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IMPROVING THE CRISIS MANAGEMENT SYSTEM BASED ON THE EXPERIENCE OF THE 2024 FLOODS IN POLAND

ABSTRACT: The aim of this paper is to present proposals for improving the Polish crisis management system in the context of the experiences of the flood that took place in Poland in 2024. The publication is based on current research and has both cognitive and practical aspects. It touches upon an extremely important issue, namely how to protect human life and health during floods. Research methods: The primary research method was qualitative empirical analysis, conducted using open-ended in-depth interviews. The interviews were conducted with representatives of the management staff of local government administration and district crisis management centres who performed their professional duties during the flood that occurred in September 2024. Empirical analysis was supplemented by a theoretical method consisting of a critical review of the literature on the subject and a method of deductive reasoning. The subject of the research was the forms of support considered crucial in the context of the flood that occurred in Poland in September 2024, as well as a catalogue of problems and challenges revealed during rescue and relief operations. The main objective of research was to formulate proposals for improving the crisis management system in the event of a flood, taking into account the experiences and problems identified during the events of September 2024. The study formulated two main research questions: (1) What were the key problems faced by residents of the areas affected by the floods in September 2024? and (2) What types of assistance should be provided to effectively minimise the negative effects of this event? Main conclusions: The crisis management system should consider regulating the following issues: 1) crisis response training for employees of educational and care facilities where minors are present; 2) precise designation of evacuation sites appropriate to the type and scale of the threat; 3) organization of temporary accommodation and replacement locations for victims; 4) improvements to ensure rapid assessment of damaged buildings and repair assistance; 5) measures aimed at the rapid restoration of infrastructure and sanitary conditions; and 6) an increase in the number of administrative staff commensurate with the scale of the crisis.

KEYWORDS: flood, crisis management, civil protection, public safety, information

DOSKONALENIE SYSTEMU ZARZĄDZANIA KRYZYSOWEGO NA PODSTAWIE DOŚWIADCZEŃ POWODZI W POLSCE Z 2024 R.

ABSTRAKT: Praca ma celu przedstawienie propozycji doskonalenia polskiego systemu zarządzania kryzysowego w kontekście doświadczeń z powodzi, która miała miejsce w Polsce w 2024 r. Publikacja powstała na podstawie aktualnych badań, posiada aspekt poznawczy i praktyczny. Dotyka niezwykle istotnego zagadnienia, to jest sposobu ochrony życia i zdrowia ludzi podczas powodzi. Metody badawcze: Podstawową metodą badawczą była jakościowa analiza empiryczna, przeprowadzona przy użyciu otwartych wywiadów pogłębionych. Wywiady przeprowadzono z przedstawicielami kadry kierowniczej administracji samorządowej i powiatowych centrów zarządzania kryzysowego, którzy pełnili swoje obowiązki służbowe podczas powodzi, która miała miejsce we wrześniu 2024 r. Analizę empiryczną uzupełniono metodą

teoretyczną, polegającą na krytycznym przeglądzie literatury przedmiotu oraz metodą wnioskowania dedukcyjnego. Przedmiotem badań były formy wsparcia uznane za kluczowe w kontekście powodzi, która miała miejsce w Polsce we wrześniu 2024 r., a także katalog problemów i wyzwań ujawnionych podczas akcji ratowniczych i pomocowych. Głównym celem badań było sformułowanie propozycji usprawnienia systemu zarządzania kryzysowego w przypadku powodzi, z uwzględnieniem doświadczeń i problemów zidentyfikowanych podczas wydarzeń z września 2024 r. W badaniu sformułowano dwa główne pytania badawcze: (1) Jakie były kluczowe problemy, z jakimi borykali się mieszkańcy obszarów dotkniętych powodzią we wrześniu 2024 r.? oraz (2) Jakiego rodzaju pomoc należy zapewnić, aby skutecznie zminimalizować negatywne skutki tego zdarzenia? Główne wnioski: System zarządzania kryzysowego powinien uwzględniać regulację następujących kwestii: 1) szkolenia z zakresu reagowania kryzysowego dla pracowników placówek edukacyjnych i opiekuńczych, w których przebywają osoby małoletnie; 2) precyzyjne wyznaczenie miejsc ewakuacyjnych odpowiednich do rodzaju i skali zagrożenia; 3) organizacja tymczasowego zakwaterowania i miejsc zastępczych dla ofiar; 4) usprawnienia zapewniające szybką ocenę uszkodzonych budynków i pomoc w naprawach; 5) środki mające na celu szybkie przywrócenie infrastruktury i warunków sanitarnych; oraz 6) zwiększenie liczby personelu administracyjnego proporcjonalnie do skali kryzysu.

SŁOWA KLUCZOWE: powódź, zarządzanie kryzysowe, ochrona ludności, bezpieczeństwo publiczne, informacja

INTRODUCTION

Although the crisis management system is not directly regulated in the Constitution of the Republic of Poland of 2 April 1997, it[1] is subject to its standards. This means that the Constitution is the highest legal act affecting the crisis management system. The Constitution of the Republic of Poland of 2 April 1997 states that "The Republic of Poland (...) shall ensure the freedoms and rights of persons and citizens, as well as the security of citizens, shall protect the national heritage and ensure the protection of the environment (…)[2]" and "The Republic of Poland shall ensure legal protection of life to every human being[3]". The Republic of Poland as a state therefore ensures the implementation of the above values by creating and improving a crisis management system. The crisis management system was introduced by the Act of 26 April 2007 *on crisis management*[4] and covers a wide range of issues, as it is intended to protect people, significant amounts of property and the environment[5]. One of the objectives of the crisis management system is to assess potential types of risk and analyze the conditions in which crisis situations arise. In addition, another objective of the system is to indicate the anticipated development of a crisis, including variants, its course, and an assessment of its negative effects. Another task is to seek solutions that will contribute to the prevention, resolution, and control of the crisis, as well as the reduction of damage and losses[6]. Limiting damage and losses is

[1] The Constitution of the Republic of Poland of 2 April 1997, Journal of Laws of 1997, Number 78, item 483.
[2] Ibidem, Art. 5.
[3] Ibidem, Art. 38.
[4] The Act of 26 April 2007 on crisis management, Journal of Laws of 2023 r., item 122, consolidated text.
[5] Ibidem, Art. 3 par. 3.
[6] Z. Zamiar, L. Wełyczko, *Zarządzanie kryzysowe*, Wyższa Szkoła Oficerska Wojsk Lądowych im. gen. Tadeusza Kościuszki, Wrocław, 2012, p. 51.

sometimes a difficult challenge, as there are devastating natural disasters that cause significant damage to civil infrastructure, such as floods[7]. In view of the above, the crisis management system requires financial outlays, the involvement of qualified staff, and the introduction of organizational measures regulated by legal acts to ensure the efficient and effective functioning of the system. The system should also be flexible, adapted to contemporary threats, responsive to challenges, well thought-out, and, above all, responsible. Dariusz Majchrzak, positioning the crisis management system in relation to other systems protecting fundamental values during a crisis, pointed out that the flood protection system, alongside, among others, the fire protection system and the drought countermeasures system, constitutes a detailed safety system which is not sanctioned by law, is informal, works in practice, and that the crisis management system is of particular importance among the above systems[8]. In addition, to increase the effectiveness of the crisis management system, it should be improved through the use of new technologies. In his scientific work, Tomasz Łachacz presented the "FASTER" technology, which increases the safety of people who arrive at the scene of an incident the fastest, e.g. rescuers. The author pointed out that this technology was tested during the flood caused by the Chisola River in Italy[9]. A flood simulation was also carried out. The project used a rescue mission management application to support observation and rescue operations. Intelligent textile tools for receiving and sending information to and from the operational area and for monitoring the environmental and biometric parameters of rescuers were also presented[10]. Supporting crisis management systems with new technologies certainly contributes to increased security. It is up to those managing the system to decide what kind of new technologies will be used and to what extent. As Lesław Haber pointed out, the management process is a practical activity related to the process of making decisions aimed at the best use of resources, both material, capital and human, to carry out tasks and in a manner that ensures the continuous development of the organisation[11]. In turn, Jacek Kwaśniewski emphasized that management in crisis situations is a difficult and complex process. People who manage work are required to have knowledge, skills, and aptitude. Well-managed crisis management will ensure safety[12]. In addition, information exchange is of great value in crisis management systems. Information should be transmitted using ICT solutions and platforms, in real time, considering individual levels and cooperating entities. The main features of information exchange should be data confidentiality, a high level of

[7] R. Abegaz, J. Xu, F. Wang, *Flood Impacts on Civil Infrastructure Systems: A Comprehensive Review of Impacts, Modeling Tools, Emerging Technologies, and Mitigation* Strategies, "Natural Hazards Review", Volume 27, Issue 1, 2025.
[8] D. Majchrzak, *O zarządzaniu kryzysowym inaczej. Zarządzanie kryzysowe czy zarządzanie bezpieczeństwem?* „Kwartalnik Bellona", nr 4/2018, 2018, p. 46.
[9] T. Łachacz, *Technologie FASTER a bezpieczeństwo reagujących w sytuacjach kryzysowych*, „ZN SGSP", 82, 2022.
[10] Faster Project, *Italian Pilot*, https://www.faster-project.eu/2021/02/02/italian-pilot/ (23.09.2025).
[11] L. Haber, *Management. Zarys zarządzania małą firmą*, Kraków: Wydawnictwo Profesjonalnej Szkoły Biznesu 1998, p. 19.
[12] J. Kwaśniewski, *Zarządzanie kryzysowe w kontekście kierowania*, [in]: M. Mazur (ed.), *Współczesne trendy w zarządzaniu*, Warszawa: Wydawnictwo Akademii Ekonomiczno-Humanistycznej 2020, p. 10.

security, as well as continuous monitoring of sources and effects for risk assessment[13]. Multi-directional information and decision-making flows form the basis for the operation of logistics management systems. These systems have a direct impact on the efficiency and effectiveness of support and security measures[14].

As Jerzy Uchroński, Adam Mańka and Jan Kaźmierczak pointed out, it is important to provide information to the relevant services on an ongoing basis. This ensures a rapid rescue operation, which is crucial for the life and health of people/victims in a crisis. Direct communication of information to services provides an opportunity to limit the effects of the crisis and its spread. It is important that all services have the same knowledge about the crisis at any given moment. This is important from the point of view of the safety of the rescue teams themselves[15]. All systems used for safety management should be based on accurate information, the analysis of which forms the basis for taking action[16]. Communication is the process of transmitting information/messages by the sender and the ability to receive and understand the message by the recipient. Sometimes, the concept of communication is equated with the method of transmitting information and the relationships that accompany the exchange of information[17]. It should be noted that during the exchange of information in the crisis management process, its security should be ensured, including when using the Internet. People who use communication channels intended for services, use mobile devices, or use wireless network access must exercise particular caution[18].

The information also plays a huge role in the stage of citizens choosing flood prevention measures. It is the state authorities that should provide relevant information on how to protect homes from flooding and should support citizens financially in this regard[19]. In addition, the state should also take flood prevention measures in the area of forest management, as forests can delay flood peaks and reduce the risk of flooding[20].

It should not be forgotten that adequate preparation of the population for a crisis event such as a flood is of great importance in the crisis management system. Władysław Wornalkiewicz lists the following measures aimed at minimizing the local effects of flooding: work related to raising flood embankments, placing sandbags on the embankments, sealing window

[13] M. Dąbrowski, P. Zaskórski, *Bezpieczeństwo cyberprzestrzeni jako determinanta sprawności zarządzania w sytuacjach kryzysowych,* [in:] J. Tarapata, J. Woźniak (ed.), *Odporność organizacji: cyfryzacja, bezpieczeństwo, innowacje*, Warszawa, p. 220-239.
[14] K. Ficoń, W. Sokołowski, *Zarządzanie Logistyczne Podczas Niemilitarnych Sytuacji Kryzysowych*. „De Securitate et Defensione. O Bezpieczeństwie i Obronności" 8(1) 2022, p. 96-108.
[15] J. Uchroński, A. Mańka, J. Kaźmierczak, *Zastosowanie ujęcia procesowego do wspomagania zarządzania informacją i zasobami technicznymi w sytuacjach kryzysowych*, „Systemy Wspomagania w Inżynierii Produkcji", 2016 14(2), pp.342-350.
[16] G. Pietrek, T. Jałowiec, *Selected aspects of information management in extraordinary situations*, "Roczniki Nauk Społecznych", 17(53), numer 2–2025, 2025, p. 20.
[17] Z. Nęcki, *Komunikacja międzyludzka*, Kraków 2000, p. 38.
[18] K. Kaczmarek, *Dezinformacja jako czynnik ryzyka w sytuacjach kryzysowych*, „Roczniki Nauk Społecznych", Tom 15 (51), numer 2–2023, 2023, p. 26.
[19] A. Truedinger, J. Birkmann, *Flood Risk Reduction—What Are the Priorities? ThePerspective of Private Households After the Ahr Floodof 2021*, "Journal of Flood Risk Management" 2025, p. 9.
[20] M. Cooper, S. Patil, T. Nisbet, H. Thomas, A. Smith, M. McDonald, *Role of forested land for natural flood management in the UK: A review*, "Wiley Interdisciplinary Reviews: Water", 8(5), e1541, 2021, p. 4.

and door openings, and a communication and management system to ensure efficient operation[21]. Krzysztof Ficoń and Wojciech Sokołowski presented the logistical needs of the affected population and the possibilities for securing and providing logistical support. The authors explained the concept of crisis logistics, pointing out that these are intensive activities that provide security in non-military crisis situations, consisting of meeting basic logistical needs such as transport for emergency services, medical evacuation of the injured and the sick and evacuation of the population, delivery of the most urgent supplies, as well as the provision of basic economic and living[22]. Dominika Marciniak conducted an interesting scientific study in the field of humanitarian logistics based on a diagnostic survey using a questionnaire. The research concerned the flexibility of operations, criteria for selecting suppliers, and identification of factors that determine the design of the humanitarian supply chain. It was noted that the latter is influenced by the uncertainty of the situation and the uncertainty of the information necessary for planning logistics operations[23]. The above author also conducted research using comparative analysis of commercial and humanitarian supply chains. Research conducted in the field of humanitarian aid is of great importance, as the lives and health of those affected depend on the humanitarian supply chain. Such a chain is configured with a view to saving these two values in the event of a crisis and ensures the delivery of aid and medical services[24]. In addition to assistance organized at the state and local government levels, help can also come from the civilian population. The literature on the subject contains numerous examples of civic engagement and social solidarity among Poles, who actively provided assistance to people affected by crisis situations. Scientific research on the assistance provided by Poles in connection with the migration crisis in August 2021 on the Polish-Belarusian border and in connection with the mass exodus of the population caused by Russia's invasion of Ukraine on 24 February 2022 was presented by Marta Danecka, Zofia Kinowska-Mazaraki, Anna Machcewicz, and Ewa Nalewajko. In two articles entitled "Social activity at borders in a crisis situation: perception of the situation and motivations of local social actors providing humanitarian aid" and "The phenomenon of social mobilization in a border crisis: environment, resources and social innovations", presented the attitudes of Poles from selected border communes affected by the crisis, pointing out that "one of the reactions was extraordinary local social mobilization[25]", in a situation where "it was necessary to organize ourselves in order to provide efficient assistance,

[21] W. Wornalkiewicz, *Przedsięwzięcia w zakresie udoskonalenie pomocy humanitarnej i logistyki. Studium przykładu*, Dnipro 2024, p. 23.
[22] K. Ficoń, W. Sokołowski, *Zarządzanie…*, op. cit.
[23] D. Marciniak, *Logistyka humanitarna – perspektywa teorii i praktyki humanitarian logistics – perspectives of theory and practice*, „Wiedza obronna", 2024, 288(3), pp. 155-179.
[24] D. Marciniak, *Analiza komparatywna komercyjnego1i humanitarnego łańcucha dostaw*, „Management and Quality – Zarządzanie i Jakość", 2023, 5(1), pp. 64-82.
[25] M. Danecka, Z. Kinowska-Mazaraki, A. Machcewicz, E. Nalewajko, *Fenomen mobilizacji społecznej w warunkach kryzysu na granicy: otoczenie, zasoby i innowacje społeczne*, „Studia Polityczne", 2023, 51(4), p. 12.

protect migrants from the cold and hunger, and supply them for the rest of their journey[26]". Belarusian authorities used violence to force migrants to make further attempts to cross the border, effectively "trapping" them[27]. Due to "human rights violations, triggering a crisis at the EU's external borders, and Belarus's instrumentalization of migrants for political purposes in 2021, Belarus' participation in Russia's unprovoked and unjustified military aggression against Ukraine on 24 February 2022, and its flagrant violation of international law[28]" have caused Poland to suspend cooperation with Belarus under the Poland-Belarus-Ukraine Cross-Border Cooperation Programme, which is currently bilateral in nature: Interreg NEXT Poland-Ukraine[29].

It is worth mentioning the research conducted by Joanna Białołęcka in the Płock County. In 2022, the author surveyed a group of 50 people on, among other things, their assessment of flood safety. The respondents rated the above condition as very good and good, while 64% of them indicated that they were concerned about the recurrence of the flood threat[30]. Societies should invest in flood protection, using engineering measures to minimize the risk of flooding[31]. In addition, effective information campaigns should be developed that take into account differences in attitudes towards risk and the experiences of residents within society[32]. The risk communication strategy should be tailored to different social groups[33]. Social media can serve as a supplementary source of information when traditional data (e.g. from satellites) is limited in space or time[34]. Social media can also be used to share flood photos, which allows for a more accurate representation of flood conditions at a given moment and improves the accuracy of forecasts[35]. In addition to social media, mass media also effectively provide information about flood risk before, during and after a flood[36]. The speed and effectiveness of risk information sharing will be improved by modern technologies such as mobile applications and online platforms[37].

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[26] M. Danecka, Z. Kinowska-Mazaraki, A. Machcewicz, E. Nalewajko, *Aktywność społeczna na granicach w sytuacji kryzysu: percepcja sytuacji i motywacje lokalnych aktorów społecznych niosących pomoc humanitarną*, „Studia Polityczne", 2023, 51(2), p. 204.
[27] Ibidem, p. 204, .
[28] Interreg A NEXT Poland – Ukraine, SFC2021 INTERREG Programme, p. 6, https://pl-ua.eu/pl/pages/579.
[29] Ibidem.
[30] J. Białołęcka, *Powódź jako krytyczne wydarzenie życiowe*, „Studia Edukacyjne", 2023, 69, p. 132.
[31] L. Wang and others, *A review of the flood management: from flood control to flood resilience*, "Heliyon", 2022 8(11), p. 3.
[32] Y. Lakew, U. Olausson, *When we don't want to know more: Information sufficiency and the case of Swedish flood risks*, "Journal of International Crisis and Risk Communication Research", 2023 6(1), pp. 65-90.
[33] W. Kellens, R. Zaalberg, P. De Maeyer, *The informed society: An analysis of the public's information seeking behavior regarding coastal flood risks*, "Risk Analysis", 2012, 32(8), pp. 1369-1381.
[34] H. Hou, L. Shen, J. Jia, Z. Xu, *An integrated framework for flood disaster information extraction and analysis leveraging social media data: a case study of the shouguang flood in China*, "*Science of the Total Environment",* 2024 vol. 949.
[35] Y. Wang, A. Chen, G. Fu, S. Djordjević, C. Zhang, D. Savić. *An integrated framework for high-resolution urban flood modelling considering multiple information sources and urban features*, "Environmental Modelling & Software", 2018, 107, pp. 85-95.
[36] R.B. Mostafiz, et al., *Actionable information in flood risk communications and the potential for new web-based tools for long-term planning for individuals and community*, "Frontiers in Earth Science", 2022 10.
[37] E. Rollason, L. Bracken, R. Hardy, A. Large, *Rethinking flood risk communication*, "Natural Hazards", 92(3), 2018, pp. 1665–1686.

RESEARCH METHODS

The primary research method was qualitative empirical analysis, conducted using open-ended in-depth interviews. The interviews were conducted with representatives of the management staff of local government administration and district crisis management centers, which made it possible to obtain a diverse perspective from practitioners responsible for local safety during the floods of September 2024.

The empirical analysis was supplemented by a theoretical method consisting of a critical review of the literature on crisis management, with particular emphasis on decision-making processes, information exchange between entities responsible for crisis response, crisis logistics, and structures and mechanisms to provide assistance to victims.

In addition, the study used deductive reasoning to formulate systemic recommendations based on the problems identified during the research. The study also developed a conceptual model of an improved crisis management system, reflecting the need for adaptability and flexibility in crisis situations, such as natural disasters.

DESCRIPTION AND RESULTS OF THE RESEARCH

The article is based on the results of qualitative research conducted using individual open-ended telephone interviews. Each interview lasted between 50 and 90 minutes. The research was conducted between 12 November and 5 December 2024. The group of respondents consisted of employees of eleven city and municipal offices and eight District Crisis Management Centres, who held managerial positions and had substantive responsibility in the area of crisis management. One representative was selected from each local government entity surveyed. The research was conducted in the following municipalities: Czechowice-Dziedzice, Krapkowice, Głuchołazy, Prudnik, Stronie Śląskie, Lądek-Zdrój, Kłodzko, Bardo, Jelenia Góra, Nysa, Lewin Brzeski, and the following County Crisis Management Centres: in Bielsko-Biała, Jelenia Góra, Nysa, Prudnik, Kłodzko, Ząbkowice Śląskie, Lwówek Śląski and Brzeg. Respondents' answers to the question: what are the biggest problems faced by residents of flooded areas as a result of the flood that took place in September 20024? The authors divided the problems into three groups. The first group consisted of problems that arose before the flooding. Respondents pointed out that they had not been given sufficient information about the flood. They noted that the residents of the flooded areas had not been warned about the seriousness of the situation. They did not know how serious the situation would be or how to prepare for the flood. One respondent pointed out that the fact that the flood occurred on a Sunday, i.e. a day off from work and school, during daylight hours, gave a better chance of defending against the flood than would have been the case on a working day – "the only upside to this whole disaster is that it happened on a Sunday (...). If it had happened on a weekday, at night, (...) it would have been a total tragedy, (...). There would have been great panic about how to protect the children. Our primary school was flooded, and no one (...) thought that the classrooms could be flooded".

Another respondent pointed out that the population of the flooded areas did not know how to behave during a flood and how to protect themselves against it. It was also noted that the plans indicated specific points as evacuation sites, which were completely flooded during the flood. The water reached a level of half a meter at the designated evacuation points, but if the dam holding back the water had broken or the water had overflowed, the water level at that point would have been six meters. Finding a replacement location was very difficult. As one respondent pointed out, "it was a very difficult moment for everyone".

The second group of responses concerned problems that arose immediately after the flooding, including evacuation issues, lack of water, lack of food, lack of places to sleep, lack of places to live, communication problems, lack of Internet access, lack of mobile network coverage, impassable roads, impassable bridges, and problems with access to medical services. In addition, flooded schools caused problems with organizing time and childcare.

The third group consisted of problems that the respondents had to face when the water receded. The respondents again pointed to the lack of water and food. Another problem faced by the population of the flooded areas was the lack of utilities. The lack of communication due to damaged roads and bridges was also a problem. The inability to determine the technical condition of buildings and houses proved to be a problem. It was impossible to obtain a decision on whether the buildings were to be demolished or could be used. The population of the flooded areas had no guidelines as to whether they could live in their own homes. It should be noted that the law stipulates time-consuming procedures for determining whether a given premises is suitable for habitation and use.

Another problem for residents of flooded areas was the need to clean buildings and remove damaged furniture and equipment. In addition, residents had to remove the sludge. The lack of people to help with physical labor was a hindrance. It should be remembered that the flood did not spare the homes of single, elderly people who needed support. Respondents also pointed out that the lack of dehumidifiers and other equipment necessary for cleaning up buildings was a complication. In addition to the lack of people to help with physical labor and equipment, the lack of professionals to rebuild homes and even the lack of financial resources for reconstruction proved to be a difficulty.

The enormous need for financial assistance caused problems in government offices with filling out applications and settling accounts for post-flood accommodation in temporary housing, hotels, and agritourism farms. One respondent noted that: "(…) when there were refugees from Ukraine, this special law came into force, where everything was clear, well defined and the matter was obvious throughout Poland. And now there is a problem here, because, for example, it is not clear what rates to charge for the stay of these evacuated persons (…). We are still (...) struggling to solve this type of problem. Here, too, it should be clearly stipulated in some kind of law".

Next, respondents were asked to answer the question: "What kind of assistance should be provided to residents of flooded areas as a result of the flood that occurred in September

2024 in order to minimize the effects of the flood as much as possible?" The authors presented the respondents' answers in the table below.

Table 1. Types of assistance considered by the local community to be necessary in the event of a flood

	Type of assistance expected during a flood	**Actions that should be taken as part of a given type of assistance provided**	**Selected respondent opinions**
1	**assistance during evacuation**	Introduction of procedures facilitating the use of helicopters designed to provide assistance to the population. Provision of special military equipment adapted to navigating fast-flowing, flooded mountain rivers.	Quick decision-making by public authorities is required, for example, regarding the use of helicopters. Residents of flooded areas waited too long for a decision to be made on their use. As one respondent pointed out, one public administration body waited for another public administration body in a different city to make a decision on the use of a means of transport: "(...) the house is already flooded and we are unable to get there by any means. Unfortunately, the authorities delayed the evacuation until the very end (...)". As the respondent pointed out, the decision on the use of the means of transport took four hours. In the opinion of some respondents, the equipment owned by the military does not allow for action to be taken on rivers where there are tree branches or metal structures floating. The equipment turns out to be too light.
2	**financial assistance**	It is essential to allocate funds for: - rebuilding completely destroyed houses and flats, - drying out houses and flats, - renovations.	Respondents pointed out that the flood had deprived people of their homes and flats, which is a common tragedy for the population of flooded areas. According to the respondents, immediately after the flood receded, drying out flooded buildings was one of the biggest problems.
3	**assistance in finding temporary or permanent accommodation**	It is essential to have housing resources available in the event of a crisis. It is necessary to ensure that the population can be relocated to hotels, temporary housing facilities, or modular housing containers.	Respondents responded positively to the concept of temporarily using containers as places of residence, educational facilities, and healthcare facilities. Long-term residence in residential containers was viewed less enthusiastically by respondents According to the respondents, housing resources could also be located in areas other than those that had been flooded. As one respondent pointed out: "The challenge for us was to find accommodation for these people. At night, the Territorial Defence Force arrived and they were a great help in transporting mattresses and camp beds to the evacuation point".
4	**assistance in removing damaged**	It is essential to provide support, especially to elderly,	Respondents pointed out that this type of work and assistance was carried out by the Territorial Defence Forces and

	furniture, sludge, and fallen trees from the property	dependent, and physically disabled people. This requires the organization of adequate human resources to carry out physical work.	was very positively assessed by the population of the flooded areas. As one respondent pointed out, "equipment is very important", but it cannot replace human labor when it comes to removing thousands of tons of waste from basements, resulting from the "silting up" of furniture and other items. People must enter such rooms and do the physical work.
5	**assistance in completing compensation documents**	Assistance is needed in completing applications, especially for financial assistance.	According to the respondents, providing this type of assistance significantly contributed to meeting the basic needs of the population affected by the crisis more quickly. The significant overload of staff was pointed out – with a team of five employees at the center, it was necessary to process approximately 1,000 applications, which exceeded their capacity.
6	**assistance in the provision of basic goods and utilities**	It is essential to provide the population with gas, internet, water, and dehumidifiers.	Respondents indicated that at the time of this survey (12 November 2024 to 5 December 2024), some people still did not have access to gas. As one respondent added: "To this day, they still don't have gas, they still don't have permission to enter the building because it is not safe to use, as there are no engineers".
7	**assistance in carrying out disinfection activities**	Assistance with disinfection is necessary, especially in areas where contamination and pollution have occurred.	Respondents highly rated the commitment and effectiveness of the activities carried out by chemical warfare subunits.
8	**psychological suport**	It is essential to provide psychological support both immediately after the flood and later on, when those affected may experience renewed symptoms of trauma related to the crisis experience.	As one respondent pointed out, "some people still can't get over it. The night, the sound of water flooding the house".
9	**assistance with renovations**	Assistance with renovating flats and houses is essential. Lack of housing infringes on basic human rights.	The respondents' accounts show that one of the main problems after a crisis event is the difficulty in finding qualified professionals to carry out repair work. They pointed to a shortage of such specialists and long waiting periods for services to be provided.

Source: own study based on research.

CONCLUSIONS

I. The crisis management system aims to coordinate activities to protect the life, health and property of the population in the face of threats such as floods through effective planning, organization and implementation of crisis response tasks. Providing the population with relevant information in good time is crucial to increasing safety and enabling protective measures to be taken before a hazard occurs.

An extremely important element of the crisis management system is to include training for teachers and other staff involved in educational programs for minors in how to respond to crisis situations. These individuals should have the knowledge and skills to respond appropriately in emergency situations, such as flooding affecting an educational establishment. It is essential to know evacuation procedures, the rules for organizing and coordinating the evacuation of children, and methods of providing them with emotional support in stressful situations. Similar training requirements should apply to staff working in children's homes, correctional facilities, nurseries, and other care facilities.

The crisis management system should include the obligation to designate potential evacuation sites, adapted to different types of hazards and their scale. Those responsible for organizing and managing the evacuation should be able to choose the evacuation location from among the evacuation points previously specified and agreed in the operational plans. The evacuation concept should be developed with the participation of the relevant emergency services and institutions responsible for public safety. This solution facilitates efficient decision-making in conditions of sudden and severe danger, where managers operate under time pressure and with an awareness of their responsibility for the life and health of the population. Identifying a suitable evacuation site in such circumstances can be a serious organizational and decision-making challenge.

One of the key tasks of the crisis management system is also to organize temporary accommodation and replacement locations for people who have lost their homes or are temporarily unable to stay in them. As respondents pointed out, difficulties arose in relation to financial settlements when providing accommodation for victims from flooded areas. Therefore, the crisis management system should be equipped with flexible legal and organizational mechanisms to enable efficient and transparent settlements with economic entities involved in the provision of accommodation and social services.

In addition, the crisis management system should include mechanisms enabling rapid assessment of the technical condition of buildings flooded as a result of a crisis event, which will allow residents to return to their homes as quickly as possible and restore normality to everyday life. At the same time, decisions on the possible demolition of buildings should be made in an efficient and coordinated manner. In cases where buildings are not eligible for demolition, the system should provide effective support in cleaning them of mud, sludge, and other contaminants, and in organizing the assistance of professionals necessary to carry out repair and reconstruction work.

An important element of the crisis management system should be the development of solutions enabling the rapid restoration of the passability of roads and bridges, which is crucial for the efficient conduct of rescue operations and ensuring the continuity of supplies and movement of the population. Another important challenge for the system is the organization of childcare and ensuring uninterrupted access to medical services, both during the response phase and during reconstruction after a crisis event.

II. Effective evacuation is one of the greatest challenges during a flood. It is the duty of public authorities and emergency services to carry out evacuations in such a way as to eliminate the possibility of casualties. Therefore, a crisis management system should be created to provide a range of appropriate measures that can be used immediately by emergency services. In addition, the evacuation of people from flooded areas requires the creation of flexible procedures. It is unacceptable that, in a situation threatening life or health, administrative bodies wait for decisions to be made by other administrative bodies or that there are disputes between them over competences. The law and procedures should specify precisely: which administrative body makes specific decisions, how long the administrative body has to make a decision, and how the decision is communicated.

An extremely important element of effective crisis management is for public authorities to have complete, reliable, and up-to-date knowledge of the means of transport available for evacuating people from flooded or flood-prone areas. Therefore, it is essential that both public authorities and emergency services are required to maintain an up-to-date list of such means, including their location, availability, and technical capabilities. It is unacceptable for delays in decision-making on the part of officials to result in the failure to deliver evacuation means, such as boats, pontoons, or helicopters, in a timely manner, which may directly threaten the life and health of residents.

It should be noted here that the evacuation process also involves planning evacuation routes, early warning, informing about real threats, preparing emergency services and efficient decision-making.

An area of the crisis management system that requires improvement is flexibility in terms of increasing human resources during and after the materialization of a threat (flood). During the study, the respondents indicated that the number of employees involved in the allocation of social welfare funds was insufficient. In addition, there were staff shortages in the area of processing cases related to the allocation of funds for reconstruction, renovation, or drying out of flats. The excessive workload of the staff responsible for processing applications for financial assistance resulted in delays in the provision of material assistance. These delays may have had a direct impact on the living conditions and, consequently, on the lives and health of the affected population. As one respondent pointed out, “we put desks outside the building because there were so many people, each with something”. In view of the above, it should be emphasized that the crisis management system should be characterized by organizational flexibility, enabling

a rapid increase in human resources in situations requiring increased staff involvement, such as mass applications for assistance or intensive rescue operations.

An essential element of an effective crisis management system is having an up-to-date and verified database of available accommodation, intended both for people affected by a crisis situation and for soldiers and service officers involved in relief efforts. This database should distinguish between paid accommodation (belonging to private individuals or businesses) and free accommodation (managed by public entities). As respondents pointed out, finding suitable accommodation for residents of flooded areas was a significant organizational challenge.

Effective protection of human life and health in crisis situations, such as floods, requires mandatory support in the removal of flood waste, including from hard-to-reach areas such as basements. This type of waste, including waterlogged furniture and flooring, is heavily laden with water and silt, making it impossible to remove without physical force. As indicated by the respondents' accounts, the scale of the problem was considerable – in one case, approximately 1,000 tons of waste were removed from flooded basements. Therefore, the crisis management system should provide for mechanisms allowing for the rapid involvement of a sufficiently large group of people capable of performing physical work, while it may also be necessary to provide them with accommodation, food, and access to water. This work cannot be fully replaced by mechanical equipment, which further emphasizes the need for efficient mobilization of human resources. At the same time, administrative decisions related to the organization of clean-up activities should be made and implemented without delay in order to limit secondary damage, prevent deeper penetration of pollutants into the structure of buildings, and enable a rapid start to the drying and reconstruction process.

An indispensable element of effective crisis management remains ensuring the restoration of access to basic utilities – such as gas, electricity, water, and heating – as quickly as possible for residents of areas affected by flooding. It should be noted here that the flood began on the night of 11 to 12 September 2024, while the study was conducted from 12 November 2024 to 5 December 2024. This means that part of the population in the flooded areas did not have access to all utilities for at least two months. It is therefore reasonable to create a crisis management system that will provide sufficiently rapid support in the form of engineers who can repair the damage caused by the flood. It should be noted that lack of access to utilities often means lack of access to information.

An important element of the crisis management system during flood clean-up is the disinfection process. The system should therefore enable the military or emergency services to respond immediately to chemical hazards. Possible chemical contamination can exacerbate human tragedies. It is therefore essential that the crisis management system includes solutions enabling a rapid response and effective removal of chemical hazards.

An obligatory element of the crisis management reconstruction phase should be providing psychological assistance to victims and financing this assistance from public funds. It should be emphasized that those affected by flooding focus their efforts first and foremost on rebuilding

their homes and furnishing them, which in many cases prevents them from spending their own money on psychological support. Floods often have dramatic consequences, such as the death of loved ones, loss of health or loss of a lifetime's work, which causes significant psychological stress and trauma. Therefore, the state should play an important role in providing not only material support but also comprehensive psychological assistance to those affected by the disaster. It is therefore necessary not only to secure public funds for the provision of such assistance but also to ensure adequate human resources, including the availability of experienced psychologists specializing in crisis intervention and working with people affected by trauma.

During the reconstruction phase, the crisis management system should provide comprehensive support for residents of flooded areas in terms of renovation and construction works. Residential buildings affected by flooding require a number of works to be carried out, including the removal of accumulated silt and waste, thorough cleaning of surfaces, drying of rooms, and specialist renovation works. Due to their complexity, these tasks require both appropriate technical facilities and the involvement of professionals with knowledge and experience in the construction and renovation industry. At the same time, residents may encounter difficulties related not only to a lack of financial resources, but also to the limited availability of qualified workers. Therefore, the crisis management system should include solutions that enable both the allocation of adequate public funds for the necessary renovation work and the provision of appropriate personnel support for the duration of the reconstruction phase.

The effectiveness of these measures has a direct impact on ensuring basic living conditions for citizens and restoring a minimum level of stability in their lives.

The flood of September 2024 highlighted the need for a comprehensive approach to crisis management, including not only rescue operations, but also long-term support for the population and efficient resource management. An effective response to threats requires strengthening the institutional, logistical and social components of the crisis management system.

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