



INITIATORS AND MOTIVES FOR COOPERATION IN HUMANITARIAN SUPPLY CHAINS

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ABSTRACT. Background: The concept of humanitarian supply chain management is based on theoretical and methodological assumptions of the idea of cooperation between industry and trade. The overarching goal of humanitarian aid is to save or improve people's quality of life, which makes the problem of economic efficiency a secondary issue. The subjective structure of supply chains is also different, which determines the division of roles and motives in the process of cooperation between their participants. The publication aims to identify differences and controversies related to the transformation of the business concept of supply chain management into the cooperation of entities as part of humanitarian aid actions. Consequently, the second objective tends to identify factors of logistic cooperation among humanitarian organizations.

Methods: To achieve both goals, the article was divided into a theoretical part on the idea of logistics cooperation in supply chains (methods: logical analysis and critical analysis of the subject literature) and a presentation of the results of an anonymous questionnaire survey diagnosing initiators and determinants of logistics cooperation in humanitarian supply chains in Poland (methods: questionnaire survey and descriptive statistics).

Results: Humanitarian and business supply chains differ in terms of the purpose of functioning, the main entity that coordinates material, information, financial, human and reverse flows, stakeholders of the activities carried out, the location of the idea of cooperation in the supply chain management system and the impact of external conditions on efficiency of functioning. Regularities are diagnosed with respect to the initiators and factors of logistic cooperation in humanitarian supply chains: (1) the main initiators of logistic cooperation in humanitarian supply chains are humanitarian organizations who (2) underestimate the important factors and opportunities to achieve synergistic effects, there is a (3) requirement for greater involvement of national government institutions and international humanitarian organizations, and (4) the type of a humanitarian crisis has an impact on logistic cooperation.

Conclusions: A random sample of 100 humanitarian NGOs based on a survey requires a more complete diagnosis of the initiators and the correctness of logistic cooperation in humanitarian supply chains from the perspective of other actors and beneficiaries of aid actions, as well as in the context of competition of cooperating entities, i.e., cooperation. Survey responses obtained should be confronted with an in-depth analysis of a case study of logistic cooperation in humanitarian supply chains to war refugees from Ukraine.

Keywords: cooperation, humanitarian supply chain, humanitarian crises, logistics cooperation

INTRODUCTION

Crises related to hostilities, natural disasters, technical disasters, or terrorist attacks require aid activities to be carried out as part of humanitarian supply chains. Although the awareness of the importance of logistics support in warfare and rescue operations has been developing since ancient times, the theoretical foundations of the so-called humanitarian supply chains have only recently crystallized. The authors who attempted to define and describe

their essence start primarily from the professionalization of tasks related to safety and providing assistance in saving human health and lives and then point to their role in counteracting, minimizing, and even eliminating the negative effects of random events [Thomas 2004; Thomas and Mizushima 2005; Thomas and Kopczak 2005]. Nowadays, there are also views that indicate the need to include in the management of humanitarian aid actions the category of efficiency of flows of people, goods, and services. An example is a proposal for a definition of J. Marcinkowski [2019], who

understands humanitarian logistics as "coordinating the processes of flows of goods, people and services with accompanying information in connection with the difficult situation of society..., to provide assistance and reduce and/or eliminate the effects of events in an efficient and effective way". Although it can be agreed that the professionalization of flows of people, goods, and services during humanitarian operations should take into account the possibilities of reducing the associated costs, the assumption of striving to achieve the effectiveness of these flows in the situation of saving people's lives and health becomes a secondary goal. Therefore, based on the subjective interpretation of supply chains [Witkowski and Baraniecka 2018], the essence of **humanitarian supply chains are cooperating government organizations, local governments, non-profit institutions, enterprises, and individuals whose common goal is to obtain, move and distribute material and financial aid and related information to prevent or reduce the negative effects of crises on residents in the affected areas.** The humanitarian supply chain ideogram is presented in Figure 1.

The discussion of the humanitarian supply chain is getting more and more attention among researchers in recent years. The potential for cross-learning between the humanitarian and private sectors in the context of cooperation has been discussed by L. van Wassenhove [2006]. The author suggested the need for agility, adaptability, and alignment for humanitarian organizations and for wide cooperation of humanitarian actors in disaster relief to make humanitarian supply chains more effective. The infancy of humanitarian relief chain coordination has been discussed by B. Balcik et al. [2010]. The topic is all the more justified due to the variety of humanitarian actors involved with different logistics expertise. Therefore, there is a question on how to measure performance in humanitarian supply chains. This topic has been already discussed by B. Beamon and B. Balcik [2008], who compared performance measurements of humanitarian and business supply chains and proposed new performance metrics. The authors have underlined, among others, the role and impact of cooperation and coordination of relief chains. However, the discussion among

academicians on the role of particular humanitarian actors is visible in the literature. R. Tomasini and L. van Wassenhove [2009] diagnosed the role of the private sector, while A. Leiras et al. [2014] suggested the need for a closer relationship between humanitarian organizations and academia. The cooperation of humanitarian actors is varied; however, the composition of the entire network imposes the necessity of effective and purposeful cooperation [Marcinkowski 2022]. However, the subject literature on cooperation in humanitarian supply chains faces a lack of publications referring to the factors of logistics cooperation and its initiators.

Thus, the main objective of the article is composed of two parts. The first objective is to identify the differences between logistics cooperation in business and humanitarian supply chains. Consequently, the second objective tends to identify factors of logistic cooperation among humanitarian organizations. To achieve both goals, the publication was divided into a theoretical part concerning the idea of logistics cooperation in supply chains and a presentation of the results of a questionnaire survey diagnosing initiators and determinants of logistics cooperation in humanitarian supply chains in Poland. The adopted research procedure is presented in Figure 2. It consists of three interrelated parts, in which there are separate steps with their own goals and the research methods used. A broader explanation of the methods from the second part will be presented in the following parts of the publication.

The article consists of four sections. The first part is an introduction to the issue under study, in which the motives for taking up a given topic have been presented. The second part presents the idea of cooperation in humanitarian supply chains in theoretical terms. The third part is the results of the questionnaire survey, so the empirical part, in which the initiators and factors of development of logistics cooperation in humanitarian supply chains are identified. In the last part, the most important conclusions and the resulting prospects for further research are formulated.

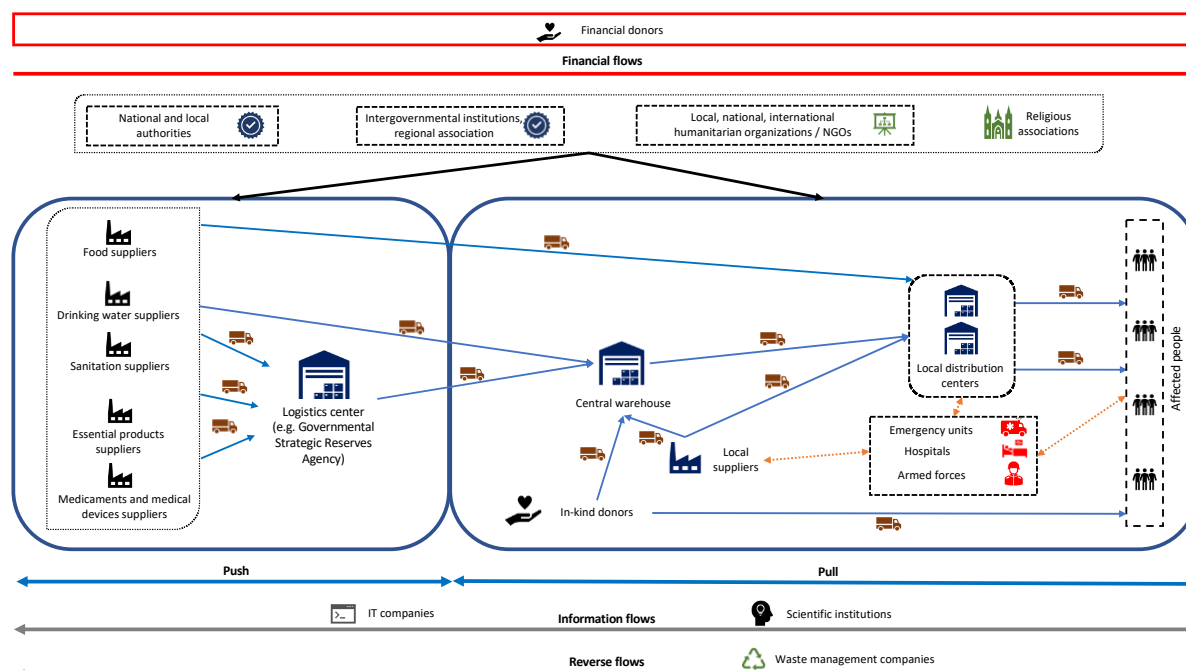


Fig. 1. Subject structure of the humanitarian supply chain. Source: own elaboration.

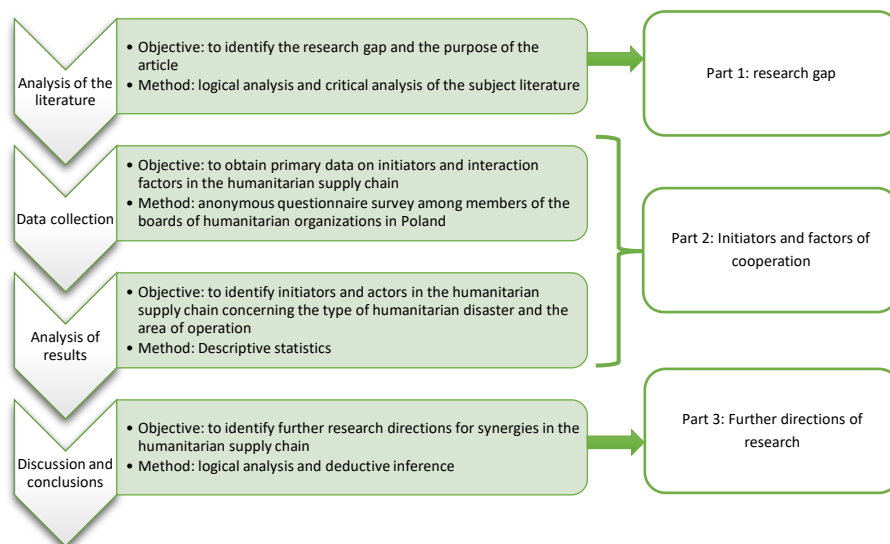


Fig. 2. Research procedure. Source: own elaboration.

THE IDEA OF COOPERATION IN HUMANITARIAN SUPPLY CHAINS

According to T. Kotarbiński, who was one of the creators and propagators of the praxeological theory of efficient cooperation, **the concept of positive cooperation means organized cooperation, in which all participants are united by a common goal superior to various individual goals**

[Kotarbiński 1972]. The main benefit of cooperation is synergy, i.e. additional effects that are greater than the sum of the effects of activities carried out individually. To achieve additional synergistic effects of interaction in supply chains, it is necessary to shape the relationship between its links based on trust and proportional sharing of risks and benefits between them. The literature on the importance, participants, conditions, and types of partnership relations between suppliers and customers in business

supply chains for achieving synergistic interaction effects and sustainable competitive advantage has been developing since the mid-90s of the twentieth century [Lambert, Emmelhainz and Gardner 1996]. From the perspective of the study of business relationships in supply chains, a special place is given to the theory of transaction costs to justify outsourcing [Williamson 2008] and explain the sources of efficiency [Kekokivi and Mahoney 2020]. However, there is a cognitive gap on the correctness of cooperation between participants in humanitarian supply chains, where rational motivations and effective goals of cooperation are of secondary importance to saving the lives and health of victims.

Regardless of the chronic nature of some emergencies (e.g., a long-term pandemic), in most cases, humanitarian supply chains arise as a response to sudden and unpredictable events that require a range of tactical and operational decisions and actions. Decisions to evacuate or leave the population in vulnerable areas are the responsibility of governments or local authorities. On the other hand, the basic decisions and logistic actions were taken by humanitarian organizations after the occurrence of a crisis include purchase of aid products, choice of means of transport and route of transport from the supplier to the place of the disaster, the location of temporary storage facilities, and the provision of aid to those in need (Witkowski, 2020).

In addition to the pressure of time and costs, an additional difficulty in making these decisions and actions is the diversity of stakeholders of aid actions (so-called humanitarian actors), which, apart from humanitarian organizations (local, national, and international), include: other

nongovernmental organizations, religious associations, sponsors (individual and collective donors), intergovernmental organizations, authorities (local, national, and international), logistics service providers, suppliers (food manufacturers, drinking water suppliers, sanitation suppliers, suppliers of medicines and medical devices, suppliers of other necessities), emergency units, hospitals, armed forces, fuel companies, IT and telecommunications companies, waste management companies, scientific institutions, and communities affected by humanitarian crisis. Due to the low participation, and often even omissions, of these entities in strategic preventive activities, the greatest problems with the coordination of their activities occur immediately after the disaster and are gradually alleviated in the reconstruction phase. The requirements for humanitarian supply chains in different phases of crises are presented in Table 1, while the main differences between logistics interoperability in business and humanitarian supply chains are systematized in Table 2.

Due to the time pressure and *ad hoc* nature of humanitarian supply chains, their functioning is disrupted by the lack of professionalization of decisions and actions taken by volunteers from humanitarian aid organizations. This is mainly due to the lack of properly prepared management staff, but also to the lack of developed organizational structures, procedures, and modern ICT technologies for information transparency of humanitarian supply chains (see [Baumgarten 2010]). The advantage of the intuitive method of making operational logistics decisions and operating in difficult infrastructure conditions in areas affected by disasters often results in a lack of effectiveness and high costs of aid actions.

Table 1. Challenges for humanitarian supply chains in different phases of emergencies

Challenges \ Disaster phase	Prevention	Emergency aid	Reconstruction
Duration	Long and continuous	Days, weeks, months	Months, years
The scale of transport activity	Low	High	Moderate
Types of supplied aid	Reserves of standard aid products	Food, medical products, sanitation, water, tents, etc.	Wide range of different products
Source of purchase	Local	International	Local and international
Time pressure	Low	High	Moderate
Stakeholders pressure	Low	High	Moderate

Source: own elaborations based on [Kessler 2013].

Table 2. Differences between logistics cooperation in business and humanitarian operations

Features \ Type of chain	Business supply chain	Humanitarian supply chain
Aim	Effective and efficient flow of products, information, and financial resources to increase the added value	Preventing or limiting the effects of crises (hunger, epidemics, homelessness, mortality, etc.) under the pressure of time-domination over costs
The main link in the supply chain	Consumer as a source of demand and the end link in the supply chain	Humanitarian organizations and, if necessary, local and national government institutions as initiators and central coordinators of aid operations
Key participants/stakeholders	Clients, production and trading companies, logistics companies, transaction brokers	Humanitarian organizations, victims, sponsors, national and local authorities, uniformed services, media, logistics companies
Place in the management system	Integration in strategies, organizational structures, and IT systems	The dominance of intuitive decisions and non-integrated operational activities
External conditions	Stable infrastructural, technological, and legal conditions	Underdeveloped or destroyed logistics infrastructure and frequent political and legal instability

Source: [Witkowski 2015].

INITIATORS AND FACTORS OF DEVELOPMENT OF LOGISTICS COOPERATION IN HUMANITARIAN SUPPLY CHAINS – SURVEY RESULTS

The empirical part of the article focuses on the diagnosis of initiators and factors of logistics cooperation in humanitarian supply chains. These factors determine *implicitly* the undertaking of joint transport and storage ventures, the final effect of which is to save or improve the quality of life of people affected during humanitarian crises.

The identification of the initiators and the assessment of the factors of logistics cooperation were carried out using an anonymous questionnaire addressed to members of boards of humanitarian organizations operating in Poland. The structure of the questionnaire consisted of three parts, and only a fragment of the questionnaire was taken for analysis in this article. The survey was conducted between November 2021 and January 2022 among humanitarian organizations in Poland that provide aid in-kind and/or technical assistance. This means that organizations that are exclusively engaged in the provision of financial assistance have been excluded from the population. The completion of the questionnaire survey in January 2022 also eliminated the

possible disruption of the concentration of humanitarian organizations' activities mostly (or exclusively) on helping people affected by the war in Ukraine from 24.02.2022.

The research sample consisted of 100 humanitarian organizations, that is, 10-15% of all organizations operating in Poland dealing with humanitarian aid. At this point, it should be emphasized that it was impossible to indicate the total population of humanitarian organizations. The report of the Central Statistical Office in Poland from 2019 indicates that there were 88,000 nongovernmental organizations in Poland, of which 6,600 dealt with social and humanitarian assistance according to the reported statutory activities [GUS 2019]. The combined treatment of social and humanitarian assistance and the inclusion in this number of organizations providing only financial assistance has significantly hampered the identification of the population of humanitarian organizations providing aid in-kind and/or technical aid. During the questionnaire survey, contact was made with 1216 nongovernmental organizations, among which 100 humanitarian organizations provided the will to participate in the survey and meet the criteria, which *a posteriori* is the final research sample (8%). These organizations actively participate in relief efforts during humanitarian crises that may occur in various areas of the world. The structure of these crises and the areas served are presented in Table 3.

Table 3. Humanitarian crises and areas of activity of humanitarian organizations in Poland in a research sample

Type of the humanitarian crises	Percentage share	Area of activity	Percentage share
Food insecurity (hunger, malnutrition)	71%	European Union	59%
Drought, desertification	11%	Eastern Europe	31%
Shortage of drinking water, no access to water	17%	Middle East	12%
Diseases, epidemics	24%	Caucasus	5%
Natural disasters with long-term community effects (e.g. earthquake, tsunami)	13%	Central Asia	6%
Healthcare deficit	35%	South Asia	4%
Armed conflicts (military operations, civil wars, acts of terrorism, genocide)	17%	Far East	3%
Refugees and external migrations	18%	North Africa	3%
Internal migrations (Internally Displaced Persons)	8%	West Africa	5%
Another chronic disaster/humanitarian crisis	2%	Central Africa	12%
		East Africa	10%
		South Africa	3%
		Another region	4%

Source: own elaboration.

Distribution activities in the form of aid in-kind and technical aid require extensive logistics cooperation, which is crucial to the efficiency of humanitarian actors. This cooperation is usually unstructured and informal, and such a phenomenon creates challenges for the coordination and synchronization of activities. Almost every project during a humanitarian crisis aimed at logistics cooperation begins on the initiative of the investigated humanitarian organization. This belief is the foundation for initiating joint humanitarian activities in the area of transport and storage (95% of respondents), and at the same time informs about autarkic tendencies to decision-making independence in the context of cooperation. Only 11% of humanitarian organizations note that the logistics cooperation initiative is undertaken by other national NGOs. This declarative state of focus on one's own logistics needs results from the passivity of national government institutions and international humanitarian organizations, which, having the greatest access to up-to-date information on supply and demand streams for aid goods, could play the role of initiator and central coordinator of flows in humanitarian supply chains. According to the research, international non-profit organizations that monitor humanitarian crises around the world and have the resources to address them are responsible for only 3% of logistics cooperation initiatives. Such low participation of this group of humanitarian actors is one of the reasons for the lack of cooperation among humanitarian organizations (local, national and international),

which is mentioned in the subject literature [Chen, Liu and Appolloni 2020; Wankmüller and Reiner 2021]. Another of the initiators of logistics cooperation is religious associations, which have help to those in need defined in the axiology of the religion represented, and take the initiative in 8% of humanitarian crises.

National public administration bodies (national government, local authorities, crisis management centers, etc.) account for 6% of logistics cooperation initiatives. These organizations have direct solutions and mechanisms in place to involve a variety of humanitarian actors in all humanitarian activities. A humanitarian crisis is a situation in which the local community demands external support for the deficit of basic human needs. This support goes beyond the available capacity of communities and public administrations to overcome the negative effects of the humanitarian crisis. The scope of involvement in the area of logistics cooperation is lower in the case of government and local authorities bodies in areas affected by the humanitarian crisis. Normally, these organizations cannot deal with the crisis using their resources, so they need the support of other humanitarian actors. However, knowledge of the area affected by the humanitarian crisis, which is an inherent feature of local public administration units, is not used to coordinate logistics activities; only 3% of these bodies (according to the declarations of humanitarian organizations in Poland) initiate the coordination of logistics processes in the area of transport and storage. A similar phenomenon

occurs in the case of regional associations (e.g., the European Union, the African Union, the League of Arab States) or other supranational bodies. Rather, these intergovernmental and transnational organizations focus on supporting humanitarian organizations and public administrations in providing logistics support to aid bodies. Furthermore, the initiation of logistics cooperation is rare with respect to the coordination centers of rescue units (2%), whose main task is to support joint operations. The same applies to private logistics operators (e.g. transport companies, logistics centers, 2%), which cooperate extensively with humanitarian organizations, but according to the reported demand [Bealt, Barrera, and Mansouri 2016]. The last of the initiators of logistic cooperation are the armed forces and allied forces, which initiate actions in this field in the event of a 1%

humanitarian crisis. An example is peacekeeping missions carried out, e.g., by the UN or NATO [Dobrowolska-Polak 2008].

Logistics cooperation in the humanitarian supply chain is motivated by a variety of factors that directly and indirectly influence the initiatives taken by individual humanitarian actors. It should be noted that humanitarian practice and literature highlight that it is still humanitarian organizations that are most active in humanitarian aid operations in the area of humanitarian crisis [Ryfman 2007; Alexander 2015]. The authors of the article examined twelve factors of logistic cooperation among humanitarian organizations in Poland, and the results are presented in Figure 3.

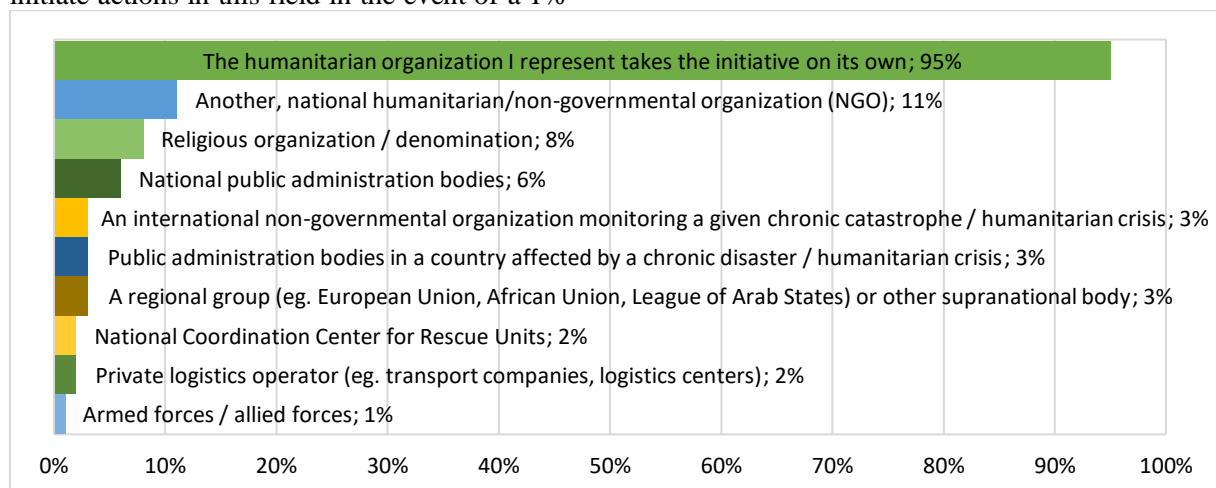


Fig. 3. Initiators of logistic cooperation during humanitarian crises from the perspective of humanitarian organizations in Poland.

Source: own elaboration.

A survey of humanitarian organizations in Poland identified factors of key importance for making decisions about logistics cooperation during a humanitarian crisis. The predominant is the urgency of aid activities, which is of great or key importance for 55% of humanitarian organizations. This speaks in favor of a strong focus on the statutory objectives of humanitarian organizations and the main principles of humanitarianism (the so-called Seven Principles of Humanitarian Aid [ICRC 2015]). The mere fact that immediate assistance is necessary to those in need is sufficient for a humanitarian organization to cooperate logistically with

another humanitarian actor. It is interesting to note that 50% of humanitarian organizations recognize the importance of lower operating costs and the use of economies of scale. Although, as indicated in the introduction to the article, efficiency plays a secondary role in the humanitarian supply chains, it is a matter of concern for humanitarian organizations. It is not without reason that it is treated as one of the challenges in the area of humanitarian logistics, which determines the quality of assistance provided to people in need [Polman 2010; Scott 2014]. For 45% of humanitarian organizations in Poland, the type of aid goods and their suitability for the affected community are an important

factor in establishing joint logistics activities. Such participation should not come as a surprise, especially since inappropriate types of aid goods are one of the key challenges in the first phase of providing humanitarian aid, the so-called mass aid [Polman 2010].

In the case of food insecurity, 55% of humanitarian organizations in Poland noted that the urgency of aid activities and lower operating costs, and the use of economies of scale are the most important factors in logistic cooperation. The other ten factors have much smaller percentage shares and, de facto, less importance. The situation is analogous to the case of healthcare deficits, diseases, and epidemics. In the first case, 63% of humanitarian organizations in Poland are in favor of the urgency of aid activities and 54% of lower operating costs and the use of economies of scale. In the case of diseases and epidemics, this is 67% for both identified factors of logistic interaction. It follows that humanitarian crises related to food shortages and health aspects are conditioned by urgency and the use of economies of scale. It should be noted that the three types of humanitarian crises indicated above usually affect more people (just look at the Covid-19 pandemic), determining the dominance of the two factors of logistics cooperation discussed.

The situation is different for the other three humanitarian crises presented in Table 4, i.e., refugees and external migration, armed conflicts, and drinking water shortages. While the urgency of aid activities and lower operating costs are still important factors of logistics cooperation, four other factors are also beginning to lead the way, i.e. the political and legal situation, the type of aid goods, and their adequacy for the affected community, infrastructure conditions, and previously signed cooperation agreements. The greater importance of these factors should not be questioned with regard to identified humanitarian disasters (83%, 82%, and 65%, respectively). Refugees, external migrations, or armed conflicts are usually a posteriori provoked by the political and legal situation of a given area or state. Therefore, the more difficult this situation is, the more legitimate the logistic cooperation of humanitarian actors is. The situation is similar in the case of the shortage of drinking water, which is also a humanitarian disaster that is also a frequent cause of armed

conflicts (for example, the conflict in Darfur [Bromwich 2015]). These three types of humanitarian disasters require completely different categories of aid goods, which makes this factor more important than in the case of other humanitarian disasters (65-67%).

CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

The difference between logistic cooperation in business and humanitarian operations is very visible. Humanitarian and business supply chains differ in terms of the purpose of functioning, the main entity that coordinates material, information, financial, human and reverse flows, stakeholders of the activities carried out, the location of the idea of cooperation in the supply chain management system and the impact of external conditions on efficiency of functioning. On the basis of the literature studies and empirical research, the following conclusions can be formulated:

the main initiators of logistic cooperation during aid actions are non-governmental humanitarian organizations, most of which take spontaneous actions guided by the immediate need to meet aid needs while declaring awareness of the importance of operating costs and taking advantage of economic effects,

the humanitarian organizations surveyed underestimate the important factors and opportunities for achieving synergistic effects of logistics cooperation in humanitarian supply chains, which are manifested in greater efficiency, lower operating costs and improved efficiency,

striving to improve the efficiency of flows in humanitarian supply chains before and after a crisis requires greater involvement of national government institutions and international humanitarian organizations, which, through access to information, are best placed to act as initiators and central coordinators of logistics cooperation between all humanitarian actors,

the type of humanitarian crisis has an impact on differences in perception of the importance of the factors of logistics cooperation, and in particular, the more long-

term the crisis, the logistics cooperation in humanitarian supply chains requires the professionalization of management focused not only on emergency aid, but also on appropriate

preventive and stabilization decisions and actions adapted to the political and legal situation, the type of aid goods, infrastructure conditions, and regulatory in a given region.

Table 4. Factors of high-importance logistics cooperation in selected humanitarian crises

Factor / Type of humanitarian crises	Food insecurity (hunger, malnutrition)	Healthcare deficit	Diseases, epidemics	Refugees and external migrations	Armed conflicts (military operations, civil wars, acts of terrorism, genocide)	Shortage of drinking water, no access to water
The urgency of aid activities	55%	63%	67%	100%	53%	76%
A common source of supply of aid goods	30%	31%	17%	33%	12%	29%
Type of aid goods and their relevance to the affected community	46%	46%	29%	67%	65%	65%
Maintaining a high level of stocks of aid goods	15%	14%	17%	28%	18%	29%
A high degree of complexity of transport tasks (numerous transshipments, requiring means of transport, etc.).	13%	11%	21%	33%	35%	29%
Infrastructure conditions in a given country/area (poor quality of transport infrastructure, shortage of storage infrastructure, etc.)	30%	29%	46%	61%	47%	59%
The political and legal situation of the country/region (eg. war, authoritarian governments, imposed economic sanctions)	35%	31%	38%	83%	82%	65%
Pre-signed cooperation agreements with other humanitarian, non-governmental, or intergovernmental organizations, both national and transnational	38%	29%	38%	61%	65%	53%
Mass delivery of humanitarian aid (the number of aid goods exceeding the current needs of the affected communities)	32%	29%	29%	33%	35%	35%
Low mobility level of humanitarian workers of the humanitarian organization	24%	20%	25%	39%	35%	29%
Willingness to avoid supplying aid goods to unauthorized persons/groups	24%	20%	21%	28%	35%	29%
Lower operating costs and use of economies of scale	55%	54%	67%	61%	65%	65%
The total share of humanitarian organizations in the research sample	71%	35%	24%	18%	17%	17%

Source: own elaboration.

The authors are aware of the limitations of inferring from a random sample of 100 humanitarian NGOs based on a survey. For a more complete diagnosis of the initiators and the correctness of logistic cooperation in humanitarian supply chains, it would be

advisable to examine this issue from the perspective of other actors and beneficiaries of aid actions, as well as in the context of competition of cooperating entities, i.e., cooperation. Additionally, to verify the diagnosed regularities, the authors plan to confront the survey responses with an in-depth

analysis of a case study of logistics cooperation in humanitarian supply chains for war refugees from Ukraine.

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REFERENCES

- Alexander A., 2015, A Short History of International Humanitarian Law. *The European Journal of International Law*, 26 (1), 109-138.
<https://doi.org/10.1093/ejil/chv002>
- Balcik B., Beamon B. M., Krejci C. C., Muramatsu K. M. and Ramirez, M., 2010, Coordination in humanitarian relief chains: Practices, challenges and opportunities. *International Journal of Production Economics*, 126 (1), 22–34.
<https://doi.org/10.1016/j.ijpe.2009.09.008>
- Baumgarten H., 2010, Potenziale der Logistik–Katastrophenmanagement und Langfristige Versorgungssicherheit [Potential of Logistics – Disaster Management and long-term security of supply]. Conference Proceedings 27 German Logistics Congress 2010, Berlin, 455-476.
- Bealt J., Fernández Barrera J.C. and Mansouri S.A., 2016, Collaborative relationships between logistics service providers and humanitarian organizations during disaster relief operations. *Journal of Humanitarian Logistics and Supply Chain Management*, 6 (2), 118-144,
<https://doi.org/10.1108/JHLSCM-02-2015-0008>
- Beamon B. M. and Balcik B., 2008, Performance measurement in humanitarian relief chains. *International Journal of Public Sector Management*, 21 (1), 4-25.
<https://doi.org/10.1108/09513550810846087>
- Bromwich B., 2015, Nexus meets crisis: a review of conflict, natural resources and the humanitarian response in Darfur with reference to the water–energy–food nexus. *International Journal of Water Resources Development*, 31, 375-392,
<https://doi.org/10.1080/07900627.2015.1030495>
- Chen F., Liu S. and Appolloni A., 2020, Horizontal Coordination of I-LNGOs in the Humanitarian Supply Chain: An Evolutionary Game Approach. *Sustainability*, 12, 5953.
<https://doi.org/10.3390/su12155953>
- Dobrowolska-Polak J., 2008, Międzynarodowa solidarność. Operacje pokojowe ONZ, NATO i UE [International Solidarity. Peace operations of UN, NATO and EU]. Poznań: Instytut Zachodni.
- GUS, 2019, Działalność stowarzyszeń i podobnych organizacji społecznych, fundacji, społecznych podmiotów wyznaniowych oraz samorządu gospodarczego i zawodowego w 2018 r. – wyniki wstępne [Activities of associations and similar social organizations, foundations, social religious entities as well as economic and professional councils in 2018 – preliminary results]. Główny Urząd Statystyczny. Dostęp: https://stat.gov.pl/files/gfx/portalinformacyjny/pl/defaultaktualnosci/5490/3/8/1/dzialalnosc_stowarzyszen_i_podobnych_organizacji_spoecznych_w_2018.pdf (16.03.2022).
- ICRC, 2015, The fundamental principles of the International Red Cross and Red Crescent Movement. International Committee of the Red Cross. Dostęp: https://www.icrc.org/sites/default/files/topic/file_plus_list/4046-the_fundamental_principles_of_the_international_red_cross_and_red_crescent_movement.pdf (25.01.2022).
- Kekokivi M. and Mahoney J.T., 2020, Transaction Cost Economics is Theory of Supply Chain Efficiency. *Production and Operations Management*, 29 (6).
<https://doi.org/10.1111/poms.13148>

- Kessler M., 2013, *Logistics Network Design in Africa. Integrating Aid Flows and National Self Supply*, Haupt Publisher, Kuehne Foundation Book Series on Logistics 20, 19.
- Kotarbiński T., 1972, *Abecadło praktyczności [The alphabet of practicality]*, Warszawa: PWN, 62-63.
- Lambert D.M., Emmelhainz M.A. and Gardner J.T., 1996, *Developing and Implementing Supply Chain Partnerships*. *International Journal of Logistics Management*, 7 (2), 1-18.
<https://doi.org/10.1108/09574099610805485>
- Leiras A., de Brito I. Jr., Queiroz Peres E., Rejane Bertazzo T., and Tsugunobu Yoshida Yoshizaki H., 2014, *Literature review of humanitarian logistics research: trends and challenges*. *Journal of Humanitarian Logistics and Supply Chain Management*, 4 (1), 95-130.
<https://doi.org/10.1108/JHLSCM-04-2012-0008>
- Marcinkowski J., 2019, *Humanitarny łańcuch dostaw w sytuacji wystąpienia katastrof naturalnych na przykładzie ugrupowania regionalnego ASEAN [Humanitarian supply chain during natural disasters illustrated through an ASEAN regional community example]*, Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu, 28.
- Marcinkowski J., 2022, *Humanitarian Actors' Cooperation Network in the Social Sustainability Context—Evidence from Poland*. *Sustainability*, 14 (9), 5492.
<https://doi.org/10.3390/su14095492>
- Polman L., 2010, *The Crisis Caravan: What's Wrong with Humanitarian Aid?* Metropolitan Books.
- Ryfman P., 2007, *Non-governmental organizations: an indispensable player of humanitarian aid*. *International Review of the Red Cross*, 89 (865), 21-45.
<https://doi.org/10.1017/S1816383107000926>
- Scott R., 2014, *Imaging more effective humanitarian aid. A donor perspective*. OECD, The Development Assistance Committee.
- Thomas A., 2004, *Leveraging Private Expertise for Humanitarian Supply Chains*. *Forced Migration Review*, 21, 122-144.
- Thomas A. and Kopczak L., 2005, *From Logistics to Supply Chain Management: The Path forward in the Humanitarian Sector*, San Francisco: Fritz Institute, 24.
- Thomas A. and Mizushima M., 2005, *Logistics Training: Necessity or Luxury?* *Forced Migration Review*, 22, 60-61.
- Tomasini R. M. and van Wassenhove L. N., 2009, *From preparedness to partnerships: Case study on humanitarian logistics*. *International Transactions in Operational Research*, 16, 549-559.
<https://doi.org/10.1111/j.1475-3995.2009.00697.x>
- Wankmüller C. and Reiner G., 2021, *Identifying Challenges and Improvement Approaches for More Efficient Procurement Coordination in Relief Supply Chains*. *Sustainability*, 13, 2204.
<https://doi.org/10.3390/su13042204>
- van Wassenhove L. N., 2006, *Humanitarian Aid Logistics: Supply Chain Management in High Gear*. *Journal of the Operational Research Society*, 57 (5), 475-489.
<https://doi.org/10.1057/palgrave.jors.2602125>
- Williamson O., 2008, *Outsourcing: Transaction Cost Economics and Supply Chain Management*. *Journal of Supply Chain Management*, 44.
<https://doi.org/10.1111/j.1745-493X.2008.00051.x>

Witkowski J., 2015, Logistyka w warunkach kryzysu ekonomicznego i w innych sytuacjach kryzysowych [Logistics in economic crisis and urgent crisis situation]. Prace Naukowe UEW nr 382: Strategie i logistyka w warunkach kryzysu [Strategy and Logistics in crisis situations], Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu. <http://dx.doi.org/10.15611/pn.2015.382.12>

Witkowski J., 2020, Dzieje logistyki – od wspierania przemocy do doskonalenia jakości życia [History of Logistics – from supporting violence to improving competitiveness and quality of life]. Wrocław: Wydawnictwo Uniwersytetu Ekonomicznego we Wrocławiu.

Witkowski J. and Baraniecka A., eds., 2018, *Japanese Supply Chain, Management and Development in Europe*, Warsaw: PWE, 12

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