

LOGISTICS MANAGEMENT IN CRISIS SITUATIONS

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Abstract

This article presents the role and importance of managing logistic support in crisis situations. The difference between civil and military logistics in crisis situations was identified. The principles of logistic support in crisis situations were sorted and their impact on crisis management was identified. Interrelations between logistic management and decision-making in crisis management have been defined.

Keywords: logistic support, crisis logistics, crisis management

1. Logistics in crisis situations in relation to civil and military logistics

Logistics of crisis situations comes from civil and military logistics. In this sense, the logistics of crisis situations is the sum of individual activities carried out by the contracting and performing entities that perform specific logistical

tasks, including medical ones. Proper management provides opportunities for shaping, control and monitoring of all processes in the logistics chain that are created in a crisis situation, including supply and service processes.¹. The efficiency of such activities is extremely important due to the need to use the smallest resources to achieve the desired final result, with maximum risk reduction.

It is important to note that logistics in crisis situations only partly replicates concepts known from civil and military logistics. The similarities between each of them include their fundamental division into theoretical and practical (applied) logistics; in addition, supplies and services are organized. However, there are some differences that do not allow them to be identified with each other and interchangeable use in theory and practice. In addition, supplies and services are organized. However, there are some differences that do not allow them to be identified with each other and interchangeable use in theory and practice.

Logistics of crisis situations has a certain specificity, the purpose of which is to help people affected in various crisis situations. The main purpose is therefore to save life, health or satisfying basic needs².

Military logistics is designed to ensure the highest efficiency of logistic security of the army, while civil logistics is designed to achieve the highest possible efficiency of the company's operation and to achieve a competitive advantage on the market.

The subject in crisis situations is always a man. The situation is different in military and civilian logistics. In military logistics, the subject is army engaged in

¹ W. Nowak, E. Nowak, *Podstawy logistyki w sytuacjach kryzysowych z elementami zarz dzania logistycznego*, Społeczna Szkoła Wy sza Przedsi biorczo ci i Zarz dzania, Łód –Warszawa 2008.

² Olejarz T., *Zarz dzanie kryzysowe w przypadku wyst pienia powodzi – aspekt praktyczny. Skrypt do wicze* , Rzeszów 2017, p. 36–47.

training in peacetime or fighting during the war, while in civil logistics the subject is the customer.

In addition, the environments in which these logistics operate are different. Logistics of crisis situations operates in areas of crisis, military logistics mainly on the battlefield, and civil logistics in the market determining demand and prices³.

Logistic management in crisis situations - like other types of management - consists of strategy, planning, organizing as well as control. These activities must be carried out within the supply chain, which in the case of crisis situations concern supplies and services organized for the injured population. In this case, the Crisis Management Team indicates responsible logistic groups for logistics management.

2. Phases of the crisis management system

Ensuring public safety is one of the most important functions of the modern state. This is in particular the obligation to provide basic conditions of protection against potential and real dangers related to the occurrence of natural disasters or other crisis events. The highest level of crisis should also include the occurrence of a war that causes many crisis situations at the same time and in the same area.

The experience of recent years indicates that there is a need to create a single management system for all types of threats, i.e.⁴:

- natural hazards (created by the forces of nature),
- technological hazards (created as a result of improper use of technologies),
- war hazards.

³ B. Pac, *Istota zarz. dzania zabezpieczeniem logistycznym w sytuacjach kryzysowych i stanach nadzwyczajnych*, [w:] *Ekonomiczne, społeczne i rodowiskowe uwarunkowania logistyki*, red. J. Witkowski, A. Skowrońska, Wrocław 2015, p. 136.

⁴ B.R. Kuc, *Zarz. dzanie doskonałe*, Warszawa 2008, p. 52.

In order to prevent and prepare the population for possible crisis situations, crisis management systems are created and improved. Currently, it is assumed that the same management strategy based on four phases of crisis management can be applied in all types of threats⁵:

- prevention (elimination of the cause of the emerging crisis situation),
- preparation (working out a plan of action in the event of a crisis situation),
- responding (taking specific operational actions),
- rebuilding (restoring the functionality of a damaged infrastructure).⁶

These four phases build an inseparable arrangement of the entire crisis management process (Figure 1).

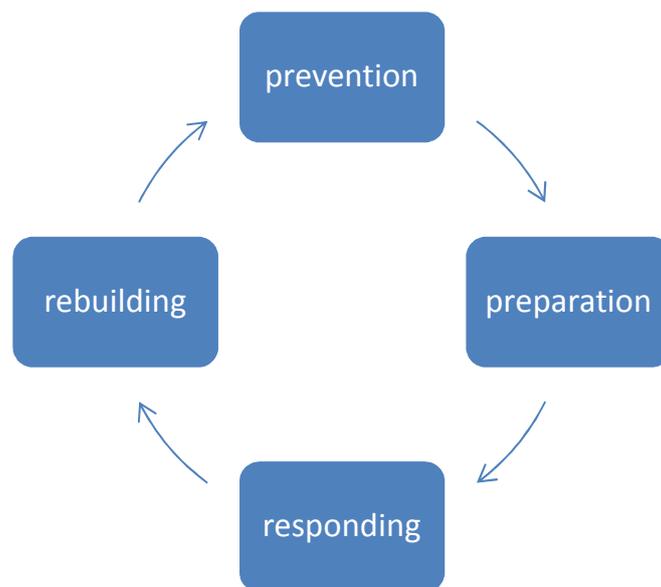


Figure 1. Phases of crisis management

Source: own study based on: W. Lidwa, W. Krzeszowski, W. Wi cek, Zarz dzanie w sytuacjach kryzysowych, Akademia Obrony Narodowej, Warszawa 2010, p. 36– 37.

⁵ T. Oleksyn, *Filozofia a zarz dzanie*, Warszawa 2013, p. 46.

⁶ K. Sienkiewicz–Małyjurek, *Zarz dzanie kryzysowe w administracji publicznej*, Warszawa 2010, p. 12.

These phases are presented as interrelated circular relationship, where each of them goes into the next one. It should be noted that there is no strict separation of individual phases - there is no strictly beginning and ending of individual phases. Neighbouring phases overlap, which indicates that the crisis management process is a continuous process, which operates in two states:

- in the stabilized state, which includes prevention and preparation
- in the implementation state, which includes responding and rebuilding.

The individual phases are sets of tasks because they consist of many organizational and procedural issues.

3. Goals and tasks of crisis situations logistics

The crisis management system works correctly when it has a good logistic background that supports rescue operations. The logistic system supporting crisis situations must have adequate operational potential. They are managers, material and transport resources as well as executive units that provide logistics services⁷. Such a system conducts both planning and organizational activities. It is based on the principle of "4R" (the right amount, the right quality, the right place, the right time), which describes in the simplest way the requirements that logistics security should meet. Without proper organization of logistic management, crisis management cannot be carried out efficiently and effectively.

Thanks to the good coordination of these activities, logistic and medical services necessary in a crisis situation are likely to be delivered to the injured population. Logistics is associated with these challenges. Therefore, it can be assumed that logistics management in crisis situations is in other words crisis logistics.

⁷ B. St plewski, *Podstawy logistyki bezpiecze stwa*, Warszawa 2016, p. 125.

Crisis logistics is a popular and developing issue, which should be considered in three dimensions:

1. As a logistics of crisis situations (crisis logistics), which in this case assumes a subjective function which leads to the perception of it as an independent field dealing with handling physical processes in crisis situations.
2. As a logistic protection of crisis situations - direct protection of the health and life of the injured population, protection of the environment and property in the area of the disaster, supporting the relevant management bodies and rescue teams.
3. As a logistic support for crisis situations - often identified with logistic protection of crisis situations, but this is a narrower view, concerning direct logistic services right in the center of a crisis situation during the liquidation of losses and negative effects that occurred during the crisis⁸.

In crisis logistics, the aim is to prepare and carry out all activities in order to be able to take control of the threat and then reduce its negative effects. Achieving the highest efficiency requires focusing from launching on the overall goals of logistics management in crisis situations that include⁹:

- planning,
- control and coordination of processes together with logistic activities,
- integration with controlling activities carried out by entities.

Initial actions in crisis situations always involve chaos, which is caused by a lack of information and uncertainty of the situation. A rapid assessment of the status and needs made by a person with relevant knowledge and competences in this area, allows to make the right decisions and to develop an effective model for

⁸ K. Fico , *Trzy logistyki. Wojskowa, kryzysowa, rynkowa*, Warszawa 2015, p. 150–151.

⁹ J. Stawnicka, *Zarz dzanie kryzysowe. Teoria, praktyka, konteksty, badania*, Szczytno 2011, p. 59.

further action. It is also important to properly coordinate all activities so that the process runs smoothly, without interruption.

The implementation of tasks in crisis situations cannot be carried out without proper preparation¹⁰. It seems impossible for decisions based on improvisation to be effective in this situation. It is not allowed to learn how to proceed at the time of its occurrence and duration. Such conduct is dangerous and seriously threatened by failure. In such crises there is no room for mistakes and failures. Every activity, even the smallest, must be preceded by detailed analysis and planned in all aspects.

In crisis situations, it is important to be rational in the actions taken because resources are limited and the needs usually exceed the possibilities of their full satisfaction. It is not always enough for everyone and everything, but it is always necessary to protect the most important things, in other words - health and life of the victims in a crisis situation.

Great importance can be attributed to effectiveness, which should be understood here as the implementation of the assumed goal. However, when considering the issue in terms of logistics, a wider and more important goal is efficiency, which can be defined as the maximum achievement of the goal with the lowest possible costs. Efficiency in crisis situations can therefore be presented as the benefits achieved, to the costs and time to achieve them.

When organizing deliveries, it is important to determine their order and priority. In the context of supply, the most important things are drinking water, food, clothing and energy (heat and electricity). In logistics services, first of all, transport and economic services. In the case of medical services, all activities related to saving lives and health of injured and sick people.

¹⁰ L. N. Van Wassenhove, *Humanitarian aid Logistics: supply chain management in high gear*, Journal of the Operational Research Society, Vol. 57, No. 5, 2006, p. 480.

Tasks that logistics performs in crisis situations can be divided into actions relating to specific groups of threats. The first group includes tasks related to the elimination of environmental threats - all natural disasters and civilization threats related to human activity or lack of such activities. Examples are floods, hurricanes, fires, epidemics, chemical, biological or radioactive contamination, power network failures and many more.

The second group includes tasks related to the elimination of threats related to public safety as well as the protection of state borders. These threats are terrorism, mass migration, ethnic conflicts or illegal demonstrations.

The third group includes tasks related to the elimination of the effects of cyber terrorism. It is a relatively new group. Information is extremely important in every area of life and all its disturbances significantly affect the functioning of many entities, even creating a threat to the functioning of the state.

The fourth group includes tasks aimed at eliminating the consequences of the financial crisis. Many companies, as well as entire countries, have financial problems. Removing the effects of these crises is a huge challenge because it is difficult, expensive and requires specialized methods ¹¹.

Considerable experience resulting from logistic security of military activities enabled the development of effective principles and rules. Their use allows for easier achievement of goals. Also in logistics in crisis situations they work perfectly. The basic principles that can be used in such situations are ¹²:

- economic rationality,
- Just in Time,
- dichotomy,
- prioritisation,

¹¹ A. Szymonik, *Logistyka w sytuacjach kryzysowych*, Czasopismo logistyka, no. 3/2011, p. 2717.

¹² K. Fico, *Logistyka kryzysowa. Procedury, potrzeby, potencjał*, Warszawa 2011, p. 200.

- standardize with limit and rationing,
- specificity of a logistics product.

These rules are a kind of guidelines, and their use does not release people who make key decisions in crisis situations from searching for their own solutions. Some may be inadequate and should not be used. Each situation is different and requires a specific approach, which is why there is a need to modify depending on the situation. Therefore, they are not restrictive norms according to which one should proceed, but only guidelines for decision-makers, in order to improve the implementation of their strategy for dealing with crisis situations.

The principle of economic rationality is associated with having limited logistic resources. Although theoretically, the costs of logistical security should be secondary, it forces consideration of economic aspects. According to this principle, the potential held should be used to the maximum in the case of expenditure limits. The consumption of these expenditures should be minimized, assuming at the same time the implementation of activities at a previously planned level.

The Just in Time principle requires that deliveries and logistic services performed within the crisis situation meet five criteria: the right time, place, product, in the right quantity and quality. This principle is successfully used in the economy by enterprises, but it can also be implemented in crisis logistics. This principle enables the delivery of goods and services in line with existing real needs. In hazardous areas, there is usually no storage option. The implementation of this principle leads to improve logistics efficiently.

The principle of dichotomy in logistic security means an exhaustive division of products and logistic services into two categories: priority and other services. The first category includes services that must be performed first. The second category includes services there are also urgent, but it is possible to do them later.

Making this division is a difficult task, often associated with moral undertones. Medical emergency teams select and segregate people because of the importance of their injuries. In such cases, the knowledge and experience of rescuers is very important because it allows for making the right choices. Determining the time of launching services of the second category belongs to logistic tasks that have adequate knowledge (logistic and legal) and qualifications¹³.

Prioritization is a rule that determines which tasks are more important and will be done first. During crisis situations, it is usually impossible to reach all the victims at the same time, therefore the order of securing the needs is determined. The basic postulate in determining the importance of meeting the needs in such situations is to reach as many people as possible with help.

The principle of normalizing, introducing limits and regulations means that for some logistic services, the normative quantities of their deliveries are introduced. This is due to the fact that in crisis situations there is a shortage of the supply assortment. However, the level of limits should not exceed a certain critical level, which results from health and food indications. The limits are set on the basis of regulations, including transport, social, sanitary and hygienic regulations. Precise limits are provided for the supply of drinking water for one injured person. The limits also apply to food and various types of sanitary, hygienic and medical supplies.

The principle of the specificity of a logistics product is expressed in the fact that in a crisis situation, the logistics product must adapt to specific needs, which are often different than in the case of general living standards. The recipients of these products are not subject to consumption standards. The necessary products

¹³ S.E. Dworzecki, *Logistyka w zarz. dzaniu bezpiecze stwem cywilnym*, Warszawa 2012.

are necessary for them to survive. The price or the appearance of the product is not important. First of all, the usefulness for the victims is important.

Logistics management in crisis situations is a difficult and complicated task for public administration, because they need to provide citizens with security and a sense of security ¹⁴. Every crisis situation is a test for these services and shows whether they are capable of fulfilling their tasks well. And although these situations bring human dramas with them, the lessons learned from them allow for a more effective response in the future.

4. Conclusion

1. Logistical support is necessary for the efficient implementation of crisis management. The contribution of logistics is often underestimated in crisis situations, but thanks to adherence to its principles, goals can be achieved faster and better. Skipping the importance of logistics in crisis situations results from the fact that many people perceive it only in the aspect of functioning of enterprises. Maximizing the effects while minimizing expenditures refers not only to the business sphere, but to every area of life. Therefore, also in ensuring security, logistics plays a key role, and logistics management supports crisis management at each of its stages.
2. The effective functioning of crisis management is possible only if the necessary supplies and services are provided in the logistics chains created during crisis situations. This supply should follow certain rules, some of which are also used by enterprises in their logistical operations. Some, however, are different for logistics in crisis situations, which distinguishes it as a specific field.

¹⁴ W. Molek, K. Stec, R. Marciniak, *Zarządzanie kryzysowe w systemie kierowania bezpieczeństwem narodowym*, „Bezpieczeństwo Narodowe” 2011, No. 1, p. 45–60.

3. Every logistic management during a crisis situation is associated with time pressure, which is necessary to help all victims. In addition, the constant threat to health and life not only for the injured, but also for teams that hurry to them with the necessary help, is an additional problem for the effective implementation of tasks.
4. Logistics management in crisis situations is more and more important because new threats appear and their scale is growing. The feeling of security for citizens is extremely important, which is why a well-organized state should be prepared for every circumstance, including the sudden and unpredictable, which can have negative effects.
5. All natural disasters or other problems caused by the forces of nature, human activities, various types of failures, epidemics, military actions and many other are a great challenge for public administration, whose task is to protect citizens. It is necessary to prepare and have system solutions that prevent a crisis situation, and when they do occur, take control and management over them so that the resulting losses are as small as possible.

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