within a certain time and collaborating with the specialized carrier for this purpose;

**f. shifting the shipment** – includes changing the destination for a particular cargo, either during the journey, until it has reached its destination or when it has reached the point of destination and notifying the specialized carrier of that decision;

**g. tracking** – implies to know where the goods are at a certain point in time, on the route between the origin point and the destination.

Besides the responsibilities arising from the operational decisions presented, the officers responsible for the movement and transport activity have the obligation to carry out a series of related activities, involved in the achievement of the established objectives. In this respect, we can claim that the following related activities are very important: establishing the transport budget; establishing transport capabilities, requesting compensation for the loss or damage of goods during transportation, creating an information system based on the activity of movement and transport that analyzes the effects of the movement and transport activity on the other components of the logistics system.

A frequent way of reducing the share of expenditures for the transport of goods is the choice of suppliers who provide free shipping for the delivery of goods. Also, in order to reduce the expenditure with transportation, one can resort to the use of heavy vehicles, by respecting the transport timetable, the reduction of the loading and unloading periods, the extension of the modern transport technologies, the improvement of the activity of the suppliers and beneficiaries, as well as the positioning of the goods in the means of transport.

In this respect, we would like to point out that the choice of transport means largely influences the time in which the military units have access to the goods necessary to carry out the specific current activities planned in the "Main Activities Plan" and the speed with which they can reach the soldiers, i.e. the combat forces involved in the preparation and conduct of tactical military exercises, marches, etc.

In our opinion, as in the economic environment, the capabilities of multimodal transport (the combination of two or more means of transport) are increasingly being used in the military environment, and there are several ways to do so. Thus, the *piggyback* describes how to combine rail-based transport with road transport, *fish back* explains how to combine the waterways / river transport and road transport; *tranship* is the combination of rail-based transport and naval transport; *air truck*, the combination of airlift-specific and land-based means of transport, etc. That is why we consider that the development of intermodal transport is necessary, this fact being the result of some favorable factors, from which the most important are:

- the emergence of new types of transport;
- improving and standardizing container sizes;
- the possibility of exchanging equipment between different means of transport (e.g. trailers and containers);
- the use of computers, information technology to monitor the movement of means of transport, but especially to optimize routes and schedule transport operations;
- the establishment of intermodal terminals, these ensuring the transfer of goods between different means of transport;
- facilitating the large circulation of containers as a result of improved handling technology.

We anticipate that in the near future, the combination of means of transport will be able to provide important economic advantages, each combination offering advantages specific to the chosen means. Thus, the combination of rail-based means with transport trucks (road) provides the necessary flexibility, being, at the same time, a much cheaper solution than pure road transport.

Last but not least, we expect that if precise objectives are set at the managerial level, in relation to the transports that need to be executed, then efficient transport routes should be chosen, routes that correspond to the requirements set for the fulfilment of the mission of each military unit during peacetime.

### Conclusions

Within the logistic support of peacetime units, one of the basic components - the movement and transport, considered to be a microsystem of any military unit, must react quickly and efficiently in providing logistic support for the optimal deployment of all current military activities planned at peacetime, but this requires at the same time the knowledge of the list of essential requirements of logistics support, stocks and supplies of goods to be achieved. Logistics planning and leadership structures, heads of motion and transport coordination departments and their subordinate staff adapt their logistic activities to the initial requirements and new requirements along the way, often without being prevented by their change. That is why we believe that if the early integration of transport structures is performed in a very short time, they can develop a rapid response to growing demands in crisis, mobilization and war.

The attempt to re-plan a military activity (exercise, march, training, etc.) or to entrust another unplanned activity to another unit requires the motion and transport microsystem to react immediately by rethinking the size of the logistic support by redistributing military personnel, material assets and equipment, or transferring the rapid implementation of the movement and transport structures from one military activity to another. The mental and physical capacity to cope with such predefined requirements, the ability to reorient when necessary, are ensured in the movement and transport microsystem through effective organization, pragmatic planning and efficient leadership.

The firm establishment of the movement and transport capabilities according to the general and specific requirements of logistic support can increase the mobility of the fighting forces, as well as the necessary logistic support for their training and preparation during peacetime, and provide aid in picturing a realistic vision regarding the "Plan of main activities" of each military unit. If the motion and initial transportation requirements are consistent with the ultimate goal of the military activity, then the transport capabilities can be synchronized in depth. Logistic planning and management bodies, together with the movement and transportation coordination departments, make an overall assessment of the conduct of the military activity as a necessary element for the detailed planning of the transport capabilities required to support it. Planning the movement and transport of goods must anticipate the requirements of each military activity in order to provide the necessary logistic support, reducing the need for improvisation. Judicious planning of transport capabilities requires permanent coordination between the tasks of the "Main Activities Plan" and the logistics support activities underlying their execution. Therefore, in order to be successful, the *Logistics Plan* must adapt according to the changes in the nature of the military activity during peacetime.

By addressing the movement and transport requirements to support military activities, we highlighted the implications, multiple determinations and particularities of their implementation in the logistic support of regular and peacekeeping training activities. It is important to understand the interdependence between the

general and specific requirements of movement and transportation, and the fact that they intertwine and mutually condition each other require constant adaptation and development in order to properly correspond to every possible application. That is why we consider that some of the requirements and factors that influence movement and transportation can be applied in all situations, namely peace, multinational operations, crisis, mobilization and war, and others can be applied only in multinational operations and in crisis situations, mobilization and war.

As a final conclusion, we believe that the widening of the spectrum of joint military actions adapted to NATO requirements generated the approach to the movement and transportation requirements in accordance with the missions and tasks received by the fighting forces. In this respect, we argue that the movement and transportation of personnel and material assets with the purpose of supporting peacekeeping training and other training activities, as well as the logistic support underlying the constitution of war material stocks, depend on a number of requirements and factors that are partly found in logistics-based doctrines and have been deepened by different specialists, but the approach has been taken only for multinational operations and for crisis, mobilization and war situations.

Starting from these considerations, we suggest correlating the requirements and factors that underlie the movement and transportation of personnel and goods during peacetime, from the existing doctrines, instructions and regulations

with those of logistic support in situations of crisis, mobilization and war, while introducing those with a character of novelty.

#### NOTES:

1 SMG/ L-2, *Doctrina întrunită pentru mișcare și transport*, Bucharest, 2006, art. 0103, p. 10.

2 *Ibidem*.

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