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## PECULIARITIES AND THREATS OF MANAGING HUMANITARIAN SUPPLY CHAINS UNDER MARTIAL LAW

**Lesia Kostiuchenko, Oleh Harmash. «Peculiarities and threats of managing humanitarian supply chains under martial law».** *The logistics of humanitarian cargo under martial law is definitely new for Ukraine. As a result, many business representatives rallied in a single cluster with the aim of organizing the supply of humanitarian aid in extremely difficult conditions. At the same time, logisticians have faced many significant problems and challenges, which has caused an increase in attention to humanitarian logistics.*

*The military aggression of the Russian Federation created a large number of humanitarian threats, in particular ecocide. The scale of the destruction exceeded the worst forecasts of world experts. An important factor in the organization of humanitarian supply chain management processes in the conditions of this war is the high threat to people's lives. Due to the fact that air transport is not possible for obvious reasons, all deliveries are long and at high risk of disruption or physical destruction. Therefore, it is critically important to analyze the peculiarities of the organization of humanitarian supply chains, the main problems and challenges that logistics companies of Ukraine had to face in the conditions of martial law. It is important to perform such an analysis in order to take into account the specifics of the structure of the logistics system of humanitarian aid delivery, as well as the efficiency of its key elements. The search for solutions to establish a regular supply of humanitarian aid to Ukrainians in difficult war conditions requires a thorough analysis not only of supply channels, but also of possible threats to their organization.*

**Keywords:** humanitarian logistics, humanitarian chains, supply of humanitarian aid, supply management under martial law, humanitarian threats.

**Леся Костюченко, Олег Гармаш. «Особливості та загрози управління гуманітарними ланцюгами постачання в умовах воєнного стану».** *Логістика гуманітарних вантажів в умовах воєнного стану безперечно є новим для України. За таких умов багато представників бізнесу згуртувалися в єдиний кластер спрямований на організацію постачання гуманітарної допомоги у*

надскладних умовах. Водночас логісти зіткнулися з безліччю вагомих проблем та викликів, що спричинило зростання уваги до гуманітарної логістики.

Військова агресія РФ породила велику кількість гуманітарних загроз, зокрема екоцидів. Масштаби руйнувань перевершили найжахливіші прогнози світових експертів. Вагомим чинником організації процесів управління гуманітарними ланцюгами постачання в умовах цієї війни є висока загроза життю людей. З огляду на те, що авіаційне сполучення із зрозумілих причин є неможливим, усі поставки є тривалими і з високим ризиком зриву або фізичного знищення. Тому критично важливо проаналізувати особливості організації гуманітарних ланцюгів поставок, основних проблем і викликів, з якими довелося зіткнутися логістичним компаніям України в умовах воєнного стану. Такий аналіз важливо виконати у розрізі врахування специфіки структури логістичної системи постачання гуманітарної допомоги, а також ефективності роботи її ключових елементів. Пошук рішень щодо налагодження регулярного постачання гуманітарної допомоги українцям у складних умовах війни потребує ґрунтовного аналізу не лише каналів постачання, але і можливих загроз для їхньої організації.

**Ключові слова:** гуманітарна логістика, гуманітарні ланцюги, постачання гуманітарної допомоги, управління постачанням в умовах воєнного стану, гуманітарні загрози.

**Леся Костюченко, Олег Гармаш. «Особенности и угрозы управления гуманитарными цепями снабжения в условиях военного положения».** Логистика гуманитарных грузов в условиях военного положения, безусловно, является новой для Украины. В таких условиях многие представители бизнеса сплотились в единый кластер, направленный на организацию поставки гуманитарной помощи в сверхсложных условиях. В то же время логисты столкнулись с множеством значительных проблем и вызовов, что привело к росту внимания к гуманитарной логистике.

Военная агрессия РФ породила большое количество гуманитарных угроз, в том числе эцидиров. Масштабы разрушений превзошли самые ужасающие прогнозы мировых экспертов. Весомым фактором организации процессов управления гуманитарными цепями снабжения в условиях этой войны является высокая угроза жизни людей. Учитывая, что авиационное сообщение по понятным причинам невозможно, все поставки являются длительными и с высоким риском срыва или физического уничтожения. Поэтому важно проанализировать особенности организации гуманитарных цепей поставок, основных проблем и вызовов, с которыми пришлось столкнуться логистическим компаниям Украины в условиях военного положения. Такой анализ важно выполнить в учете специфики структуры логистической системы снабжения гуманитарной помощи, а также эффективности работы ее ключевых элементов. Поиск решений по налаживанию регулярной поставки гуманитарной помощи украинцам в сложных условиях войны требует тщательного анализа не только каналов поставки, но и возможных угроз для их организации.

**Ключевые слова:** гуманитарная логистика, гуманитарные цепи, поставка гуманитарной помощи, управление поставками в условиях военного положения, гуманитарные угрозы.

**Introduction.** The Russian war in Ukraine completely destroyed the usual understanding of logistics, and the concept of well-established supply chains remained a thing of the past. And since February 24, 2022, the understanding of the organization of humanitarian supply chains has convinced logisticians to review basic decisions regarding the formation of logistical channels

for the supply of humanitarian aid flows. Only in May 2022, Ukrainian ports were unblocked for grain exports, air traffic will remain unavailable until the end of martial law, and ground logistics routes will require regular reconfiguration. The logistics of humanitarian cargo on such a scale is definitely something new for Ukraine, and that is why it is now a priority. As a result of such conditions, many



business representatives rallied in a single cluster aimed at organizing the supply of humanitarian aid in extremely difficult conditions. At the same time, logisticians faced many important problems and challenges.

**Analysis of recent researches and publications.** Researching periodicals [3; 4; 9] based on the experience of modern domestic logistics companies, we will highlight groups of main challenges that have faced the field of humanitarian logistics in Ukraine in recent months.

As research has shown, the first challenge was the urgent need to develop supply chains along new undeveloped routes as new participants, modes of transport, new countries, etc. It is not about a one-time restructuring, but about the ability to constantly respond flexibly to challenges and do everything necessary to ensure that goods are delivered with the highest quality and with minimal risks on the way. In order to gain experience in the successful selection of a batch, it is necessary to take into account the requirements for the transportation of certain groups of goods (for example, food products or medicines), clarify all the necessary nuances and exchange contacts and bring it all to automation, which requires time, which in critical conditions is practically nonexistent.

As indicated in [9], until companies adapted, logisticians had to constantly build work algorithms, which necessarily mixed with continuous coordination and control, in order to create effective supplies, as much as possible in a military environment. Difficulties were also associated with a shortage of transport, limits on the purchase of fuel, the danger of certain routes, and a shortage of warehouses for storing products. These are radically new conditions for all Ukrainian logistics, and therefore it is not easy to adapt to them. During the first half of the war, it became clear which companies managed to adapt to the new conditions and were even able to build a successful operation, despite all the difficulties.

For example, NG Shipping's logisticians can cooperate with public organizations and international missions, consolidate cargo from other countries to Ukraine, and provide logistics consulting services. It was also important for them that potential international partners interested in cooperation in this area should know about the possibility of free delivery of humanitarian aid [4]. Thus, the company managed to find a solution that helped create a new and efficient supply chain: it is about combined transportation by two modes of transport: rail and water. For this purpose, maritime registry documents for 30 empty containers were prepared and allocated, and the containers themselves are loaded onto the platforms and go to the port of Ismail. However, logisticians faced another problem: the port of Ismail has a technical limitation for handling containers. As a result, it was necessary to organize loading according to the direct option – immediately to the ships, after which the containers are sent for loading to the Romanian port of Constanta [9].

The observations made it possible to highlight another feature of the practice of road transportation of humanitarian aid. During the transportation of humanitarian aid through the territory of Ukraine, the driver of the transport company has several documents in his hands: a waybill, a declaration for crossing the border (in the case of transportation from abroad) and two copies of acceptance-handover acts, the reconciliation and signing of which must take place at the stage of unloading aid at the warehouse facilities of the recipient (or customer) of such aid. Thus, the peculiarity of road transportation of humanitarian cargo through the territory of Ukraine in the conditions of martial law is determined, in particular, by the need to pass checkpoints. The procedure for the operation of patrols and checkpoints, the inspection of persons and vehicles is regulated by the Procedure for establishing a special entry and exit regime, restricting the freedom of movement of citizens, foreigners and stateless persons. As



well as the movement of vehicles in Ukraine or in some of its localities, where martial law has been imposed, approved by the Cabinet of Ministers of Ukraine Resolution No. 1455 of 12/29/2021. Therefore, in order to pass checkpoints with humanitarian cargo during the curfew, carriers receive special passes from the military administrations of the region through which the humanitarian cargo will move.

Another problematic stage of humanitarian cargo transportation is the stage of receiving aid by recipients. There is practically no documentary reporting on this stage of humanitarian aid delivery. This is explained by the fact that most often humanitarian aid goes to cities in which active hostilities periodically take place. Shelling of the city often begins or continues during the unloading of rubber aid, so there is a need for quick unloading. In the best case, there is a photo/video report of the process, by which you can roughly calculate the number of unloaded boxes or pallets. Sometimes the recipient on the spot checks the quantity of the goods according to the act of acceptance and transfer or according to other information provided by the sender/donor. [8, p. 72].

**The purpose and objectives of the study.** The analysis of the publications of the above-mentioned authors shows that the views on the essence and content of the organization of humanitarian logistics of practitioners and scientists acquire dynamic changes in the conditions of martial law. However, in the researched sources there is not enough information about the formation of humanitarian chains in the conditions of war. That is why the purpose of this study is to analyze the peculiarities of the organization of humanitarian supply chains, the main problems and challenges that logistics companies of Ukraine had to face in the conditions of martial law. It is important to highlight the elements of the logistical system for the supply of humanitarian aid, as well as the decision to establish the supply of regular aid to Ukrainians under the difficult conditions caused by the war.

**Basic material and results.** The military aggression of the Russian Federation created a large number of humanitarian threats, in particular ecocide. The scale of the destruction exceeded the worst forecasts of world experts. An important factor in the organization of humanitarian supply chain management processes in the conditions of this war is the high threat to people's lives. Due to the fact that air transport is not possible for obvious reasons, all deliveries are long and at high risk of disruption or physical destruction.

The study of the humanitarian situation in Ukraine shows that, in addition to crimes against people, the Russian army also commits crimes against the environment - ecocide, which, in the end, will also affect the quality of life of Ukrainians. Among the damage caused to nature, the following are observed: shelling of oil depots, poisoning of air, water and soil with ammunition, fires, etc. Thus, according to BBC News Ukraine, the Ecodia Public Organization has already recorded more than 200 ecocides [5].

The Minister of Environmental Protection said that Ukraine could become the first country in the world to receive reparations for crimes against the environment. The damage that Russia has caused to nature already amounts to hundreds of billions of hryvnias. Table 1 provides a brief description of the causes of the humanitarian threat of the Russian war in Ukraine and the consequences of ecocide that are already being observed.

As a result of such trends, Ukraine joined the European Life program, which finances projects in the field of ecology and has huge budgets [5]. After all, in addition to economic, infrastructural, humanitarian and social, large-scale environmental changes are being observed, which have an extremely negative impact on the natural environment not only of Ukraine, but of the whole of Europe in general. In addition, the Russian military's seizure of the Zaporizhzhia Nuclear Power Plant (ZNPP) creates a potential radioactive threat to all of Europe. According to ecologists, in the event of an explosion, the

area of the potential exclusion zone will be up to 30,000 km<sup>2</sup>. For example, according to the State Environmental Inspection [10]:

– more than 180,000 m<sup>2</sup> of soil is contaminated with harmful substances;

Table 1. Causes and threats of ecocide as a result of the Russian war in Ukraine

Cause of humanitarian threat	Threatening actions / ecocide and their consequences
Radiation	The threat of a nuclear disaster arose from the first days of the war, when the Russians occupied the Chernobyl nuclear power plant. The Zaporizhzhia NPP is still under their control, at the beginning of March the occupiers shelled power units and detonated ammunition. Three missiles were launched over the South Ukrainian NPP, the threat of hitting the nuclear reactor was high. The possibility of using nuclear weapons also remains
Forest fires	Forests are burning due to hostilities. The fire may not be extinguished if the area is occupied. During the clashes in the Kyiv region, the Chernobyl forests were burning, and Kyiv was at the forefront of air pollution
Fires at enterprises	Russians attack oil depots. According to the calculations of ecologists, during the burning of oil at a base with several tanks, approximately the same amount of atmospheric pollution is released as the entire transport of Kyiv produces in a month. Shells hitting chemical plants, such as those in Rubizhny in Luhansk Region or Sumy, led to leaks of nitrogen and ammonia.
Bombs and missiles	During the explosion of a bomb or rocket, chemicals are released into the air. And munitions fragments fall into the ground, poisoning groundwater
Destroyed equipment	Thousands of Russian tanks and armored vehicles pollute the ground with fuel and lubricants. This is carcinogenic waste that poisons the environment with heavy metals that enter the soil and groundwater. In the areas of active hostilities, the quality of drinking water in wells has significantly deteriorated. In addition, all this scrap metal should be processed, while there was a problem with waste in Ukraine before the war.
Flooding of mines	Due to intense shelling, it is not possible to pump out the water in the mines. Yes, the pumps in three mines of the Luhansk region are not working. "Mining water" with heavy metals and salts from mining rocks enters the underground water.
Mines and ammunition remnants	Ukraine is now one of the most mined countries in the world. The consequences of this will have to be overcome for years, if not decades. After all, shells and mines from the Second World War are still being found.
Water pollution and desertification	Even before the war, water shortages were felt in the eastern and southern regions lying in the basin of the Siverskyi Donets river, the Southern Bug river, in the Azov region and the Crimea. Shelling of treatment facilities, such as in Vasylykiv, destruction of water mains and other water infrastructure, inability to quickly repair it, will affect the quality and volume of water.
Destruction of reserves	About 200 territories of the lands of the Emerald Network — a zone that protects the brown bear, black stork, and lynx — are under threat of destruction. The reserve "Askania-Nova" is under occupation. The administration has to purchase feed and maintain the park at its own expense.
Disturbed soil and burned forests	Disturbed soil and burned forests are quickly overgrown with alien invasive species. Unexploded ordnance and mines pose a particular danger to wild animals. A significant threat to rare species of animals is the destruction or change of their habitats and migration corridors. At the same time, hostilities take place in the most sensitive period of the year, when animals are looking for a mate, food and bring young.
Mining of the Black Sea	The Russian military has mined part of its water area, is firing powerful projectiles from surface and submarine boats. Recently, dead dolphins were found on the shore of the national natural park "Tuzlivski lymani" in the Odesa region - they may have died because they lost their orientation by echo signals. The Russian military uses sonar at a high decibel level, which damages the dolphins' hearing.
Impossibility of restoration of natural resources	Environmentalists warn of the risk of maximizing the use of natural resources for post-war reconstruction. For example, to prevent famine, natural areas will be plowed. Emissions may increase due to the production of construction materials. Part of the natural territories can be given over to development for the restoration of settlements. New landfills from the remains of destroyed buildings and "technique cemeteries" have already appeared.

*Source: developed by the author on the basis of [5]*

- more than 2 million m<sup>2</sup> of land is littered with the remains of destroyed objects and ammunition;
- more than 680,000 tons of petroleum products were burned during the shelling, which led to significant air pollution;
- more than 23,000 hectares of forest were burned by rockets or projectiles; it will take at least 10 years to restore part of the forest areas;
- at least 50 thousand dolphins died in the waters of the Black Sea;
- more than 6 million domestic animals died;
- possible destruction of hundreds of thousands or even millions of wild animals.

The threats described above justify the increase in the scope of the supply of humanitarian aid throughout the territory of Ukraine. Humanitarian flows are organized mostly after emergency situations and humanitarian crises and are primarily aimed at saving lives, alleviating suffering, helping people with dignity to overcome difficult circumstances, preventing the emergence or

spread of epidemics, etc. Accordingly, the main tasks of humanitarian aid are [8]:

- 1) saving human life;
- 2) provision of assistance to meet basic human needs (water, food, accommodation);
- 3) provision of basic hygiene and medical care.

As of February 2022, it was expected that 2.9 million people would need help due to the war in Donbas alone. Of these, 1.1 million are residents of the Ukrainian-controlled territories of Donetsk and Luhansk regions, including 133,000 internally displaced persons, and another 160,000 internally displaced persons in the rest of Ukraine's regions. Spectrally, the needs of internally displaced persons are distributed in such a way that protection, water, sanitation and hygiene require the most funding (2.5 million hryvnias each); in second place health care and food security (1.5 million and 1.1 million, respectively), followed by education (252 thousand UAH) and housing and non-food products (158 thousand UAH) – see Fig. 1 [8].

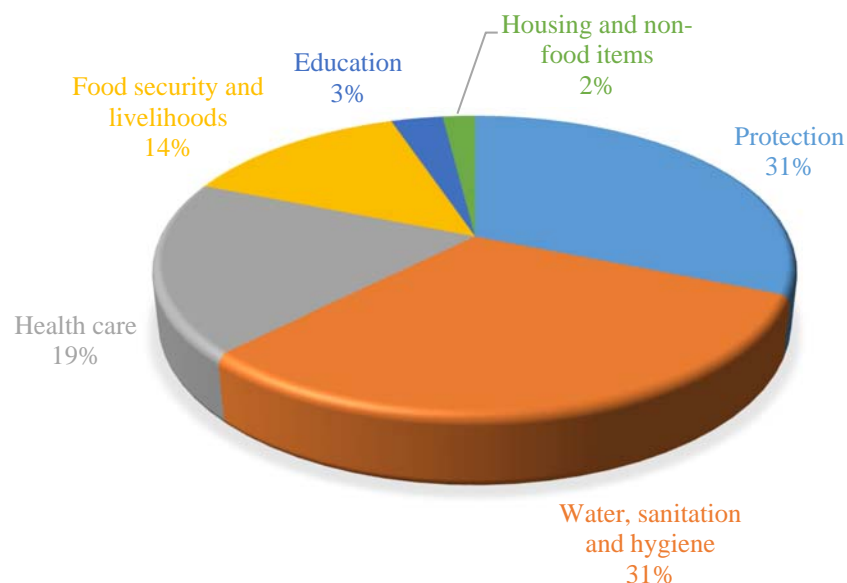


Figure 1 – The structure of financing assistance to internally displaced persons on the territory of Ukraine

*Source: developed by the author on the basis of [8]*

In general, the systemic problems of the functioning of the humanitarian assistance mechanism include the following [8]:

- imperfect regulatory regulation;
- there is no clear understanding of the list of authorities responsible for providing humanitarian aid to the civilian population, their roles, coordination, interaction
- an imperfect mechanism for determining humanitarian aid needs
- lack of coordination between authorities and international humanitarian organizations (the higher the level of authorities, the higher the risk of ineffective coordination);

- insufficient communication between local authorities and the population;
- lack of mechanisms of effective state control over the supply, distribution, accounting and use of humanitarian aid, which, in particular, is due to the lack of;
- ineffective work of local authorities at the "last mile" stage;
- multiple initiatives to implement IT tools for coordination of humanitarian assistance processes.

The analysis of the humanitarian aid flows delivered to Ukraine makes it possible to carry out such a conditional division into the main types of humanitarian aid [8] (see Table 2).

Table 2. Types of humanitarian aid

Criterion	Group	Subject
Military humanitarian aid	equipment, machinery, equipment, etc	Military units
Medical humanitarian aid	Medicines, equipment, machinery, equipment, etc.	Units of both civilian and military medicine
Humanitarian aid to the civilian population	Food needs - food, hygiene products, clothes and shoes, sanitation, household goods, etc.	Individual individuals, communities, etc.
Fuel	Resources for both military and civil defense needs	All of the above
Humanitarian aid by the source of its receipt	external – provided by foreign donors, domestic – provided by domestic donors	Foreign or domestic donors

*Source: developed by the author on the basis of [8]*

While the information regarding the provision of humanitarian aid of the second, third and fourth categories (see Table 1) is available and can be analyzed based on the results of the study of regulatory regulations and reports of individual authorized subjects regarding their provision of humanitarian aid within the scope of competence, information on military humanitarian aid mostly belongs to information with limited access and is not available in open sources.

The following elements form the system of providing humanitarian aid in the conditions of martial law [8, p. 23-24]:

- humanitarian help;
- recipients of aid (natural persons, legal entities defined by law);
- recipients of humanitarian aid;

- donors (international and Ukrainian);
- state bodies that perform the function of coordination and control;
- carriers of humanitarian aid;
- logistics hubs and warehouses;
- tools (special accounts, private accounts for collecting financial assistance, IT solutions and initiatives);
- system operation rules, both regulated by normative acts and informally implemented;
- connections between system elements.

Determining the constituent elements of the system is important for understanding the processes and cycles of humanitarian aid implementation by the relevant entities. Thus, if some subjects are characterized by the

formation of a full cycle of providing humanitarian aid, which begins with the collection of needs from recipients of humanitarian aid and ends with the receipt of such aid by the recipients, for others only certain functions (or operations) are inherent, such as coordination and control at various stages cycle of implementation of humanitarian aid.

The Law of Ukraine "On Humanitarian Aid" defines specially authorized state bodies in the field of humanitarian aid, whose powers include, in particular, control over the receipt, distribution, use according to the intended purpose, preparation of statistical reports, accounting of humanitarian aid. There is defines the subjects of providing humanitarian aid In Art. 4 of the Law of Ukraine "On Humanitarian Aid" [3]:

- the central body of the executive power, which implements the state policy in the field of social protection of the population;
- Council of Ministers of the Autonomous Republic of Crimea;
- regional, Kyiv and Sevastopol city state administrations.

At the same time, the Decree of the President of Ukraine "On the Formation of Military Administrations" dated 24.02.2022 No. 68/2022 in implementation of the Law of Ukraine "On the Legal Regime of Martial Law" established 25 military administrations, respectively regional, Kyiv city state administrations [8, p. 57].

In connection with the need to quickly coordinate the key processes of receiving humanitarian aid, the circle of subjects has actually changed and is now characterized by a plurality of such subjects that play different, often duplicative roles in the process of providing humanitarian aid. For the most part, each of the analyzed entities has established its own internal processes for collecting, processing and analyzing needs and ways of responding to them. At the same time, a low level of inter-institutional coordination is observed [8, p. 26]. In particular, the vast majority of processes that

are implemented at the level of coordination headquarters, ministries for the purpose of collecting and analyzing needs, finding donors and ensuring that humanitarian aid needs are met are not connected to each other and take place in parallel. Each body (entity) acts within the limits of competence assigned to it or according to the principle "I can do it", while the separation of powers is not always obvious. As a result, on March 2, 2022, the Decree of the President of Ukraine No. 93/2022 "On coordination of measures to resolve humanitarian and social issues" was adopted, which established the Coordination Headquarters for Humanitarian and Social Issues (Coordinating Headquarters) under the chairmanship of the Head of the Office of the President of Ukraine, which included individual officials of the Office of the President of Ukraine and representatives of individual ministries:

- Deputy Head of the President's Office for Social Policy and Health Care;
- Vice Prime Minister for European and Euro-Atlantic Integration;
- one representative each from the Ministry of Foreign Affairs, the Ministry of Defense, the Ministry of Health and the Ministry of Social Policy.

According to the Presidential Decree, the Government is instructed to establish cooperation with diplomatic missions and consular institutions of foreign countries, international organizations, and foreign donors regarding the provision of humanitarian aid to Ukraine. The National Bank was recommended to open a special account for the purpose of collecting funds for the provision of humanitarian aid to the Ukrainian population [8, p. 28]. The coordination headquarters works in three directions:

1) Involvement of humanitarian aid through the European Civil Protection Mechanism, NATO Disaster Response Coordination Headquarters, involvement of humanitarian aid on a bilateral level from the governments of foreign countries and international organizations (Cooperation with



Caritas and the international technical assistance project "Supporting Governmental Reforms in Ukraine" has been established (SURGe) performed by Alinea International Ltd with support from the Government of Canada, UNICEF, Doctors Without Borders);

2) help from big business to military administrations and communities (help comes from business – companies Teva, Bayer, Novo Nordisk, Pfizer, Nestle, Medtronic,

Sanofi, Eric, "Biopharma", Stada, "Farmak", Galexis (Switzerland), Rinat Akhmetov's Fund, Ernst von Bergmann clinic (Germany);

3) assistance from authorities to military administrations and communities.

Based on the researched material, you can build a diagram of the structure of the management of humanitarian supply chains in Ukraine under martial law conditions - fig. 2.

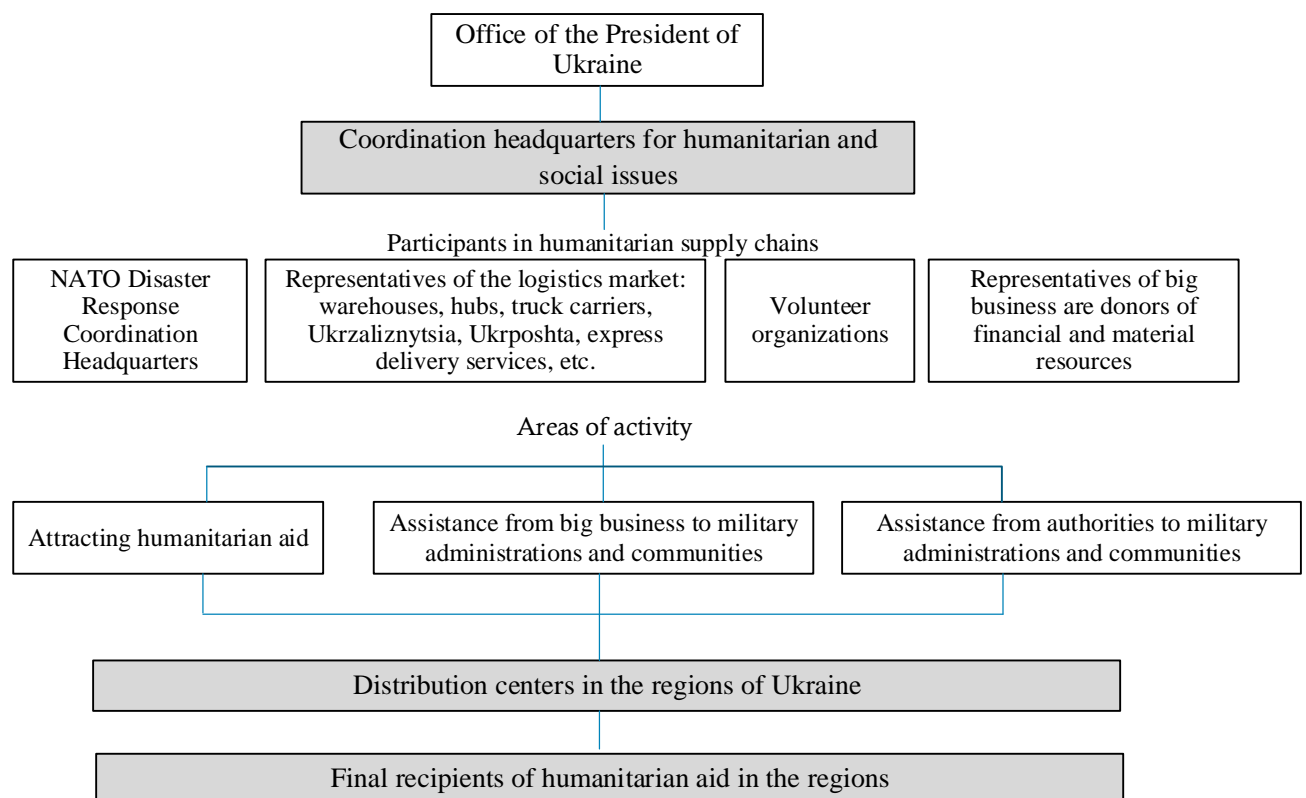


Figure 2 – Scheme of the structure of the management of humanitarian supply chains in Ukraine under martial law

Source: developed by the author on the basis of [8]

Thus, in accordance with the legislation, the military administrations are entrusted with two key tasks for providing humanitarian aid on the "last mile" segment: first, collecting needs and formulating proposals for humanitarian needs based on the needs of ensuring the region's vital activities; secondly, the distribution of humanitarian aid received as a result of consideration of submitted proposals among other recipients and final recipients. As practice shows, the volume of demand comes from:

- territorial communities (which independently collect needs on the ground),
- district state administrations,
- local structural divisions of the Emergency Situations Service,
- individual individuals who apply for assistance,
- executive committees of local self-government bodies,
- social protection authorities (which collect the needs of displaced persons during their registration).



The method of collecting needs, which would be based, in particular, on the norms of provision based on one person, and would allow forecasting needs for the future, is mostly not implemented and not applied. Military administrations do not have clear instructions on the mechanism for collecting needs in territorial communities. The Office of the President of Ukraine instructed the regional and Kyiv city military administrations to record the collected needs of the regions for humanitarian aid on the portal of the State System of Humanitarian Aid ([human.help.gov.ua](http://human.help.gov.ua)). Territorial communities (local self-government bodies) do not have access to the system, the need for humanitarian aid is recorded in a self-determined manner, in particular with the help of technical online tools. The criteria for prioritizing the distribution of humanitarian aid also differ. So, first of all, the needs of the communities of those regions that suffer from active hostilities, or whose settlements are or were under temporary occupation, are met. Other regions prioritize the humanitarian needs of registered displaced persons who are in the territories of the oblast's communities. To account for the receipt and

distribution of humanitarian aid, the following approach has been introduced [8, p. 58]: firstly, the accounting of receipts, shipments and balances of humanitarian aid in wholesale transit warehouses belonging to the jurisdiction of regional military administrations is carried out in the specified warehouse accounting system; then – relevant statistical data are transferred to the portal of the State Humanitarian Aid System ([human.help.gov.ua](http://human.help.gov.ua)).

It is worth noting that as of the fall of 2022, the powers of the members of the Coordination Staff, the procedure for their implementation, interaction, and responsibility have not been determined by law. In particular, the legislation of Ukraine regulates only certain issues of providing, under the coordination of the Coordination Headquarters, international humanitarian aid and the transportation of humanitarian goods by railway transport of JSC "Ukrzaliznytsia". Algorithm for providing international humanitarian aid transported by rail transport under the coordination of the Coordination Headquarters at the Office of the President of Ukraine [8, p. 65-66] (see Table 3).

Table 3. Algorithm of actions regarding the provision of international humanitarian aid transported by railway transport of Ukraine

Stage	Subject	Action	Notes
I	Recipients of humanitarian aid (regional, Kyiv city military administrations (hereinafter - military administrations) or other subjects determined by the CMU	Formation of the need for humanitarian aid	The volumes are based on the real need to ensure the vital activities of the region and on the results of consultations with the advisory and auxiliary bodies of the President of Ukraine (with the consent) and/or the relevant government representative as needed
II	Coordination headquarters	Centralized collection of needs at the level of military administrations and through the Ministry of Foreign Affairs - other entities determined by the CMU	Other subjects are mainly central bodies of the executive power (MoH, Ministry of Urban Policy, Ministry of Energy and Coal Industry of Ukraine and other subjects

Continuation of the table 3.

III	Coordination headquarters	Assessment of declared needs of military administrations	The needs collected by the Ministry of Foreign Affairs from other ministries and central executive bodies are not evaluated. Confirmed needs of military administrations and needs of ministries and other central executive bodies are transferred to Ukrainian embassies abroad mainly through the Ministry of Foreign Affairs
IV	Embassies of Ukraine abroad	Ensuring the search for sources of humanitarian aid, donors of humanitarian aid	Performed in accordance with the needs expressed by the authorities
V	Donors wishing to provide humanitarian aid	Appeals to logistics hubs, which are formed on the basis of state institutions of other countries, process information about what humanitarian aid donors want to provide, compare it with applications received from the Ministry of Foreign Affairs, and confirm or not confirm a specific type of aid to the donor.	In Poland - Government Agency of Strategic Reserves of Poland - RARS, in Slovakia - Ministry of Internal Affairs of Slovakia - RARS, Ministry of Internal Affairs of Slovakia. In the case of confirmation of the provision of humanitarian aid, donors are provided with information on authorized warehouses for the shipment of aid, as well as instructions for its packaging.
VI	Partners are participants in humanitarian supply chains	Humanitarian aid is loaded from authorized warehouses by consignors who take humanitarian cargo to the border docking station, where the aid is handed over to the Ukrainian railway carrier - JSC "Ukrzaliznytsia"	On the territory of Poland - RARS; on the territory of Slovakia - the Ministry of Internal Affairs of Slovakia - railway transportation to the wagons of carriers on the territory of Poland is provided by LHS; on the territory of Slovakia - ZSSK.
VII	State Customs Service	Passage of humanitarian aid through the customs border of Ukraine	
VIII	Regional military administrations (on the basis of the decision of the Coordination Headquarters), other recipients determined by the CMU	Forming an application for the transportation of humanitarian goods in the form specified by JSC "Ukrzaliznytsia"	It is implemented through the online humanitarian aid logistics management platform
IX	Partners – participants in humanitarian supply chains (after confirmation in the online platform)	Loading wagons of JSC "Ukrzaliznytsia" with humanitarian cargo, taking into account the volume and general specification of the cargo, preliminary applications of military administrations, the forecast of needs, as well as the remains of humanitarian aid in warehouses,	The coordination headquarters makes decisions regarding the priority and volume of distribution of humanitarian aid between regional military administrations and other recipients. Donors who ensure the sending of humanitarian aid do not receive or see applications. The wagons are loaded on the basis of an informal decision of the coordination headquarters, which is later verified by the application of the recipient of humanitarian aid.

End of the table 3

Xa	JSC "Ukrzaliznytsia"	Ensuring the delivery of humanitarian aid through the territory of Ukraine to the address of the confirmed recipient to the specified station of destination, where humanitarian aid is received or transferred to authorized road carriers by military administrations (subject to combined transportation)	If the senders in the accompanying documents (rail waybills) indicate the recipient of humanitarian aid (regional military administrations, other subjects determined by the CMU) and in the online platform the military administration or another recipient confirms their application for humanitarian aid loaded into specific wagons
Xb	JSC "Ukrzaliznytsia"	Technical receipt of humanitarian cargo and its delivery and storage at sorting authorized (transit) warehouses	If at the time of cargo transfer to JSC "Ukrzaliznytsia" the recipient of humanitarian aid has not been determined and the application in the online platform has not been confirmed
Xc	JSC "Ukrzaliznytsia"	Acceptance of humanitarian aid at authorized sorting (transit) warehouses on the territory of Ukraine.	If the donors themselves deliver by road transport
XI	JSC "Ukrzaliznytsia"	Delivery of humanitarian aid from the sorting authorized (transit) warehouse to the destination station specified in the application, where humanitarian aid is received or transferred to road carriers authorized by military administrations (in the case of combined transportation)	After receiving an application in the online platform from the military administration or another designated recipient of the Cabinet of Ministers of Ukraine (CMU)
XII	Distribution centers in the regions of Ukraine	Humanitarian aid is distributed by the recipient among aid recipients in the region.	Also, humanitarian aid can be redirected from the logistics warehouses of one recipient to another by both rail and road transport - humanitarian convoys (for example, from the military administration of the western region to military administrations in other regions of the country).
XIII	Distribution centers in the regions of Ukraine or final buyers	Distribution among final purchasers	
XIV	Recipient of humanitarian aid	Collection of feedback and needs among recipients of humanitarian aid and reports on receipt and distribution of humanitarian aid among recipients	

Source: developed by the author on the basis of [8, p. 65-66]

Thus, as the above list of operations shows, JSC "Ukrzaliznytsia" organized the operation of an online platform for registration and processing of applications of

recipients of humanitarian aid. Based on the processed data, you can determine the main elements of the logistics system of JSC

"Ukrzaliznytsia" for the delivery of humanitarian aid (see Table 4).

During the period of martial law, in accordance with the resolution of the Cabinet of Ministers of Ukraine dated 17.03.2022 No. 305 "On the peculiarities of the work of JSC "Ukrposhta" in the conditions of martial law", JSC "Ukrzaliznytsia" is assigned the task of delivering humanitarian aid (if there is a technical possibility) and carrying out free transportation of food products and packaging products for their packaging for free distribution to the population in accordance with the list formed by the

Ministry of Economy in accordance with the procedure established by JSC "Ukrposhta". Usually, for the transportation of humanitarian aid, in addition to JSC "Ukrzaliznytsia", military and state administrations use vehicles that are on their balance sheet and vehicles of third parties. At the same time, these processes have no special legal regulation. Also, the resources of entities to which aid is redistributed, volunteer organizations and logistics facilities of JSC "Ukrposhta" and "Nova Poshta" LLC are involved in transportation.

Table 4. Elements of the logistics system of JSC "Ukrzaliznytsia" for the delivery of humanitarian aid

Elements of coordination.	Elements of logistics operations.	Types of flows of humanitarian aid
Coordination center	Expedition system	Aid that is centrally delivered by donors through the state institutions of Poland and Slovakia
Online platform for registration and processing of applications of humanitarian aid recipients	Transport system	Aid that crosses the border of Ukraine and is unloaded at the sorting warehouses of JSC "Ukrzaliznytsia" without specifying the recipient in the accompanying documents (JSC "Ukrzaliznytsia" is the technical recipient of the cargo and waits for an application in the online system)
CRM system	Warehouse system	Aid transported on the basis of private-law transportation contracts at the tariffs of JSC "Ukrzaliznytsia"
Coordination center	Expedition system	Aid transported under contracts concluded with JSC "Ukrposhta"

Source: developed by the author on the basis of [5; 8]

"Nova poshta" LLC is one of the founders of the Help initiative. Ukraine.Centre and provides transportation of humanitarian aid from abroad and through the territory of Ukraine. "Meest Express" LLC organized the reception of humanitarian aid at a warehouse in Poland and ensures the delivery of humanitarian aid to the Lviv Regional Military Administration [7]. Regarding other carriers, according to Ukrtransbezpeka, in the period from 02/24/2022 to 04/19/2022, 342 vehicles of third parties were engaged by it to carry out measures for the transportation of humanitarian aid cargoes. Private cars, cars of volunteer initiatives, charitable/public/religious organizations and foundations are also involved in the transportation of humanitarian aid.

One of the elements of the humanitarian assistance system is the system of logistics

centers and warehouses as well. To ensure the collection, sorting and dispatch of humanitarian aid from abroad by partner countries, the activity of logistics centers coordinated by the embassies of Ukraine abroad is organized (in particular, on the basis of the Government Agency of Strategic Reserves of Poland, the Ministry of Internal Affairs of Slovakia, the State Emergency Service of Romania). The activities of logistics hubs abroad are also organized by numerous private business initiatives (for example, the logistics hub of the Help.Ukraine.Centre initiative opened hubs in Poland and Romania).

Numerous logistics hubs and warehouse centers have been established on the territory of Ukraine to ensure the reception, sorting, transit, and distribution of humanitarian aid at the initiative of ministries, central executive

authorities, military administrations, local self-government bodies, and other state bodies. These hubs operate on the basis of state, communal and private property. Warehouses (hubs) for the first unloading of goods are allocated. As a rule, they operate on the border territory of the rear, safe regions (these are hubs in the Lviv, Volyn, Zakarpattia, Chernivtsi regions, as well as hubs in the Odesa region), as well as other transit and receiving warehouses humanitarian cargo at military administrations, local self-government bodies, in territorial communities. Among the important aspects of the work of logistics centers and warehouses, which should be paid attention to in the context of ensuring transparent and effective humanitarian aid, are the issues of control over the delivery of aid specifically to authorized warehouses, access to warehouses, and control over the organization of their activities [8, p. 70].

Resolution of the CMU dated 03.05.2022 No. 528 regulates the algorithm for providing humanitarian aid in the form of food products and sanitary and hygienic products and products for their packaging in the following sequence [8, p. 43-44]:

I. Recipients (regional, Kyiv city military administrations (hereinafter referred to as military administrations) are customers and form proposals for the needs of goods in accordance with the list of administrative-territorial units on the territory of which assistance is provided within the framework of the "e-Support" Program.

II. Recipients submit an application to the Ministry of Economy indicating the list, quantity (volume) and place of delivery of goods, taking into account the number of the population that needs to be supplied with goods.

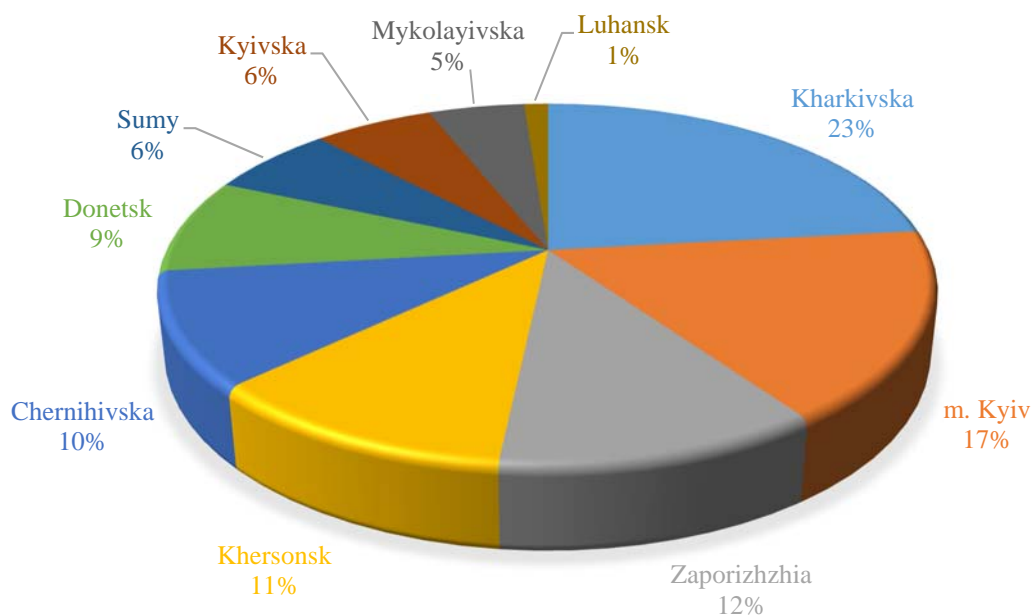


Figure 3. The structure of providing humanitarian aid in the form of food products by region  
*Source: developed by the author on the basis of [6]*

III. The Ministry of Economy compiles the volume of the necessary purchase of food and sanitary hygiene products and packaging products for their packaging. Based on this, the amount of subvention from the state

budget to local budgets for the relevant purchase is determined.

IV. The Ministry of Infrastructure is the administrator of the subvention and provides it to JSC "Ukrzaliznytsia" by making a transfer to an account in a state bank. JSC



"Ukrzaliznytsia" acts as a payer in tripartite agreements on the purchase of goods, works or services, the customer of which is the regional and Kyiv city military administrations.

V. JSC "Ukrzaliznytsia", JSC "Ukrposhta" and other involved logistics companies deliver goods to the warehouses of military administrations, which ensure the issuance of sets of goods, on a free basis.

VI. Each military administration, on the basis of the procedure approved by it for the free distribution of food and sanitary-hygienic goods to the population, ensures their distribution to the population with its own resources.

According to the report of the Coordination Headquarters dated April 16, 2022, 9 regions of Ukraine and the city of Kyiv received food kits in this ratio (see Fig. 3) [8, p. 45].

According to the First Vice Prime Minister of Ukraine - Minister of Economy Yulia Svyrydenko, 5 billion hryvnias have been allocated for the implementation of the program by mid-April 2022 [6]. By the way, the criteria for the distribution of sets of goods and the procedure for issuing them to the population by the military administrations are not made public.

Another function assigned to the Ministry of Economy from February 26, 2022 was to coordinate the distribution of fuel at gas stations for the needs of the Armed Forces of Ukraine and civil protection of the population. Resolution No. 238 of the Cabinet of Ministers of Ukraine dated 09.03.2022 "Some issues of recognition of goods as humanitarian aid and their use under martial law" established that: firstly, during the period of martial law, a group of such goods as mineral fuel, oil and its distillation products, bituminous substances, mineral waxes; secondly, necessary for the implementation of measures to ensure national security and defense in connection with the military aggression of the Russian Federation against Ukraine and civil protection of the population, are recognized as humanitarian aid. The recipients of such

humanitarian aid are the Ministry of Economy, the State Reserve, state enterprises, institutions, and organizations. The Ministry of Economy of Ukraine, the State Reserve, state enterprises, institutions, and organizations are instructed to provide such humanitarian aid directly to national networks of gas stations both for the purposes of national security and defense, as well as to ensure livelihoods and civil protection of the population, on a free basis. It is stipulated that humanitarian aid is provided free of charge to the Armed Forces of Ukraine, military formations, carriers of humanitarian aid and other organizations, the list of which is approved by the Ministry of Economy of Ukraine, within the limits of the needs determined by them [8, p. 46].

Humanitarian aid needs for the Armed Forces are also collected and provided at the expense of [8, p. 49]:

- international military assistance, the provision of which is coordinated both by the state at the highest level (represented by the President of Ukraine, members of the Cabinet of Ministers of Ukraine, the Ministry of Defense, the Ministry of Internal Affairs, the State Emergency Service, the Ministry of Foreign Affairs) and separately by military-civilian administrations (to which information about needs is also received);

- aid provided in the form of necessary goods by domestic donors;

- assistance provided by volunteer initiatives, charitable and public organizations through fundraising and procurement from foreign and domestic partners (public-private partnership).

Since February 24, 2022, the procedure for the passage of humanitarian aid through the customs border of Ukraine, in particular, for the needs of the Armed Forces of Ukraine, has been repeatedly changed with the aim of simplifying formal procedures, speeding up its delivery to the end user and eliminating certain corruption risks. Currently, the main act regulating the passage of humanitarian aid for the Armed Forces of Ukraine into the customs territory of Ukraine is the Resolution



of the Cabinet of Ministers of Ukraine dated 01.03.2022 No. 174 "Some issues of the passage of humanitarian aid through the customs border of Ukraine under martial law" (with changes; the latest edition of 05/26/2022). In accordance with this resolution, 4 categories of goods are distinguished, which according to their purpose can be characterized as assistance to the armed forces, that is, goods necessary for the implementation of measures to ensure national security and defense in connection with the military aggression of the Russian Federation against Ukraine and civil protection of the population [8, p. 50].

Health interacts with the largest volunteer initiatives in the part of [8, p. 55]:

- informing them about the most priority needs, expected deliveries and verification of the needs of institutions;
- accounting by volunteer teams of medical support and its distribution;
- assistance in attracting resources (if necessary).

Currently, help from partners is provided in several ways [8, p. 55]:

- provision of humanitarian aid in the form of the most necessary medical supplies;
- by transferring funds to a special account, including through the United 24 fundraising platform, which will be used for the purchase of urgent medical needs.

Thus, as studies have shown, thanks to the decisions of logistics companies, today Ukraine is able to receive humanitarian aid from other countries. There is an extremely large number of people willing to help Ukrainians on their way to overcoming the humanitarian crisis. According to [9], today the following are involved in establishing the supply of regular humanitarian aid to Ukrainians:

- European Civil Protection Mechanism (EUCPM),
- NATO Disaster Prevention Coordination Center (EADRCC),
- United Nations Office for the Coordination of Humanitarian Affairs (OCHA),
- WFP (Global Food Program),

- United Nations Children's Fund (UNICEF),
- United Nations Refugee Agency (UNHCR),
- the Population Fund (UNFPA),
- the United Nations Development Program (UNDP),
- the International Committee of the Red Cross (ICRC)
- many other disaster response mechanisms at both international and national levels.

Also, international charitable organizations and foundations, as well as state agencies, such as ISRAID, the national development agency of Italy, etc., are now registering and significantly increasing their presence in Ukraine [9]. However, various sources of information and forums emphasize that such a large number of international supply chains has caused another problem, namely: the receipt of humanitarian aid requires state regulation and often coordination. After all, the establishment of legal and administrative support and logistics of aid from abroad on such a scale with the provision of the necessary transparency. Donors have to feel supported and interested in cooperation from the state, so the president's office has developed a special portal for managing humanitarian aid. Now, in the online mode, needs from the regions are collected, customs declarations are formed, containing defined categories of humanitarian aid and a unique code, which allows you to track the crossing of the Ukrainian border by cargo and simplify the customs clearance procedure. A unified classification of humanitarian aid categories and data exchange between the main logistics hubs are already in the works. All this is intended to make humanitarian aid flows as transparent and manageable as possible.

In some logistics hubs in border countries, such as Romania, there is already a pallet tracking system, which was provided by the ISRAID organization [9]. Thanks to the creation of such a portal, it was possible to achieve the formation of a multi-level system,

and Ukraine demonstrates a decent level of management of international humanitarian aid and increases transparency. State bodies of executive power (ministries and various services) and military-civilian administrations on the ground collect and form a generalized list of needs. This information is regularly disseminated and updated through international response mechanisms and through our embassies to potential donors. This link is coordinated by the Ministry of Foreign Affairs of Ukraine. Next, international partners work out requests on a bilateral level with the embassies of Ukraine. As soon as the Ukrainian side has an offer from the donor, this information is sent to the aid recipient [9].

However, there are still problems that have not yet been resolved, so delivery remains the biggest challenge, especially for aid from such remote areas as Japan, India, Mexico. The issue of monitoring the delivery of aid and the transparency of reporting on distribution needs significant refinement. The low adaptability and extreme bureaucratization of the existing assistance

mechanisms clearly showed the need to reform this direction in Ukraine and in the world. Therefore, it is necessary to provide a clear clearing mechanism and exclude duplication of requests. The absolute unpreparedness of international agencies for a humanitarian disaster on the scale of the country became obvious, as they were used to working with a static problem - fires, floods, etc.

However, today Ukraine is a dynamic disaster that changes its configuration every day and requires a comprehensive approach in order to preserve lives, the functioning of the economy and the protection of cultural heritage. But the only way to solve all these problems is to recognize their existence and consistently seek and implement solutions. So, based on the results of the analysis of different approaches to solving problems in the field of humanitarian logistics, we will distinguish two groups of challenges (see Table 5), as well as ways of solving them or possibilities of elimination and consequences.

Table 5 – Analysis of approaches to solving problems in the field of humanitarian logistics

Challenge	Methods of elimination	Consequences
I The need to establish a flexible supply system capable of flexibly responding to critical conditions	Creation of a new and efficient supply chain by two types of transport (land and water).	Ukraine receives regular humanitarian aid from other countries.
II Establishing legal and administrative support and ensuring the necessary transparency	Creation of a portal for managing humanitarian aid by collecting needs, forming customs declarations online. Implementation of a simplified procedure for customs clearance of rubber cargoes.	Ukraine demonstrates a decent level of international aid management and increases transparency. State bodies of executive power form a generalized list of needs.

*Source: developed by the author*

**Conclusions.** Studies have shown that, along with the solved problems, there are a number of challenges that require thorough solutions, in particular, such as:

- the need to solve the issue of transparency and monitoring of the delivery of humanitarian goods;
- problems with the delivery of rubber aid from such remote areas as Japan, India, Mexico;

- the need to reform the bureaucratic nature of the existing assistance mechanisms due to their low adaptability;

- the need to provide a clear clearing mechanism and exclude duplication of requests in supply mechanisms, etc.

Due to the fact that Ukrainian transport and forwarding companies are involved in the formation of logistics corridors, interaction with Ukrainians becomes safer and more harmonious for international organizations. This minimizes discomfort and risks, so it has

now become much easier for international partners to interact with Ukraine in a logistical sense. Today, everyone who can contribute to the quality delivery of humanitarian goods to Ukraine should support our logistics industry. Every day, Ukrainians need help (medicines, first-aid kits and mobile medical devices, etc.).

And also systems and tablets for water purification to provide drinking water to regions where critical infrastructure has been

destroyed or significantly damaged, as well as special vehicles, means for preserving cultural heritage. The volume of needs, the number of recipients, the regions to which it is necessary to deliver in the first place change every day. Therefore, a quick search for a solution to these challenges will benefit Ukrainians, but the final solution to the problems requires quick innovative solutions.

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