

**Systemy Logistyczne Wojsk**  
Zeszyt 62 (2025)  
ISSN 1508-5430, s. 193-202  
DOI: 10.37055/slw/211046

Instytut Logistyki  
Wydział Bezpieczeństwa, Logistyki i Zarządzania  
Wojskowa Akademia Techniczna  
w Warszawie

**Military Logistics Systems**  
Volume 62 (2025)  
ISSN 1508-5430, pp. 193-202  
DOI: 10.37055/slw/211046

Institute of Logistics  
Faculty of Security, Logistics and Management  
Military University of Technology  
in Warsaw

## **Evaluation of Territorial Defense Forces' Activities During Recovery from the Flood Occurring in Poland in 2024**

**Małgorzata Karolina Kochanowicz**

malgorzata.kochanowicz@wp.pl; ORCID: 0000-0003-3775-8854  
Faculty of Entrepreneurship and Innovation, WSB Merito University in Poznań, Poland

**Patrycja Bryczek-Wróbel**

patrycja.bryczek-wrobel@wat.edu.pl; ORCID: 0000-0001-7154-7335  
Security Department, Logistics and Management, Military University of Technology in Warsaw, Poland

**Abstract.** This article presents the results of a study on the Territorial Defense Forces' participation in the recovery from the flood that occurred in Poland in September 2024. The Territorial Defense Forces are a branch of the Polish military, which are, among other things, assigned to combat natural disasters. Research methods: The study employed a theoretical research method consisting of a review and analysis of relevant literature, along with the selection and critical evaluation of source materials. The second stage utilized an empirical, qualitative method in the form of semi-structured individual phone interviews. The research niche is the lack of scientific publications examining the 2024 flood that occurred in Poland. The study focused on the activities undertaken by Territorial Defense Forces soldiers to address the flood's effects. The purpose of the article was to obtain assessments from selected local government employees regarding the Territorial Defense Forces' participation in flood recovery efforts.

The main research question was formulated as follows: How do selected local government employees assess the participation of the Territorial Defense Forces in addressing the aftermath of the flood that occurred in Poland in the Dolnośląskie, Opolskie, and Śląskie provinces in September 2024?

Main research findings: Local government employees from selected locations ascertained that the Territorial Defense Forces played a key role in addressing the aftermath of the 2024 flood and helped restore a sense of safety among the public. The activities of the Territorial Defense Forces significantly improved and expedited the short-term restoration of infrastructure and the environment.

**Keywords:** Territorial Defense Forces, military, crisis management, flood, removing the effects of flooding

## **Introduction**

The flooding that took place in southern Poland in September 2024 caused immense losses. Residents of the flooded areas took every measure to save lives, health, and property, sometimes accumulated over a lifetime. The public, businesses, and government entities assisted in addressing the flood's effects. All of them were aware of the need for assistance, experiencing the situation as a 'crisis' involving "perceiving or experiencing an event or situation as insurmountable, unbearable, exhausting resilience resources, and undermining coping mechanisms" (Gilliland, 2016).

## **Literature study**

The authors reviewed literature from 2020-2024 concerning the Territorial Defense Forces (TDF), considering the following publications particularly noteworthy. The first is the work of Bartłomiej Składanek, who rightly pointed out that the TDF provide support and are present in the social space, an obvious and natural phenomenon. The TDF inspire public confidence, which is particularly important for citizens and the military. This branch of the Armed Forces has a mission to serve in the area of internal security and assist the public (Składanek, 2021). As highlighted by Tadeusz Compa in his publication outlining, among other things, the genesis, stages of creation, mission, and tasks of the TDF, the Territorial Defense Forces constitute a rapidly developing, flexible structure. They are an important element of support in preventing and combating natural disasters for both the government and the public (Compa, 2020). In turn, Arkadiusz Kukula stressed that the TDF are a critical element integrating society with the Polish Armed Forces and, "in the long term, with the State". A key role of TDF soldiers is serving local communities. In the event of a crisis or hostilities, the TDF will undertake tasks in permanent areas of responsibility. Supporting local communities will be a key element of the TDF's purpose (Kukula, 2024). Wojciech Wasilewski ascertained that the TDF also performs tasks in the area of environmental safety. The author believes the military possesses a number of competencies in environmental protection and pointed out that the TDF's functionality concept should incorporate the State's environmental safety mission (Wasilewski, 2022). The scientific paper titled "Wizerunek Wojsk Obrony Terytorialnej w przekazie medialnym w latach 2016-2018" [The image of the Territorial Defense Forces in Media Coverage in 2016-2018] was presented by Wojciech Kwiatkowski, who conducted an analysis of press materials on the TDF, noting examples of negative narratives. Answering the research question posed, the author indicated that media reporting in Poland on the TDF creation process presented diverse narratives. Some opinion-making centers repeatedly created

narratives unfavorable to the territorial forces. As the author pointed out, selected articles attempted to intimidate the public with both the territorial formation itself and TDF soldiers (Kwiatkowski, 2023).

Michał Niedziela noted that the TDF are distinguished from operational forces by factors such as “greater independence of units at the tactical level, designation for operations in familiar terrain, light armaments that increase the mobility and maneuverability of units, universality resulting from deployment throughout the country, low costs of forming new combat structures, emphasis on cooperation with the local population and its authorities, and the ability to operate effectively in dispersal in the event of a possible occupation.” Michał Niedziela’s paper has practical value, as the author presented TDF activities during natural disasters caused by tornadoes in the Lublin region and flooding in Śląsk, Małopolska, and Podkarpacie that took place in 2019. He assessed the TDF as effective, committed, and supportive of the local community, stressing the high level of the TDF’s organization and logistics. As he pointed out in the summary, TDF support during natural disasters extends beyond direct actions when facing these elements to include addressing the aftermath and rebuilding damaged infrastructure (Niedziela, 2022). Assistance provided by the TDF to the public, local government units, and medical services during the fight against the COVID-19 coronavirus was detailed by Sławomir Byleń and Wojciech Nyszk. Their work described the “Pomoc WOT” [TDF Support] application’s functionality and specific actions taken by soldiers for the benefit of the population (Byleń, Nyszk, 2022). An interesting paper titled “Wykorzystanie nowoczesnych technologii przez Wojska Obrony Terytorialnej podczas działań – roje dronów” [Use of Modern Technology by Territorial Defense Forces During Operations: Drone Swarms] was presented by Mariusz Terebecki, who emphasized that drones are used professionally in the civilian sphere for monitoring hard-to-reach areas, and that they can also be used for communication, logistics, command, or infrastructure assessment (Terebecki, 2022). Moreover, Mieczysław Pawlisiak presented an engaging paper titled “Logistyka w Wojskach Obrony Terytorialnej” [Logistics within Territorial Defense Forces], pointing out that TDF logistics needs are determined by various factors, subsequently identifying and characterizing those factors influencing the size and nature of logistics needs in TDF subdivisions and branches (Pawlisiak, 2017). In the field of Armed Forces’ logistics, Tomasz Jałowiec presented his publication, arguing that the development of the military logistics system is influenced by improvements in technical capabilities, materiel, infrastructure, training, management procedures, and legal solutions, and that conducting research in military logistics is important due to the dynamic changes occurring in the security environment (Jałowiec, 2022). It is also worth mentioning the publication by Tadeusz Szczurek titled “Resort Obrony Narodowej w systemie zarządzania kryzysowego” [Ministry of National Defense in the Crisis Management System], whose author addressed the main research question: “What new challenges is the

state crisis management system facing, and to what extent can the Polish Armed Forces be involved in the process of countering threats in the context of recent organizational and competence as well as formal and legal changes in the Ministry of National Defense?”. The author clarified the place and role of the Armed Forces in the crisis management system relative to challenges in paramilitary and non-military threat areas (Szczurek, 2023). An interesting paper on adequate population preparedness for emergency situations prior to assistance from services, inspectors, or firefighters was presented by Dariusz Nowak and Jacek Rosa (Nowak, Rosa, 2024). The issue of the TDF is also addressed by Ryszard Jakubczak, who pointed out in the *Encyklopedia Bezpieczeństwa Narodowego* [Encyclopedia of National Security], together with Veronika Jakubczak, that the TDF “conduct combat independently, and sometimes cooperate with operational troops (but do not support them), and provide assistance to the population in crisis situations (as part of evacuation and rescue as well as clean-up operations)” (eds. Itrich-Drabarek, Misiuk, Mitkow, Bryczek-Wróbel, 2023). Research in this area was also conducted in 2019-2020 by a research team from the Jarosław Dąbrowski Military University of Technology, consisting of Tadeusz Szczurek, Patrycja Bryczek-Wróbel, and Jakub Adamkiewicz. Results were published, among other places, in an article titled “Funkcjonowanie Wojsk Obrony Terytorialnej Polski w świetle kryzysu na Ukrainie” [Functioning of the Polish Territorial Defense Forces in Light of the Crisis in Ukraine], which concluded that the creation of the fifth branch of the Armed Forces of the Republic of Poland, namely the TDF, resulted from observations of the 2013 Ukrainian crisis and the annexation of Crimea by the Russian Federation. Through its activities, the TDF “supports local government units and law enforcement services in combating natural disasters, industrial or technical accidents or search operations for missing persons.” Furthermore, surveys indicated “their sense of mission and attachment to the land under protection echoes directly,” and soldiers “perceive themselves as the first line of resistance that will slow down the invader with ‘uphill’ (‘guerrilla’) warfare before the regular forces’ troops can fully develop their striking potential” (Szczurek, Bryczek-Wróbel, Adamkiewicz, 2022).

An interesting paper on surface water detection and mapping using Sentinel-2 imagery was presented by Hadi Farhadi, Hamid Ebadi, Abbas Kiani, and Ali Asgary, introducing a new Flood Mapping Index (SFMI). Their work has practical applications. In contrast, using machine learning and geospatial models, Paidamwoyo Mhangara, Eskinder Gidey, and Matilda Mbazo studied floods between 2016 and 2022 in a selected South African area. The topic of flooding in light of the role of climate and demographic changes was addressed by Justin S. Rogers, Marco M. Maneta, Stephan R. Sain, Luke E. Madaus, and Joshua P. Hacker, who explained and compared the roles of climate change and population growth in changing flood patterns.

Moslem Savari, Ahmad Jafari, and Abbas Sheheytavi described how the public in selected southwestern Iranian locations perceives flood-associated risks. In turn, Priscila Bárbara Zanini Rosa, Giovana Munhoz de Oliveira, Monique Pimentel, Melina Schuch, and Jonas Wolf described the strategic actions of social institutions' volunteers and their community impact during the May 2024 climate disaster in Rio Grande do Sul, Brazil.

## **State of knowledge**

The flood of September 2024 is current event, not yet described in detail in scientific literature. In addition, focusing on specific provinces allows for in-depth analysis in the context of local conditions and crisis management structures among other things, for the introduction of changes in the security policy and the development of the Territorial Defense Forces (TDF) science.

## **Own research**

Complementing the methodological information in the abstract, it should be noted that the survey aimed to obtain extended interviews with management-level employees from 12 city or municipal departments responsible for crisis management and 8 district crisis management centers. Eventually, interviews were conducted from Nov. 12<sup>th</sup>, 2024, to Dec. 5<sup>th</sup>, 2024, with management-level employees from 11 departments and 8 district centers affected by the September 2024 floods. The survey covered the following municipalities: Czechowice-Dziedzice, Krapkowice, Głuchołazy, Prudnik, Stronie Śląskie, Łądek-Zdrój, Kłodzko, Bardo, Jelenia Góra, Nysa, Lewin Brzeski, and the District Crisis Management Centers in: Bielsko-Biała, Jelenia Góra, Nysa, Prudnik, Kłodzko, Ząbkowice Śląskie, Lwówek Śląski, and Brzeg.

Open-ended questions were used during the interviews, allowing for detailed responses. It should be emphasized that the interviews were conducted immediately after the floodwaters receded, which allowed for the collection of current information and assessments.

Respondents were assured of anonymity in their responses. The main survey topic was: "Participation of the Territorial Defense Forces in preventing, preparing, responding to, and removing the effects of the flooding that occurred in Poland in selected locations of the Dolnośląskie, Opolskie and Śląskie provinces in September 2024," of which respondents were informed.

One evaluation question asked respondents: **“What units deployed by the Polish State are most helpful in addressing the flood’s effects? Please justify your answer.”** The question deliberately avoided naming specific units deployed by the Polish State. The term “units” was used deliberately so as not to imply answers, thereby providing respondents with freedom of expression. The question aimed to determine whether those surveyed would name the Territorial Defense Forces. Respondents were asked another question: **“How do you assess the participation of the Territorial Defense Forces in addressing the aftermath of the September 2024 floods in the areas covered by the office where you work?”**

Responses to the first question indicated that any assistance is valuable and important, regardless of who provides it, as it accelerates impact mitigation, infrastructure rebuilding, and the removal of obstacles. Respondents stressed that if municipalities could not enlist help from the Polish Armed Forces or firefighters, reconstruction would take much longer. This is because municipalities lack sufficient human resources and equipment to efficiently restore pre-flood conditions; according to respondents, flood losses in some municipalities exceeded their four-year budgets.

Respondents noted that units deployed by the Polish State to clean up the aftermath of the flood include the Territorial Defense Forces, and they rated the participation of this branch as helpful, given their numbers and the work performed. Next, respondents outlined tasks performed by TDF soldiers: evacuating and protecting people, loading and distributing sandbags, delivering mattresses and containers, carrying furniture out of houses, moving items to designated locations and disposing of them, rebuilding embankments, removing sludge and fallen trees, clearing local roads, monitoring river conditions, observing roads near floodplains, managing traffic, moving archives from flooded offices, assisting the elderly with chores, delivering food and medicine, helping handle and unload donations, collecting and relaying information, and assisting residents with filling out applications.

Another challenge during flood recovery proved to be providing sufficient accommodation for the TDF. Local authorities found it difficult to house soldiers, especially as they simultaneously needed to house residents evacuated from the flooded areas. One respondent indicated that accommodation for evacuated residents was prioritized; soldiers were housed in tents. As another respondent noted, “It doesn’t snow in September”. On the other hand, if flooding occurred in winter, finding accommodation for soldiers would be more difficult due to low temperatures and potential snowfall. One respondent commented: “based on this year, I think that continuous development of the TDF would be a beneficial direction, because the actions of the TDF were very helpful and very fast”. Another pointed out that TDF soldiers are “a significant physical force (...), everything arrived in cardboard boxes by truck and had to be unloaded at night, so at this point the TDF were simply reliable. They cleaned up, helped with various types of unloading or reloading of donations”.

The units deployed by the Polish State to address the flooding's effects, termed "infantry troops" by respondents, proved to be an apt choice. Respondents stressed that these troops secured landslides and a gas pipeline for the entire region. Subsequently, "chemical corps" were identified among the deployed units. They sanitized houses, offices, schools, cemeteries, and streets flooded by fecal matter, and restored a well to working condition, allowing residents access to clean water.

Thirdly, interviewees pointed to the "engineering corps", which removed tree branches and addressed critical infrastructure like bridges, roads, and water intakes. These units also secured a landslide in the Kłodzko Valley, threatening a gas connection, ensuring regional gas access. It was noted this corps used heavy equipment to perform these tasks. In some locations, providing safe parking spots for and storing this equipment was challenging; it was often stored in Volunteer Fire Service (OSP) yards and on private company property that was fenced and under surveillance.

Respondents also noted the military provided access to medical services. A field hospital, set up in one city, operated for a month and a half, admitting the local population since the local hospital was flooded. One respondent stressed, "(...) the troops put up a hospital for us and the medical corps admitted the local population, because our hospital was flooded".

Next, respondents identified the Volunteer Water Rescue Service (WOPR), equipped with boats to help reach people needing evacuation, as another unit deployed by the Polish State to address the flood's effects.

Respondents noted the State Fire Service and Volunteer Fire Service also played crucial roles, coordinating operations, conducting evacuations, and supporting crisis management personnel. One respondent concluded: "(...) a highly effective, specialized system of the Fire Service. Their assistance was very helpful in dealing with the tremendous chaos". According to respondents, the fire service possessed adequate equipment and, given the location of their headquarters, they were more familiar with the surrounding conditions and terrain.

Respondents also highlighted the important role of the police, who provided security—a function that becomes critically important during disasters.

Having identified the key units involved in addressing the aftermath of the 2024 flooding, we analyzed answers to the second question: **"How do you assess the participation of the Territorial Defense Forces in addressing the aftermath of the September 2024 floods in the areas covered by the office where you work?"**.

Crisis management personnel at municipal and district levels were very positive about TDF participation in addressing the flood's effects, especially where troops provided sustained assistance. According to respondents, the work by this branch of the Armed Forces significantly accelerated flood recovery. The TDF performed diverse tasks, including physical labor impossible with equipment alone. Respondents believed the TDF's strength during recovery was their number of soldiers. Without their assistance, rebuilding the affected environment could have taken years.



## Conclusions

The participation of the Territorial Defense Forces in addressing the 2024 flood's effects played a key role within the local community and was highly appreciated. Above all, the TDF's active participation generated public gratitude and fostered a sense of community and national security. TDF activities improved and accelerated the removal of flood effects and contributed to a faster restoration of living conditions in cities and towns affected by the flood.

The tasks undertaken by TDF soldiers can be divided as follows:

- **Life and health protection:** Evacuation and protection of people, provision of medicines, food, and water.
- **Organizational support:** Loading and distributing sandbags, delivering mattresses and containers, carrying furniture, moving items to designated places and disposing of them, removing sludge and fallen trees, clearing local roads, assisting the elderly, moving archives, handling and unloading donations, collecting and relaying information, assisting residents with applications.
- **Preventive and safety measures:** Restoring embankments, monitoring river conditions, monitoring roads near floodplains, managing traffic.

The TDF plays a key role in rescue operations and in removing flood effects. Among the TDF's strengths are their numbers and the wide range of work performed. Quick response, accessibility, flexibility, openness to cooperation with society, and crucially, the positive social attitudes of soldiers make the TDF a significant participant in projects concerning crisis management, combating natural disasters and removing their effects, and protecting life and property.

The risk of flooding from weather anomalies cannot be entirely mitigated by humans. However, adequate preparation for such events is possible. The preparation stage should undoubtedly include implementing a warning system, giving civilians and government bodies a chance to protect themselves. The more effort a community invests in pre-incident preparation, the more lives will be saved and the less costly the post-incident recovery phase will be.

This work was financed by Military University of Technology under research projects UGB 22-762/2024 and UGB 22-71/2025.



## BIBLIOGRAPHY

- [1] Byleń, S., Nyszk, W., 2022. Support for the non-military system by the territorial defense forces in the fight against COVID-19. *Military Logistics Systems*, 56(1), 35-51, DOI: 10.37055/slw/155065.
- [2] Compa, T., 2020. Wojska Obrony Terytorialnej i Narodowe Siły Rezerwowe w systemie obrony Rzeczypospolitej Polskiej [Territorial Defense Forces and National Reserve Forces in the defense system of the Republic of Poland]. *Facta Simonidis*, 1 (13), 97, DOI: 10.56583/fs.79.
- [3] Gilliland, B.E., James, R.K., 2016. Crisis intervention strategies, MA: Cengage Learning.
- [4] Farhadi, H., Ebadi, H., Kiani, A., Asgary, A., 2025. Introducing a new index for flood mapping using Sentinel-2 imagery (SFMI). *Computers and Geosciences*, 194. DOI: 10.1016/j.cageo.2024.105742.
- [5] Jałowiec, T., 2022. Research dilemma of military logistics. *Military Logistics Systems*, 56, 14. DOI: 10.37055/slw/155063.
- [6] Jakubczak, R., Jakubczak, W. Wojska Obrony Terytorialnej. [In:] Itrich-Drabarek, J., Misiuk, A., Mitkow, S., Bryczek-Wróbel, P., 2023. *Encyklopedia Bezpieczeństwa Narodowego WAT [WAT Encyclopedia of National Security]*, Elipsa 2023, <https://encyklopedia.revite.pl/articles/view/650>.
- [7] Kukuła, A., 2024. Wojska Obrony Terytorialnej w systemie zarządzania kryzysowego [Territorial Defense Forces in the Crisis Management System]. *Pro Publico Bono Scientific Papers*, 1 (1), 238, DOI: 10.5604/01.3001.0054.8782.
- [8] Kwiatkowski, W., 2023. Wizerunek Wojsk Obrony Terytorialnej w przekazie medialnym w latach 2016–2018. *Pro Publico Bono Scientific Papers*, 1 (1), 26, 27. DOI: 10.5604/01.3001.0054.1713.
- [9] Mhangara, P., Gidey, E. & Mbazo, M., 2025. Flood hazard monitoring and modeling systems for improving climate risk management using machine learning and geospatial models in the Hennops River catchment, Centurion, South Africa. *Discov Sustain* 6, 2. DOI: 10.1007/s43621-024-00735-z.
- [10] Niedziela, M., 2022. Wojska Obrony Terytorialnej w obliczu współczesnych zagrożeń dla bezpieczeństwa – studium przypadków [Territorial Defense Forces in the face of modern security threats - case study]. *Pro Publico Bono Scientific Papers*, 1 (1), 198, 201, 202, DOI: 10.5604/01.3001.0016.1969.
- [11] Nowak, D., Rosa J., 2024. Logistyczne, psychologiczne i duchowe aspekty przetrwania w sytuacjach kryzysowych [Logistical, psychological and spiritual aspects of survival in crisis situations]. *Rocznik Bezpieczeństwa Morskiego*, DOI: 10.5604/01.3001.0054.8283.
- [12] Pawlisiak M., 2017. Logistyka w Wojskach Obrony Terytorialnej [Logistics within Territorial Defense Forces]. *Zeszyty Naukowe ASzWoj*, 1(106), 54-57, DOI: 10.5604/01.3001.0010.7959.
- [13] Rogers, J.S., Maneta, M.P., Sain, S.R. et al., 2025. The role of climate and population change in global flood exposure and vulnerability. *Nat Commun* 16, 1287. DOI: 10.1038/s41467-025-56654-8.

- [14] Rosa P.B.Z., de Oliveira G.M., Pimentel M., Schuch M., Wolf J. Climate catastrophe in Rio Grande do sul, Brazil: impact of strategic actions in response to flooding, 2025. *BMC Res Notes*. Feb 6;18(1):56. DOI: 10.1186/s13104-025-07094-6.
- [15] Savari, M., Jafari, A. & Sheheyavi, A., 2025. Determining factors affecting flood risk perception among local communities in Iran. *Scientific Reports*, 15, 4076. DOI: 10.1038/s41598-025-88673-2.
- [16] Składanek, B., 2021. Rola Wojsk Obrony Terytorialnej w systemie zarządzania kryzysowego [The role of the Territorial Defense Forces in the crisis management system]. *National Security Studies*, 20 (2021), 19. DOI: 10.37055/sbn/14628.
- [17] Szczurek, T., 2023. Resort Obrony Narodowej w systemie zarządzania kryzysowego [Ministry of Defense in the crisis management system]. *Annals of Social Sciences*, Vol. 15(51) No. 2-2023, DOI: 10.18290/rns2023.0020.
- [18] Szczurek, T., Bryczek-Wróbel, P., Adamkiewicz, J., 2022. Funkcjonowanie Wojsk Obrony Terytorialnej Polski w świetle kryzysu na Ukrainie [Functioning of the Polish Territorial Defense Forces in light of the crisis in Ukraine]. *Scientific Reports of Fire University*, 83, 123-140.
- [19] Terebecki, M., 2022. Wykorzystanie nowoczesnych technologii przez Wojska Obrony Terytorialnej podczas działań – roje dronów [Use of modern technology by Territorial Defense Forces during operations - drone swarms], 17 and 31. *Pro Publico Bono Scientific Papers*, 1 (1). DOI: 10.5604/01.3001.0016.1956.
- [20] Wasilewski, W., 2022. Wojska Obrony Terytorialnej w systemie bezpieczeństwa ekologicznego [Territorial Defense Forces in the environmental safety system]. *National Security Studies*, 23 (2022), 82. DOI: 10.37055/sbn/149586.