

DEFENSE MECHANISMS FOR FOOD PROTECTION IN THE PROCESS OF SUPPLYING MILITARY UNITS

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Abstract

Supplying troops with foodstuffs is one of the underlying factors determining success in armed operations and is part of the professional activity of commanders at all levels of the military logistic structures. At the same time, the European Union's soldiers and citizens are protected consumers and potential victims in the event of targeted food modification. The consumer is aware and knowledgeable about the relationship that exists between the quality of food and his health, including the safety of the products consumed. In the era of limited trust in food products offered and supplied to consumers, producers, as well as suppliers, must prove, among other things, by having the required certificates, that they can manage food safety on an ongoing basis. In addition to the dangers related to non-compliance with the HACCP principles and good hygiene and production practices, targeted activities take on particular importance. The literature on the subject deals with the issue of deliberate contamination or food poisoning. The article thoroughly queries Polish literature sources as well as foreign ones, since the native literature on food defense in the field of management science and commodity science is very poor. The author indicates the possibilities of integration of the proposed system of food defense management with the applicable procedures in the Food Service of the Armed Forces of Poland.

This article is based on the analysis of scientific publications and is the effect of observing phenomena occurring mainly in the field of HACCP and the military environment

Keywords: Food management, supply chain management, defense, HACCP

INTRODUCTION

Supplying [1] troops with foodstuffs is one of the fundamental factors determining success in armed operations as well as it is part of the professional activity of commanders at all levels of the military logistic structures. The process of providing food in the modern battlefield plays the essential and one of the prominent roles in logistics. One should bear in mind that a vast assortment and quantity diversity will characterize this supply.

Citizens of the European Union and soldiers are protected consumers and potential victims in the event of deliberate modification of procedures related to food poisoning. Already in the mid-1975, individual Member States standardized the provisions concerning systems and the quality in food production with the regulations of the FDA, (the American agency - the Food and Drug Administration). The Council Directive No. 93/43 / EEC of June 10, 1993, constitutes the primary document in this thematic scope. It specifies the mandatory implementation of the HACCP principles [2] and hygiene requirements in the process of purchasing, distributing and selling food. Another vital element of the directive is the introduction of the responsibility of persons involved in food trade for providing food safety by following appropriate procedures.

When it comes to the characterization of various groups of foodstuffs, separate regulations concerning meat, fish, eggs, milk and other food and non-food products were issued within the EU. In 2000, a new European Union strategy regarding the proper health quality of food and its safety was presented in the form of the "White Book". The legal basis in question would be incomplete without the Regulation of the European Parliament of January 28, 2002, laying down the general principles and requirements of food law, establishing the European Food Safety Authority and specifying procedures on food security.

In the system of Polish legislation, the "Act on Health Conditions of Food and Nutrition" is an important document adapted to European Union legislation. It has imposed an obligation on all food producers and distributors, including mass caterers, to implement the HACCP system since the date Poland joined the EU, i.e., May 1st, 2004.

The accession of Poland to the European Union means that Polish entrepreneurs wishing to place their food products on demanding and competitive European markets must offer a high level of quality of their products, as well as pay attention to customer relations.

It is the individual and institutional client (the Military Economic Department) that is the final verifier of the entrepreneur's actions by making the choices of food products.

As far as food marketing is concerned, the modern global economy is an extremely dynamic phenomenon and ought to be subject to restrictions. This factor is a key indicator influencing the integration conditions that not only affect the sphere of business entities, but also the concepts and strategies for their further development.

The military canteen is a collective catering facility in which all activities related to the preparation and serving meals to entitled persons are carried out based on the applicable HACCP system rules. The aim of the article is to indicate the logical and organizational grounds for the superstructure of the existing HACCP system with new areas, supplementing the existing procedures, as well as providing additional safeguards to defend and protect food against intent contamination.

This article is based on the analysis of scientific publications and is the effect of observing phenomena occurring mainly in the field of HACCP.

1. FOOD SAFETY

Safety is a critical and crucial component of the quality of a food product. It is a term used in many sciences and a broad conceptual context. It is assumed that the science of safety is interdisciplinary and uses the achievements of various scientific fields. The interdisciplinarity means that the concept of security can be defined for multiple domains, and therefore adapted to numerous areas of interest [3]. J. Stranks states that safety is a state in which the risk of a threat is at an acceptable level, within tolerated, agreed limits [4]. The importance of a product, including food, safety also falls within the context outlined. The essence of the above is emphasized by the fact that the right to food and its protection is part of the general human rights to life, food or human dignity. The guarantee is the Universal Declaration of Human Rights (United Nations) of December 10, 1948 (Article 3) "Everyone has the right to life, liberty, and security of person" [5]. Since food is and will always be the subject of activities and turnover in the food chain, the definition of safety included in the ISO 28000 standard seems to be important. Safety has been defined therein as "resistance to intentional, unlawful action, the purpose of which is to cause damage or destruction in or through the supply chain" [6].

The possibility of using food as a weapon is not an invention of humanity of the twentieth century. Already in ancient times, the dependency was noticed that it was not only the training or equipment of soldiers, but mainly the immunity, or lack thereof, to epidemics spreading during conflicts that prejudged the outcome of wars.

The first mentions of the use of food as a weapon appeared in the 6th century BCE. Then, during fights in Assyria, numerous poisonings of drinking water wells with ergot grains and the fruit of laxative plants took place in the areas occupied by the enemy. As a hallucinogenic agent, ergot caused disorders of consciousness whereas laxatives caused significant weakness of people, which led to the elimination of a considerable number of soldiers from the fight, thus leading to the weakening of the forces of the opposing party.

Scientific sources did not give an exact date when the idea of using the lethal power of infectious diseases was born for the first time. Undoubtedly, the Japanese are the precursors of the practical use of biological weapons. The first mentions in scientific sources come from the time of the Japanese-Chinese war in Manchuria. There was a perfectly masked research center. Officially, this facility dealt with the treatment of



drinking water, in practice, works on innovative solutions in the field of biological weapons was conducted. The findings were confirmed by experiments using prisoners [7].

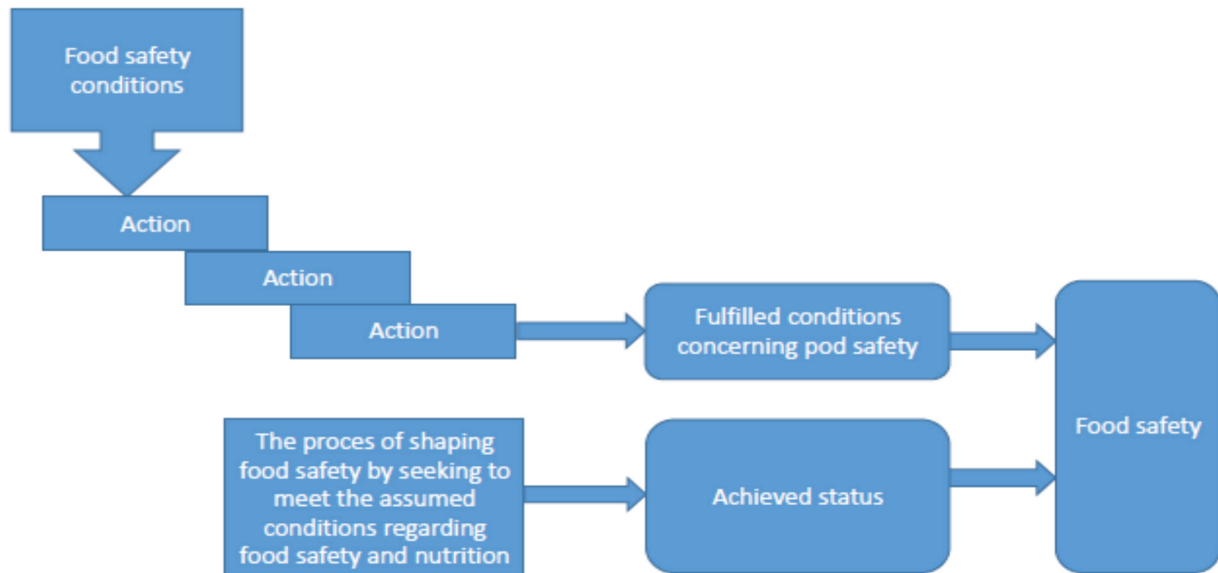


Figure 1 The process model of defining food safety in terms of the Act of August 25, 2006 on Safety of Food and Nutrition

Source: M. Wiśniewska, *Systemowe zarządzanie obroną żywności przed terroryzmem* p.24.

Europe is also a theater of military activities where biological weapons were used. None of the dictators of that time resisted the temptation to use biological weapons. Despite the initial reluctance and even strong opposition to this type of firearms, both sides used biological weapons during the battle of Stalingrad. The soldiers of the German armored divisions fell as the first victims. Due to a large number of disease incidents, the offensive was halted for some time. However, just one week later, the epidemic also involved Soviet soldiers. The proximity of trenches of each side of the conflict proved to be a destructive factor [8].

2. DEFENSE MECHANISMS FOR DEFENSE AND SAFETY OF FOOD

Food defense, in the literal translation "obrona żywności" in Polish, is a term that appeared in the United States of America (USA) after the attacks on the World Trade Center. It concerned the protection of food against intentional pollution in the context of terrorist activities. The USA encourages entrepreneurs to implement protective programs in the enterprises they manage, which increases safety in the public zone while protecting the credibility of the food producer at the same time.

Food defense is not the same as food safety. Defense focuses on the protection of food resources against deliberate contamination with various chemical or biological substances and can be carried out by persons whose aim is to harm the food producer or the destruction of the population. It is implemented with the use of compounds that are not found naturally in food or are not tested in the laboratory with the perspective of contact with food. Intentional actions are usually irrational and difficult to predict.

When addressing this matter, it is worth considering some issues. They relate to the so-called principle of self-imposed constraints theory. In 1975, Brian M. Jenkins published an article entitled Will terrorist go nuclear? The author assumed that individual persons or organizations in the form of extreme groups interested in using food as a weapon do not have the ability to produce or buy it. Larger, better-organized organizations could have such a weapon, but there is no will to use them for fear of compromising their case and provoking retaliation [9].

The book *Superterrorism - biological, chemical and nuclear* by Yonah Alexander and Milton Hoening indicates the reasons and justification for such the procedure mentioned above:

- 1) the desire to annihilate the largest possible number of people;
- 2) fear;
- 3) negotiating from a position of strength;
- 4) financial and logistical benefits.

Is increasing income the primary goal of business? Is the purpose of our work to earn money? The answer "yes" to these questions is often referred to as apparent. In 2012, spirits originating in the Czech Republic were secured and then withdrawn from the market virtually all over Europe [10]. They contained methanol dangerous to human health and life. It is clear that the motives for food contamination can be purely material and profit-driven. The actions taken in the field of food defense are primarily aimed at reducing the likelihood of malicious attack and the consequences of such attacks, protecting the reputation of the organization - protecting the brand, as well as assuring the public that the company is taking adequate activities in the field of food defense. The existing solutions serving broadly understood food safety and issues related to this phenomenon become an essential and necessary element of systems containing requirements for food quality management. Market requirements set by trade networks enforce the implementation of well-known IFS (International Featured Standard) and BRC (British Retail Consortium) standards. Currently, it is not possible to cooperate with commercial networks if one of those systems has not been implemented in the organization [11].

Food safety refers to the accidental contamination of food products during storage or processing with biological, chemical and physical agents. These unintentional contaminants can be predicted. They are typical for raw materials, types of technological processes, or used packaging. This principle is the basis both for the analysis of threats in the HACCP system and of a system that is preventive, i.e., since pollution can be predicted, it is possible to take measures to minimize or reduce the occurrence of the hazard. After having analyzed the afore-mentioned security standards, the author claims that they leave organizations enough flexibility to create the right conditions for food safety. This situation has its pros and cons. It can be considered proper that no immediate solutions are imposed due to the variety of processes taking place in the enterprise. Besides, the general approach protects against taking a too one-sided look at this problem in the context of existing threats, which in turn may limit the creativity of managerial staff and employees in proposing solutions specific to a given company. The generality of the wording contained in these standards, presented by the market requirements, and rush due to short deadlines can lead to a situation in which some crucial aspects are omitted, which will result in making mistakes that are undoubtedly protected against by requirements or guidelines. The leading and opinion-forming role in the field of harmonizing the requirements of all standards in this field is fulfilled by GFSI (Global Food Safety Initiative). In spite of numerous systems, it seems that the highest value is presented in this regard by the provisions of the IFS and BRC standards, which belong among the most popular and most frequently used by manufacturers and processors in our country and Europe. However, they do not contain unambiguous indications as to the nature and type of actions required, nor they specify requirements regarding critical issues, such as responsibility or entitlements. According to the author, they do not provide enough managerial guidelines.

3. PROTECTION OF THE FOOD SUPPLY CHAIN BY ENTITIES SUBJECTED TO THE MINISTER OF NATIONAL DEFENSE

The globalization process and the transfer of production to countries where labor costs are lower as well as multiple relations between many entities operating in the food supply chain make the protection of the chain very difficult and complicated. E. R. Choffnes, D.A. Relman, L.A. Olsen, R.Hutton and A. Mack have set up a very simplified food supply chain demonstrating the example of the United States, which illustrates only the selected relationships that can function. However, they already allow us to state that these relations are extremely complex and extensive [12]. As M. Christopher points out, a modern supply chain is a network of

many different organizations associated with suppliers and customers in a variety of processes and activities that create value in the form of products and services delivered to final consumers [13]. The ISO 22000 standard defines a chain as the sequence of stages and activities including the production, processing, distribution, storage and handling of food and its components from primary production to consumption [14]. The quoted definitions show that the quality of food, including its safety, can only be ensured through a combined and conscious effort of the entities participating in this chain [15 [15].

The primary military logistic entity that is part of the supply chain is the Military Economic Department. It is a logistic unit within the framework of which the Food Service operates based on the industry regulations DU-4.21.1 (A). In terms of supplying food to the Polish Armed Forces, its task is to carry out the food economy in the process of achieving operational and training goals. The commander of the Military Economic Department within the competences held through his / her subordinate personnel and soldiers is responsible for protecting the supply chain, as well as for:

- 1) execution of tasks related to the implementation of the Hazard Analysis and Critical Control Points (HACCP) system;
- 2) determining the rules for the collection and storage of food samples [16].

The HACCP system protects both the consumer's interests by increasing the health safety of the products being purchased, as well as the manufacturer's interests, who by keeping adequate records, is able to prove that he/she has done everything to obtain a safe product. It should be emphasized that in the light of the binding law, the producer or the marketer is responsible for the health quality of the product, in the case of mass catering it is the head of the given gastronomic facility. All kinds of food supplies for the needs of the Armed Forces are realized based on the prepared documentation and are subject to evaluation upon the reception, regarding compliance with the purchase specification. It should be remembered that raw materials of animal origin should be purchased from suppliers who were qualified by the Military Veterinary Inspection to provide the Armed Forces with food. If any of the parameters are not met, this should be recorded. The rules for accepting deliveries should be formulated precisely and make it possible to specify:

- 1) what is checked and by whom;
- 2) where it is documented;
- 3) what the procedure is when determining non-compliance of any of the parameters;
- 4) the indication of who has the power to withdraw the delivery.

It is significant to check "certificates", that is documents confirming that the requirements for products declared by the supplier have been met. The certificate may be: Health Certificate, Commercial identification Document (DHI) or an invoice containing information specified in the DHI (it applies raw materials of animal origin) as well as Declaration of Conformity issued by the product supplier.

If deliveries are stored, a method for identification of a lot should be developed, so that the FIFO (first in - first out) principle can be applied. The raw materials delivered should be appropriately marked following legal regulations. It should be borne in mind that the type of raw material and its condition depends on the quality of meals produced. Therefore, suppliers should be chosen carefully. Purchases should only be made with those suppliers who have the HACCP system introduced. In the tender procedure, potential suppliers are required to submit a declaration of having the HACCP system implemented and maintained. Where purchases are made through public tenders, it should be remembered that the price is not the most important selection criterion. Quality requirements are critical and should not be ignored or downgraded because nutritionists bear the effects of such actions.

CONCLUSIONS

The article emphasizes the issue of defense and protection of food which is the basis of existence, but it can also be a carrier of destructive actions aimed at the consumer, organization or economy of a given country.

The issues of intentional food contamination and food defense, which are at the heart of concern not only the food industry but also agencies dealing with food safety or academic environments, have been stressed. Systemic solutions that allow an organization to refine system requirements that combine with the need to protect the food chain are of particular importance. In spite of the hierarchical structure of the Armed Forces, the procedures related to the purchase of food by its storage and the production of meals are conducted based on the security standards and the HACCP system discussed above, despite their shortcomings in certain areas. In the era of increasing threats, food safety and its quality require the introduction of effective procedural solutions that include accidental and intentional threats. Since food can become a tool of destruction, ensuring food safety will require higher vigilance, cooperation with suppliers and recipients, collecting and analyzing numerous information to prevent hazards by giving it an appropriate priority level. The PAS 96 specification [17] and the TACCP system described there as an alternative to intentional threats in which the HACCP system in the opinion of specialists is insufficiently effective may be a helpful tool in creating conditions for food defense in an organization. It seems reasonable to develop a systemic and modifiable approach serving the defense of food, whose structure will allow it to adapt to individual conditions and needs of management and organizational nature in terms of the expectations of the organization itself as well as the clients with whom it cooperates.

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