

FOOD PRODUCTS AS AN ELEMENTY OF MILITARY LOGISTICS ON THE EXAMPLE OF THE LAND FORCES ACADEMY

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Abstract

For military logistics a special area are processes related to the sphere of food. Proper planning of purchases, deliveries and storage, and their right implementation, in the context of changing conditions determining the state of the environment (peace, crisis or war), are an important area of tasks for military logistics. Also the specifics of customers - which are various types of military units, and consumers - in the form of soldiers performing tasks in different conditions, significantly affects the military logistics system. Both acquired products and their suppliers must meet these requirements and meet the expectations of customers by creating specific logistics chains.

Food supplies intended to meet the needs of the Polish Armed Forces must meet specific requirements. They are determined by the competent authorities as regards the production process, rules for receipt, transport, storage, shelf life, etc. The authorities responsible for the activities of the food service at all levels of the Polish Armed Forces are required to maintain specific stocks of food supplies, their storage as well as to plan and execute deliveries to the supplied military units. All this affects the creation of specific conditions for the functioning of logistics chains in this area.

The purpose of the article is to present conditions related to the logistic supply of food products to military units, implemented as part of the military logistics system of the General Tadeusz Kościuszko Military University of Land Forces (MULF). Military University of Land Forces, despite being a university, is also a structural element of the Polish Armed Forces. The article is based on analysis of the available scientific publications and industry-specific documents and participating observations.

Keywords: Food products, Food rations, Military logistics, Logistic chain

1. INTRODUCTION

Currently, food is one of the main subjects of interest not only of households, but also of governments, integration and international organizations. Ensuring adequate food supplies (in terms of quantity, quality, range) at the right time and place is a challenge that not only individual citizens but also numerous institutions try to meet - including the military.

Contemporary considerations regarding food as an element of logistics systems are implemented mainly in the dimension of supply chains and networks. Food supply chains, traditionally consisting of autonomous and independent actors, are becoming globally interconnected systems of complex relationships, affecting the ways in which food is produced, processed and delivered to the market [1]. In turn, building a competitive advantage based on networks gives the opportunity to achieve privileged operating conditions, higher efficiency, reduce uncertainty or learning, and at the same time it remains difficult to imitate because of the relationship between specific partners [2]. The basis of cooperation are created logistics chains. They are perceived as storage and transport chains, which are a technological combination of storage and transshipment points by goods transport routes, as well as coordinated organizationally and financially: operations, order processes and inventory policy, thru all links of these chains [3].

What is particularly important in relation to the implementation of the mass catering process in the military system is the appropriate level of regulation and control guaranteeing the maintenance of appropriate quality and safety, associated with the reliability of implemented processes, also in the logistics dimension. Adopting the assumption about the implementation of conditions resulting from the concept of the logistics chain for the implementation of institutional feeding processes in military units is an important factor in achieving the appropriate level of security.

The purpose of the article is to present conditions related to the logistic supply of food products to military units, implemented as part of the military logistics system of the General Tadeusz Kościuszko Military University of Land Forces (MULF). Military University of Land Forces, despite being a university, is also a structural element of the Polish Armed Forces. The article is based on analysis of the available scientific publications and industry-specific documents and participating observations.

2. FORMAL AND LEGAL CONDITIONS

In the case of such specific entities as military units that are also educational centers, legal and administrative provisions constitute an important area of regulation of their activities. Also in relation to food-related processes, numerous regulations are identified that significantly affect their logistics system. The basic legal acts in this area include:

- The Act of 14 March 1985 on the State Sanitary Inspection (Journal of Laws of 2029, item 59 as amended) and implementing regulations issued on its basis;
- The Act of 16 December 2005 on products of animal origin (Journal of Laws of 2019, item 824);
- Act of 19 December 2003 on the organization of fruit and vegetable markets, hops market, tobacco market, dried fodder market and markets for flax and hemp grown for fiber as amended (Journal of Laws of 2019, item 935);
- The Act of 21 December 2000 on the commercial quality of agri-food products (Journal of Laws of 2019, item 2178);
- The Act of 25 August 2006 on food and nutrition safety (Journal of Laws of 2019, item 1252);
- The Act of 29 January 2004 on Veterinary Inspection (Journal of Laws of 2018, item 1557) and implementing regulations issued on its basis;
- The Act of 25 August 2006 on food and nutrition safety (Journal of Laws of 2019, item 1252);
- The Act of 29 January 2004 Public Procurement Law (Journal of Laws of 2019, item 1843);
- Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety (Official Journal of the EU L 31 from February 1, 2002, Polish Special Edition 2004, as amended);
- Regulation (EC) No. 1935/2004 of the European Parliament and of the Council of 27 October 2004 on materials and articles intended to come into contact with food and repealing Directives 80/590 / EEC and 89/109 / EEC (Official Journal of the EU L 338 from 13.11.2004, as amended);
- Regulation (EC) No. 1935/2004 of the European Parliament and of the Council of 27 October 2004 on materials and products intended to come into contact with food (OJ L 338 of 13.11.2004, as amended);
- Regulation (EC) No. 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs (Official Journal of the EU L 139 of 30.04.2004, Polish Special Edition 2004, as amended) and implementing regulations issued on its basis;
- Regulation of the Minister of Agriculture and Rural Development of December 23, 2014 regarding the labeling of individual types of foodstuffs (Journal of Laws of 2015, item 29, as amended);

- Directive 2000/13 / EC of the European Parliament and of the Council of 20 March 2000 on the approximation of the laws of the Member States relating to the labeling, presentation and advertising of foodstuffs (OJ L 109, 6.05.2000, p. 29, as amended; Official Journal of the EU Polish special edition, as amended);
- Council Directive 89/396 / EEC of 13 December 2011, a unified text on indications or identification markings of the batch to which a given food belongs (Official Journal of the EU 2011/91 / EU Directive of the European Parliament, as amended as amended; Official Journal of the EU Polish special edition, as amended);
- Council Directive 92/11 / EEC of 3 March 1992 amending Directive 89/396 / EEC on indications or identification markings of the lot of the product to which the foodstuff belongs (Official Journal EC L 65 of 11.03.1992, p. 32; EU Official Journal Polish Special Edition).

Among the military regulations, they have significant significance for the functioning of the military logistics system in the sphere of food:

- NATO Principles and Policies for Logistics MC-0319/X, MC-312/2;
- NATO Principles and Policies for the Maintenance of Equipment MC-0533;
- NATO's Policy on Cooperation in Logistics C-M(2001)44;
- Land Forces Logistics Doctrine ALP-4.2, DD/4.2 z 2007;
- NATO Logistics Doctrine for Land Forces ALP-9(B) - STANAG 2406;
- Logistics Doctrine of the Armed Forces of the Republic of Poland D-4 (B) of 2014, and in particular Chapter 5 Functional System of the Logistics of the Armed Forces of the Republic of Poland, Subsection II Material Subsystem - according to it food constitutes the first class of supply of the AF RP;
- Material Protection of the Armed Forces of the Republic of Poland. Principles of operation DD/4.21 z 2012r.;
- Regulations on the Food Service DU - 4.21.1(A) z 2016 r.;
- Instructions for the Organization and Operation of Military Nutrition Facilities DD/4.21.1.1. z 2013r.;
- Regulation of the Minister of National Defense of December 11, 2009 regarding free nutrition of professional soldiers and candidates for professional soldiers (Journal of Laws No. 216, item 1679, as amended);
- Regulation of the Minister of National Defense of March 4, 2011. on feeding soldiers of active military service (Journal of Laws No. 63, item 327).

The above documents set standards for the collective feeding system for soldiers both in the stationary system and in the situation of task implementation. All food-related processes must be approved by Military Sanitary and Veterinary Inspectors, and the documentation must also take into account HACCP standards and Good Hygienic Practice (GHP).

Authorities responsible for the activities of the food service of the Polish Armed Forces in the form of Regional Logistic Bases, are required to maintain specific standards for the stocks of food supply, their storage and maintenance, and to plan and implement deliveries to the supplied departments and economic sub-units. Cooperation with suppliers must ensure continuity of supply and supply of raw materials and products at the appropriate level of quality. Military units receiving foodstuffs document and thoroughly assess the quality of goods delivered, their packaging and transport conditions.

Supplying military units with food products is allowed only from plants qualified and remaining under the supervision of Military Preventive Medicine Centers. Deliveries of food products may take place only by specialized transport, protected against deliberate contamination or pollution, while maintaining the cold chain.

The food of soldiers must be adapted to the real needs of the body, taking into account the age and type of work performed. It is calculated on the basis of a daily food ration in accordance with the applicable "Human Nutrition Standards", taking into account the specificity and nature of the service.

3. SPECIFICITY OF THE MULF FEEDING SYSTEM

The functioning of military logistic systems of food products is associated with, on the one hand, providing cadets with a current market offer adequate to their expectations - in line with nutritional trends, and on the other, compliance with applicable industry regulations and the need to optimize the costs of functioning of the entire system resulting from military standards. MULF is a military university with the status of an economic department. Financing of MULF's operations is financed from the subsidy of the Minister of National Defense. As part of its statutory tasks, the University implements the didactic process in relation to persons on undergraduate and graduate studies, postgraduate studies and courses, which translates into the number of 2,100 people fed on an average of 24 hours a month.

The dynamic development of military education and the growing requirements of cadets force logistic entities such as military units being economic departments to look for solutions enabling effective and efficient functioning, especially in peacetime. An important element here are the activities undertaken by universities aimed at ensuring a high level of quality of provided nutritional services and meeting the requirements of their clients (cadets) [4]. Standardization of nutritional needs is assumed here as part of the concept of a soldier as a person with fixed psycho-physical characteristics and predispositions, subject to individualization due to the tasks performed.

The specificity of actions in the military sphere requires appropriate selection of products and their suppliers. Practical provisions force in practice, in the area of food supply for the needs of cadets' nutrition, the creation of short supply chains. From the customers' point of view, the increase of intermediaries create an informative asymmetry due to the impossibility to track their shipment as well as to a lowering of their quality standards, caused by an increasingly standardized production process. Furthermore, the long supply chain has considerably reduce the local production, impoverishing the agricultural biodiversity. As a matter of fact, the shortening of the supply chain, beyond reducing costs by cutting down the number of intermediaries existing between the producer and the consumer - which is beneficial both for the producer and the consumer - it also creates positive externalities on the environment and, in particular, it contributes to the enhancement of the regional and local identity [5]. The EU New Common Agricultural Policy gives a definition of the short supply chain as supply chain formed by a limited number of economic operators who focus on the promotion of the cooperation, the regional development and the tight social and territorial relationships between producers and consumers [6]. This gives the possibility of better flow control and greater flexibility and reactivity of suppliers in the event of a sudden change in the feeding conditions in a military unit, for example for mobilization reasons. The selection of the range of food products in the MULF food division begins with the development of a key document in the form of a Statement of food needs for the next year. This list includes 27 product groups covering 426 product items. On this basis, a "Food Shopping Plan" for a given year is created in individual product types. The development process should be preceded by detailed research and identification of market segments, as well as an estimation of the volume of demand. Other additional factors, in particular supplier evaluation, should also be considered.

Among the requirements for suppliers, in addition to providing evidence of compliance with phytosanitary and standardization conditions, the following are important: mobilization readiness, size of the entity - its manufacturing capabilities, guarantee of adequate quality and price. Mobilization readiness means the possibility of increasing deliveries by 50 %, in a maximum of 7 days and by 100 % in a maximum of 14 days. Confirmation of the appropriate manufacturing or delivery capabilities is accomplished by presenting reference letters from the last 3 years: for three deliveries totaling PLN 900,000.00 or one delivery for PLN 900,000.00 - for food supplies, and for two deliveries together for PLN 450,000.00 or one delivery for PLN 450,000.00 - for

confectionery supplies. Agreements are concluded with suppliers for one year, subject to the tender procedure when selecting them.

Modern food characteristics are seasonality, supply spikes (sometimes referred to as “bulkiness”), and perishability [7]. The large retail chain operators, caterers, hotels, restaurants and domestic customers in urban areas require a regular supply of fresh fruits, vegetables, meat, and other perishable food products. The improving living standards and greater awareness brought about by globalization have led to change ways of consumption and buying habits [8]. These changes can also be seen in soldiers' menus. Military units not only provide food with long shelf life, but must meet the challenges of daily nutrition of soldiers in accordance with applicable mass catering standards. Ensuring proper customer service requires from the food department's professional staff the ability to creatively adapt to changing conditions, the environment and effectively adapt to applicable standards, create appropriate sets of menus and organize convenient places to eat, including the time and manner of offering them, as well as the specifics of the service.

4. FEEDING SYSTEM FOR CADETS IN PEACETIME

The needs of the Polish Armed Forces in the field of food delivery in peacetime are related to the provision of: fresh food, food concentrates, food with long shelf life (including the replenishment and rotation of war stocks), food for research and training of food service personnel. The basic document for planning the nutrition of soldiers in units is the decade menu. Nutrition is planned based on the recipes of dishes contained in the food files and IT systems supporting the operation of the food service. In mass catering, breaks between meals should not be longer than 6 hours. The daily meal schedule depends on many factors, but it is assumed that: breakfast should be served between 7-8 am, 2nd breakfast around 11.00 am, lunch between 14-16 and dinner between 18-20.

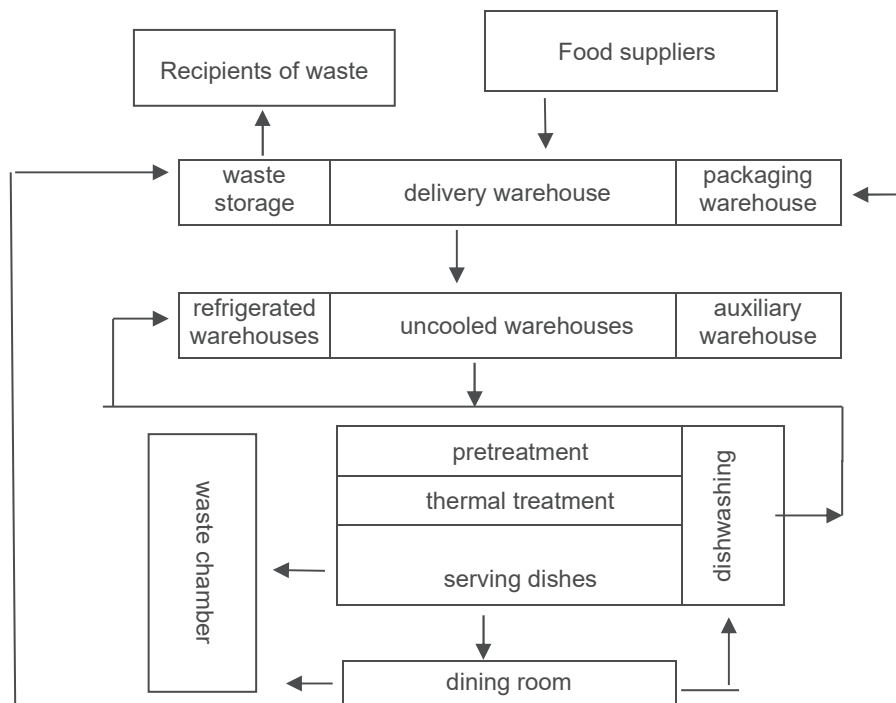


Figure 1 Functional arrangement of the nutrition process [own study based on Instruction on the organization and functioning of military nutrition facilities]

The proper functional system allowing proper organization of raw material storage, food production and consumer service is of fundamental importance for the proper course of the nutrition process in the

technological system. The functional arrangement of individual system components should ensure a one-way flow of raw materials, products, dishes, dirty and clean dishes and waste (**Figure 1**). Food supplies to army warehouses are organized and planned at every supply level. The standard for MULF is delivery twice a week. The food warehouseman checks the quantity and quality of the foodstuffs delivered in accordance with the received income document and the requirements contained in the contract. The main principle of the organization of food flows is that raw materials and semi-finished products should be transferred by the shortest and convenient route from warehouses through the various stages of processing to the publishing house and then to consumers. In the event of intersection of roads, a timetable should be developed so that the transport takes place in different time spaces - collision-free.

In accordance with applicable regulations, meals should be prepared within a specified time limit, beware of earlier preparation of dishes, especially meat and fish. The meals should be dispensed no later than 15-20 minutes after cooking and finished within a maximum of 2 hours. If necessary, ready meals should be stored for no more than 4 hours, at a temperature not higher than 8 °C and dispensed after reheating. Tinned food should be opened immediately before heat treatment, which should not take less than 15 minutes.

A self-service meal delivery system is used in the military canteen. It consists in organizing the canteen forces only the points of serving dishes and collecting dirty dishes. The rest of the activities related to the collection of dishes and, according to dirty dishes, consumers are obliged to do themselves.

CONCLUSIONS

The military logistics food system is a specific form of the logistics system. The main element here is the need to ensure efficiency and an appropriate level of security associated with numerous formal regulations. Also due to the specific approach to the client / consumer, treated as an entity of a standardized nature, whose individualization is possible in groups resulting from the specificity of the service and the tasks performed. Another characteristic factor is that the links in the supply chain are partly in the military unit, whose component is the consumer (cadet). This provides the basis for creating a specific logistics system.

This system has a high degree of hierarchy, which can lead to errors both due to excessive "rigidity" and in the area of the human factor. This particularly applies to the possibility of making mistakes by the functionaries responsible for planning and official supervision over food activities. This often results from insufficient substantive preparation to perform tasks in the position held and imprecise scope of official duties. Ineffective service supervision over the logistics food chain makes it difficult to detect deficiencies and their causes, which in turn leads to irregularities in the functioning of the analyzed area.

The experience gained from the participation of Polish military units in peacekeeping missions and international military exercises indicates the urgent need to apply in our armed forces the effects of development and scientific and research works conducted in recent years in the civil sphere that meet the needs of modern logistics. A particularly important aspect is the care for appropriate quality and safety of implemented processes. This is to be achieved by subordinating the system to both national standards (for example; PN-EN ISO 9000: 2015-10, PKN-ISO / TS 22003: 2015-06) and international standards, in particular ISO 22000: 2018. Compliance with the requirements they contain for all organizations involved in food chains is part of the food safety management system.

You may also find that the system of public nutrition is a "living organism" and therefore should be subject to constant change with the development of technology and food technology, as well as changes in military doctrine documents. Until recently, there was a view that when considering logistic processes of securing troops, the quantity, quality, type and duration of these tasks were important, regardless of whether they concerned peace, crisis or war. Currently, in relation to peace time, there is a strong emphasis on the fifth parameter, which are costs. It is necessary to adopt the position that all logistics processes should also be assessed in the cost-effect relationship. This should result in the introduction of structural and organizational

changes as well as formal and legal ones. At the same time, the long-term nature of such changes should be taken into account.

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