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CRISIS MANAGEMENT
AS A RESEARACH PROVINCE OF SECURITY SCIENCE

A b s t r a c t. The issue of crisis management is constantly present in the literature, especially internationally. In Poland, researchers' interest in this problem is relatively short-lived, as the concept itself stems from American solutions and was transferred to civil protection in the late 1990s. The aim of the article is therefore to present a structured overview of research on crisis management from 1945 through 2023, using bibliometric analysis. The origin of crisis management in Poland is discussed along with a bibliometric analysis of publications stored in the SCOPUS database.

Keywords: crisis management; security science; bibliometric analysis; research trends.

INTRODUCTION

In order to fulfil its permanent mission, the efficient organisation of the civil protection system is considered essential. The system must bring together all relevant and competent actors from the central and local government, as well as from non-governmental partners. Moreover, it will not be fully operational

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if prepared and conscious citizens and other persons occupying a specific territory are not involved (Kitler and Skrabacz, 2010).

Meanwhile, for more than a decade, Poland has been seeking an optimal solution for the organisation of the civil protection system. Such a solution should meet the needs and expectations of society while having regard to the financial capacity of the Polish state. A deeper look an the condition of civil protection reveals that it has been an outdated system for years, unable to tackle contemporary threats and expectations of the present day. Successive drafts of civil protection laws in 2016, 2019 (Stochaj, 2020) and 2023 failed to succeed in the legislative process. The repeal in 2022 of the Act of 21 November 1967 on the Universal Duty of Defence of the Polish People's Republic, containing provisions on civil protection, finally put an end to the obsolete structure of civil protection going back to the Cold War and communist Poland (Polish People's Republic). It would be a mistake, however, to infer that the state is currently not implementing any civil protection mission. There are isolated solutions and schemes that aim to protect and save lives and health of citizens, as well a property and the environment, in the event of popular threats. Also in emergency situations, the public administration has legal tools in place, such as the Act of 26 April 2007 on Crisis Management. Its prescriptive regulations govern the administration of the state at all operational levels (central, regional, district, and municipal). In addition, where standard constitutional measures prove insufficient, one of the three states of emergency can be lawfully introduced with a view to restoring the regular functioning of the state as soon as possible (Hac, 2022).

The last drafted law on civil protection and the state of natural disaster (adopted by the Standing Committee of the Council of Ministers but not put on the meeting agenda of the Council of Ministers as of June 2023) provided for the repeal of the Act on Crisis Management. Thus, once again in the history of Poland, the legal and organizational order regarding universal security would have been shattered; what is more, it would have been based on unclear rationale.

Given the foregoing, the authors offer a structured review of research on crisis management, spanning the period of 1945-2023. They lay particular emphasis on the identification and evaluation of the scope of contemporary understanding of this research province. To achieve this objective, the methodology of bibliometric analysis was employed. It demonstrates that crisis management is a vivid and keenly explored area of research across the academia, which is evidenced by the number and type of scientific papers.

The authors face the following problems: How was the crisis management system implemented in Poland? and What conclusions can be drawn from the structural research (employing bibliometrics) into the theory and practice of crisis management?

To understand the very essence and origin of crisis management in Poland, the legal and organizational changes in the studied domain were reviewed. In addition, the authors approach crisis management as a field of scientific research by relying upon the analysis of selected international and domestic papers. A bibliometric investigation was also carried out of the scientific output on crisis management available in the SCOPUS database. The following research methods were used: 1. analysis of the content and number of publications over a specific period to assess scientific activity; 2. citation and citation network analysis to assess the impact of the research subject on the development and diffusion of knowledge in the field; 3. co-word analysis, co-classifications analysis, and co-authorship analysis to pinpoint research trends in the field. Four bibliometric indicators were put in place: the number of articles, the number of citations of articles in the adopted chronology, the number of articles in specific types of documents, and the number of articles by country.

Given the extent of the subject of research, a number of keywords were selected, as well as sources indexed in the SCOPUS database after 1945 and all possible types of documents.

THE BEGINNINGS OF CRISIS MANAGEMENT IN POLAND

The use of chemical weapons (gas) and aircraft during World War I caused military operations to reach far beyond the front lines. Even urban areas were affected in order to effectively cripple the enemy's military infrastructure. Consequently, vulnerable civilian populations were exposed to the risk of death or injury and property losses (Kitler, Skrabacz, 2010, p. 153). Poland was Europe's first to draw up law to address the problem of protection and defence of its population (Act of 15 March 1934 on Air and Chemical Weapon Defence, Journal of Laws of the Republic of Poland, 1934). Next was the Regulation of 29 January 1937 on the Preparation of Air and Chemical Weapon Defence of the State during Peace (Journal of Laws of the Republic of Poland, 1937). It provided more detailed solutions on civil protection.

The capacity of the state, and especially of the Polish society, to self-organize and render self-help (Brzezińska, 2011, p. 10), sometimes referred to as civic

training (Strzembosz and Zakroczymski, 2021, pp. 58–59), produced positive results during World War II. The early years of WW2 saw the emergence of numerous underground organizations that were gearing up to oppose the German and Soviet invaders and protecting the population from annihilation. The heavy toll of almost 12 million war victims was significantly reduced as a result of the prior preparation of the population for WW2 hostilities (Szmitkowski, 2012) and the well-developed resistance and underground state, the scale of which was not seen in other war-stricken countries (Davis, 2003, p. 89).

The experience of two world wars reaffirmed the need to aid the victims (military and civilian) and to afford them protection under international law. This was the goal behind the adoption on 12 August 1949 of the Geneva Conventions on the Protection of Victims of War. 64 states were the signatories. Later, on 8 June 1977, the conventions were supplemented by Protocols I and II (dealing with international and non-international armed conflicts, respectively). Among other things, they addressed the concept and objectives of civil defence (Protocol, 1977).

In the Polish People's Republic after 1945, the Ministry of National Defence was in charge of civil contingency planning and civil defence. The issue was heavily militarized, and the military rivalry between the Warsaw Pact and NATO posed a risk of World War III. Hence, the main objective of civil defence was to prepare the general public to defend against military threats. The fundamental law in this respect was the Act of 21 November 1967 on the Universal Duty of Defence of the Polish People's Republic (reworded as "Republic of Poland" after 1989). Yet, it used the term "civil defence" in lieu of "civil protection" (Journal of Laws of 1967). The deputy minister of national defence was the head of the State Civil Defence; regional governor (*wojewoda*) was the head of regional civil defence; and municipality (*gmina*) leader was the head of local civil defence.

After 1989, the organization of the civil protection system heavily relied on the lessons learned already in the early years of Poland's transformation. A major change in the civil protection system was the transfer of civil defence from the domain of national defence to internal affairs as from 1 January 1997. In other words, the Head of the State Civil Defence was now reporting to the Minister of Internal Affairs.

Another extensive experience was the devastating 1997 flood which struck the south-west regions of Poland. In Poland, after the civil defence effort had only focused on military threats, the flood situation exposed multiple organizational flaws and coordination deficiencies. What seemed perfectly set out in strategy documents never worked in the real emergency situation.

The water damaged infrastructure and took away the property of many thousands of people. Public administration, uniformed services, inspections, and rescuers were put to a major efficiency test. In total, 75 thousand troops were engaged in rescue operations, next to firefighters, officers, and thousands of residents (BBN, 1997).

The coordination and organization of rescue operations during the flood crisis were a complete failure, which was particularly evident in the case of civil defence, both at the municipal and central level. The assessment of the emergency response is best seen in a report drawn by the National Security Bureau which said, "almost invisible, shortage of skill and training, crippled response" (BBN, 1997).

Following the trenchant criticism of civil defence operations during the flood, in 1998 the Minister of Interior and Administration decided to rename the Office of the Head of Civil Defence as the Office of Emergency Management and Civil Protection and designed a new organizational structure of the new office in the field. Among other things, the Regional and Municipal Civil Defence Inspectorates were replaced by the Departments of Crisis Management, Civil Protection and Defence Affairs.

That change marked the beginning of the process of transformation of civil protection and civil defence into a crisis management system in Poland. The idea was modelled on U.S. solutions, in particular the activity of the Federal Emergency Management Agency (FEMA) established in July 1979. Originally, FEMA operated as an independent governmental organization, but after the terrorist attacks of 11 September 2001, it was incorporated (as from 1 March 2003) into the structure of the Department of Homeland Security (FEMA, 2022).

As in the USA, the idea behind establishing a crisis management system in Poland was to involve public administration at all levels, public and private sector actors, and the general public. However, besides the new naming convention, no coherent and comprehensive solutions were put in place in the area of state management in a situation of military and non-military crisis. The designers of the new system focused on the establishment of crisis response teams, to be deployed in the event of natural disasters, and crisis management centres. The changes were not implemented by a parliamentary act (no crisis management law had been ready yet) but by an administrative decision.

The year 2000 saw another reorganization of the civil defence structure in Poland. The position of the Head of State Civil Defence was combined with that of the Chief Commander of the State Fire Service. Also, the names of organizational units at the regional and district level were shortened as crisis management

departments (Skrabacz, 2005). The two functions were formally separated in December 2006 when the Department of Emergency Management, with a division in charge of civil defence, was established within the Ministry of Interior and Administration. In 2007 the duties of the Head of State Civil Defence were again assigned to the Chief Commander of the State Fire Service. This is when the Bureau for Civil Protection and Civil Defence (today, the Civil Protection Bureau) was formed at the Headquarters of the State Fire Service. When it comes to the in-the-field capacity building, regional administration (*województwo*) established designated units handling crisis management, civil defence, and defence affairs in general (today, security and crisis management units). At the district level (*powiat*), the same units operate either independently or within the structures of other departments (bureaus). Municipalities (*gmina*) most often appoint individual members of the office personnel (single-person positions) to deal with all matters related to security and defence (Sadowski, Skrabacz and Rogowski, 2020, pp. 156–160).

First law regulating crisis management was adopted no earlier than in 2007 as the Act of 26 April 2007 on Crisis Management (Journal of Laws of 2007). Its adoption was undoubtedly accelerated by an audit carried out several years earlier by the Supreme Audit Office (from 11 July 2002 to 14 January 2003). The audit had revealed numerous flaws and shortcomings in the area of crisis management, including the inadequate level of preparation of the combined administration for crisis response (NIK, 2003). Another report drawn up by the same office in 2018 pointed to the absence of appropriate plans and procedures as well as conditions for proper coordination of emergency response, which was likely to impair the effectiveness of services responsible for civil protection, especially in the event of a crisis situation (NIK, 2018, p. 9).

The findings contained in the report did not, however, lead to any follow-up in terms of legal and organizational measures aimed to improve the system. When the Homeland Defence Act of 11 March 2022 came into force (Journal of Laws of 2022), the Act of 21 November 1967 on the Universal Duty of Defence of the Republic of Poland (including the provisions of Section IV on civil defence), along with its implementing instruments, was repealed. Consequently, Poland's law lacks regulations on civil protection and civil defence, although it is the signatory of the relevant conventions and protocols. A draft law, intended to become effective as from 1 January 2023, provided for the repeal of the Act of 26 April 2007 on Crisis Management. It also redefined the concept of crisis management while leaving crisis management task forces and centres as they are. If the law had come into force, Poland would have once again

remodelled its system which had already settled down in the national legal and organizational framework after more than ten years of application.

CRISIS MANAGEMENT AS AN AREA OF RESEARCH INTEREST

Crisis management is a popular theme surfacing in international scholarly literature, both in theoretical and empirical terms. Given the difficulties in carrying out a holistic review of the scientific output on the subject of research, only selected papers published over the last ten or more years were analyzed and synthesized. They approach the subject of crisis management from various angles as well as unveiling its multidimensional face.

In Christer Pursiainen's monograph work, *The Crisis Management Cycle* (2018), the author notes that crisis management is a broad research province. It is investigated by researchers representing many scientific disciplines, among them security science, political science, public policy, administration, international relations, and international relations. psychology, health sciences, and environmental protection. In other words, the crisis management concept and its definition vary across disciplines and areas of interest, or depend on the context of investigation.

When reviewing successive attempts to define crisis management, C. Pursiainien (2018) finds that three shared criteria can be identified that are conducive to its understanding:

1. In a crisis situation, there is a threat to the principal objectives or values relevant to the affected entity. 2. Time is short, which requires fast decisions. 3. A crisis situation generates multiple unpredictable developments or uncertainties; they disturb the proper analysis of the situation and complicate the decision-making process. Therefore, each phase of the crisis cycle, namely risk assessment, prevention, preparedness, response, recovery, and learning, should be handled separately. The next step is a holistic conceptualization of the crisis management process.

Crisis management is extensively covered in *The Journal of Contingencies and Crisis Management*, issued by John Wiley & Sons Ltd (online ISSN:1468-5973; print ISSN:0966-0879). It is a valuable source of information on all aspects of contingency planning, scenario analysis, and crisis management in both the corporate and public sectors.

In one of the articles published therein, the authors (Islam et al., 2023) note that infrastructure-related disruptions, failures, and crisis events are more and

more multidimensional and complex, partly because they affect interdependent and complex systems. Individuals managing crises are faced with circumstances that vary in terms of complexity, scale, and visibility, therefore attracting greater or lesser mass-media and stakeholder attention. They can be seen as routine disruptions that can be effectively managed by employing established response procedures. However, these procedures should match the scale, intensity, and type of threat, which, by extension, requires an appropriate action level of the crisis management structure.

Christophe Roux-Dufort (2007) offers a novel approach to crisis management, including to the crisis theory linked to the organizational theory. In his view, linking crises only to the breakdown of organizations leads to crisis management being reduced only to the analysis of emergency situations with apparently negative outcomes. In this approach, crisis management becomes an isolated discipline with little room for innovation and progress. As an alternative, the author proposes to view a crisis as an incubation process that begins long before an actual emergency event (that triggers action).

Our review of international papers cannot overlook research on crisis management – or rather mismanagement – following the example of Hurricane Katrina. The cyclone hit the USA in August 2005. Ali Farazmand (2007) shares a global and international perspective of Katrina as an example of "great failure" of crisis management. He also offers insights and suggestions for the future crisis management effort.

The contribution of Chinese scholars, who are very active in research and dissemination of its results, must also be highlighted. They support the opinion that crisis management in China is hinged upon the Chinese definition of national interest in the face of the shifting balance of power and the dynamics of the great powers (Sun, 2020).

Chinese experts define crisis management as the use of diplomatic, military, and economic means to create favourable circumstances to reduce tensions, keep losses low, and induce the opponent to compromise while avoiding loss of control or military escalation (Johnston, 2016).

As regards Poland, researchers who pioneered research into the subject of crisis management are Waldemar Kitler (1998, 2007, 2010), Jarosław Gryz (2007, 2021) and Grzegorz Sobolewski (2011, 2012).

W. Kitler points out that several, often mutually exclusive views seem to prevail in crisis management definitions (Kitler and Skrabacz, 2010, p. 98). While elaborating on the concepts to crisis management, the author notes that every security domain involves crisis management as a specific and distinctive

security management process in general. This also applies to civil protection, including rescue missions. Crisis management will be put in place in these areas when a standard response proves insufficient, and such measures will be required that go beyond constant vigilance and relying on expedients (Kitler and Skrabacz, 2010, p. 103).

Grzegorz Sobolewski approaches crisis management as a set of steps taken by the central and local government administration with the intent to prevent, prepare, respond, and recover efficiently and effectively in the face of challenges and threats (Sobolewski, 2012, p. 78).

In contrast, the authors of the textbook, *Crisis Management: Legal and Organizational Basis*, take the view that the performance of crisis management is a continuous process that embraces action taken in time of peace, or in the circumstances of no or reduced threat, and one that addresses a specific threat (including during hostilities). In the crisis management system, it is pivotal that all authorities be properly prepared, and conditions must be created to ensure that public bodies work effectively in the event of threats and crisis situations. Public administration bodies should be supported by crisis management teams and crisis management centres (Sadowski, Skrabacz and Rogowski, 2020, pp. 142-143).

RESEARCH OUTPUT ON CRISIS MANAGEMENT: BIBLIOMETRIC ANALYSIS

Advancements in scientific research in any discipline, including in security science, clearly depend on the momentum of changes in the world around us and the global process of dissemination of knowledge. Given that, researchers are constantly exploring potential research domains, the extent of their penetration by scholars, as well as monitoring the output of leading international research centres working in specific fields.

Bibliometry is a tool that can assists scientists in finding answers to some of the most burning questions. In relation to scientific research, it can be defined as a quantitative analysis of scientific papers with a view to eliciting information on the latest achievements and developments in a selected research area (Klincewicz, Żemigała and Mijal, 2012). Moreover, bibliometry permits predictions about future trends in scientific research in a domain of choice; it helps identify research areas and links between them that have increased in intensity.

Crisis management as a research area requires recourse to science mapping, bibliometric analysis with evaluation technique (to identify qualitative and quantitative research indicators and compare the scientific input by other scholars), and a relational technique that examines the relationship among pieces of data published in scientific papers, i.e. co-citation analysis, co-word analysis, co-classification analysis, and bibliographic coupling (Lenart-Gansiniec, 2021). The literature of the subject recommends a combination of the evaluation and relational techniques (Gaviria-Marin, Merigo and Popa, 2018).

Science mapping combines analysis, classification, and visualization (Zupic and Carter, 2015); besides, it helps in achieving a common understanding and interplay between different fields of knowledge. The primary data source for this paper was SCOPUS; English was the language of analysis; and the Vosviewer software was employed to visualize results (Eck and Waltman, 2020).

The SCOPUS database was searched to identify the following terms in titles, keywords, and abstracts: "crisis management," "emergency management," "risk mitigation," "critical incident management," "crisis response," "contingency planning," "civil protection." All these most often appear in the group of the phrase "crisis management" in the literature (Fig. 1). Quotation marks allow the search for the exact phrase made up of a pair of words. Without this special character, the hit list will contain results for the key words considered separately and covering isolated topics.
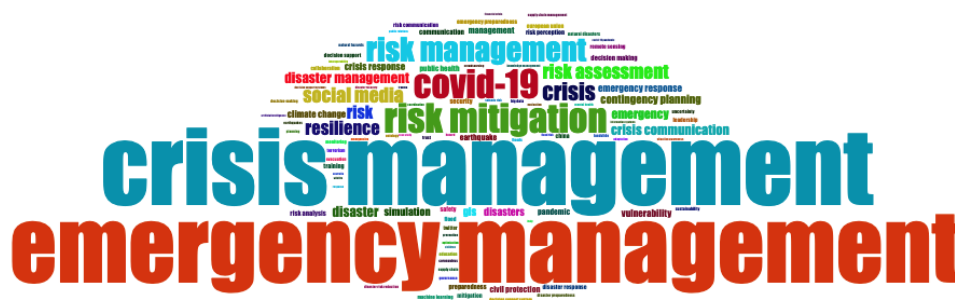

Figure 1. Word cloud with terms referring to crisis management in the SCOPUS database
Source: own study.

For the sake of this study, based on preliminary analysis, the scope of search was limited to the phrase "emergency management" supplemented by "crisis management" and "risk mitigation." Bibliographic data from all types of documents published after 1945 were subject to examination (Fig. 2).
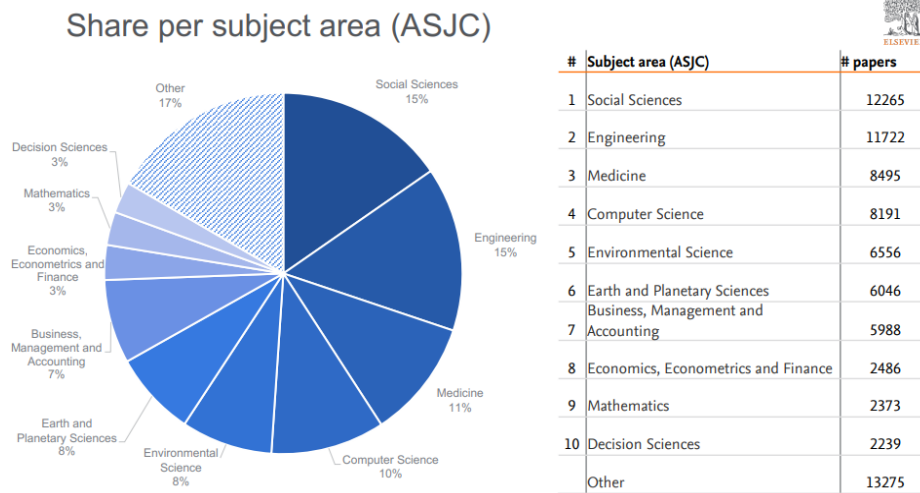
Share per subject area (ASJC)

#	Subject area (ASJC)	# papers
1	Social Sciences	12265
2	Engineering	11722
3	Medicine	8495
4	Computer Science	8191
5	Environmental Science	6556
6	Earth and Planetary Sciences	6046
7	Business, Management and Accounting	5988
8	Economics, Econometrics and Finance	2486
9	Mathematics	2373
10	Decision Sciences	2239
	Other	13275

Figure 2. Number of documents in the "crisis management" research field in SCOPUS

Source: own study.

The largest number of publications on crisis management in the SCOPUS database fall within the domain of social sciences; the largest set are scientific articles (26,673, which represents 58% of all publications) followed by post-conference papers published in post-conference volumes (11,351, which re-presents 25% of all publications) (Fig. 3).

Share per document type

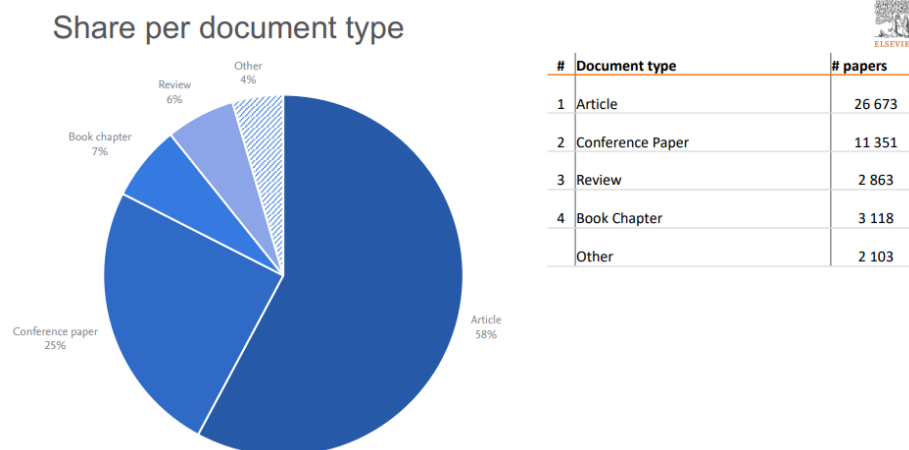| #	Document type	# papers
1	Article	26 673
2	Conference Paper	11 351
3	Review	2 863
4	Book Chapter	3 118
	Other	2 103

Figure 3. Types of documents on crisis management published in SCOPUS

Source: own study.

Cross-sectional information on the literary output on crisis management was obtained by analyzing publications by country of publishing. The United States of America leads the way with 13,300 publications (23%) followed by China with 4,258 (ca. 7%) (Fig. 4).
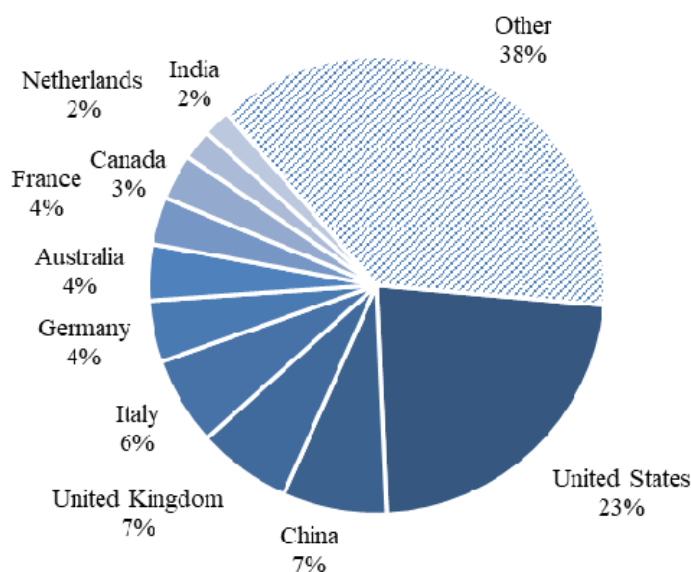

Figure 4. Publications on "crisis management"
by country published in the SCOPUS database in the years 1945-2023

Source: own study.

A structural analysis within SCOPUS enables a geographical map of international scientific cooperation to be generated, which reflects the affiliation of the author of the article. Again, the United States of America and China are home to the greatest number of publications (Fig. 5). Certainly, of relevance for the shape of the map is the fact that English is the global language of science. It is conducive to circulating research results and make them reverberate (Montgomery, 2013). The publishing legacy of the Polish research community exploring the field of crisis management is modest compared to that found in international reference databases, as seen by the language of the publication, because the English-speaking countries and scholars definitely prevail in this respect.
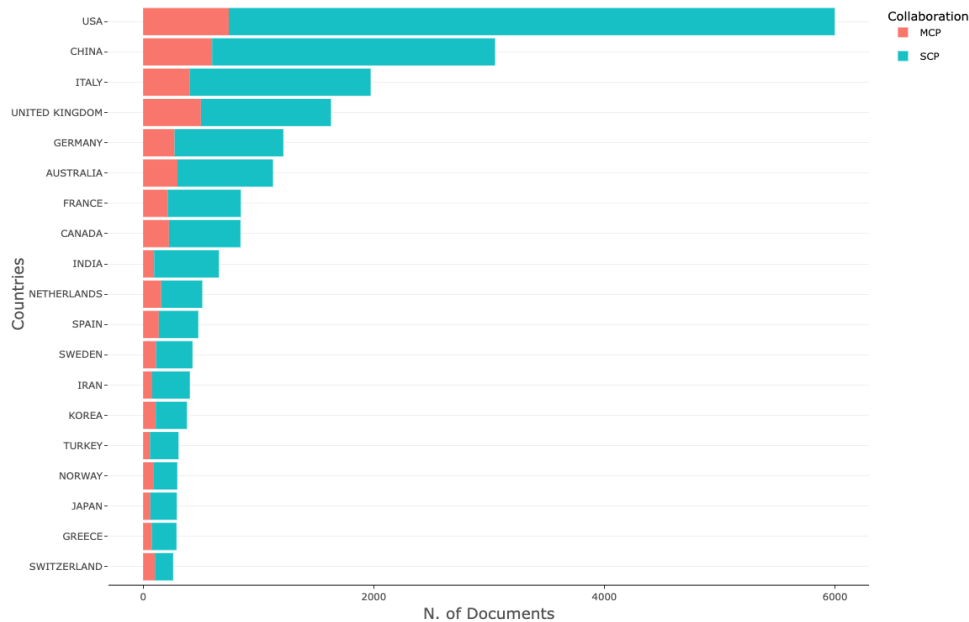
Figure 5. International collaboration on "crisis management"
in the years 1945-2023 according to the SCOPUS database

Source: own study.

Another stage of investigating the bibliometric data of publications on crisis management using SCOPUS is the analysis of co-words. This methods helps calculate the frequency of co-occurrence of closely related pairs of words in texts. Consequently, specific collocations can be identified, and the co-occurrence of keywords may imply the existence of research sub-domains that can as well be a starting point for further exploration. In the analyzed case, the relations in the conceptual structure of the studied domain are worth noting. It clearly shows some emerging topics (nodes) and links between them. Each node on the keyword density visualization platform is marked with a colour that corresponds to the density of elements in that node (Fig. 6).
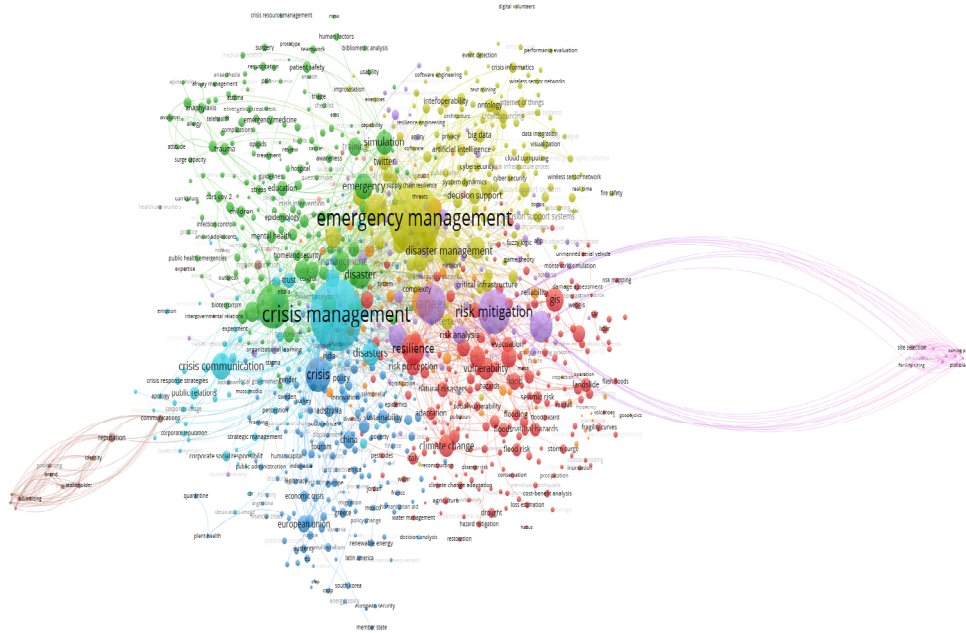
Figure 6. Map of co-words related to "crisis management"
in the SCOPUS database

Source: own study.

Many international research projects require co-authorship. Therefore, its analysis may serve as a tool for the evaluation of research teams or centres. The co-authorship analysis in the form of nodes (Fig. 7) demonstrates the current state of research and reflects the intensity of author-to-author communication on a global scale.
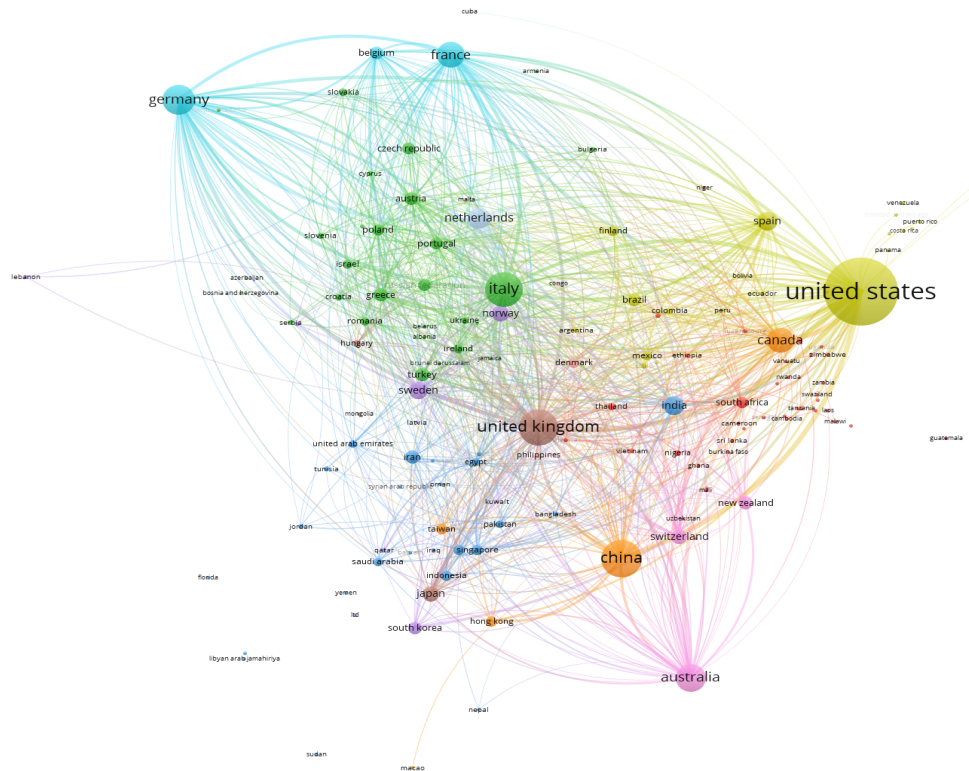
Figure 7. Map of co-authorship regarding "crisis management"
by country in the SCOPUS database in the years 1945-2023

Source: own study.

CONCLUSIONS

Our bibliometric analysis has confirmed that the subject of crisis management reveals high momentum and potential as a research domain. It is widely studied in social sciences. The number of publications on the subject within the selected time frame has shown a fast growth over the last two decades. Moreover, researchers' interest in the subject is far from fading away. After the September 11 attacks and the COVID-19 epidemic, there researchers started to be allured to the study of the theory and practice of crisis management.

The analysis covered in this paper has some methodological limitations. By focusing on selected articles from one scientific database (SCOPUS), it ignores other databases that may contain other intriguing publications falling

within the category of inspirational papers. In addition, one of the article selection criteria was the language of publication – English. Therefore, works published in other languages, including Polish, are not included. However, the completed bibliometric analysis is likely to contribute to further in-depth research that may take the form of a regular review of selected literature, including through a comprehensive and repeated evaluation and synthesis of published works covering a specific topic (Lenart-Gansiniec, 2021).

Special attention should also be paid to the idea of internationalization of academic staff in Poland. The last decade has seen amendments to the rules and requirements contained in the law on higher education aimed to strengthen the role and strategic importance of internationalization in the domain of institutions (Antonowicz, 2019). The body of publications on crisis management produced by the Polish research community is rather modest when compared to other countries, especially the USA and China. The beginnings of Polish research on crisis management can be traced to military universities and stem from military science (security science after 2011). Today, numerous renowned universities and colleges undertake research on the problem, both for the sake of advancing scientific knowledge as well as developing praxeological and didactic guidelines. The results of this research effort should be embedded in legal and organizational projects undertaken by the representatives of the executive power and processed by the legislature. All management decisions in crisis management should be reached based on the scientific theory and practice of crisis management system in public administration and not on spontaneous ideas of politicians.

The results obtained in the research lead to the following conclusions:

1. Crisis management as a subject of scientific research is widely studied in social sciences. The prevailing language of publications is English, and article leads the way as a publication type.

2. Crisis management as a scientific term is known to the Polish scholarly publishing, although it has not been around for long in the discipline of security science, thus lacking a deeper scientific understanding. Therefore, its meaning should be refined for the sake of clarity; it should be allocated the right place among related concepts; and the effect of polysemy should be excluded.

3. Constant legal and organizational changes are anything but conducive to the development of a knowledge system for crisis management. Advancing scientific theories fed by social practice and scientific facts is time-consuming and requires consistency and regularity, which is by far challenging to achieve in the face of constant changes.

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ZARZĄDZANIE KRYZYSOWE
JAKO OBSZAR BADAWCZY NAUK O BEZPIECZEŃSTWIE

Streszczenie

Problematyka zarządzania kryzysowego jest stale obecna w literaturze przedmiotu, zwłaszcza międzynarodowej. W Polsce zainteresowanie badaczy tą problematyką jest stosunkowo krótkie, samo pojęcie zostało bowiem zaimplementowane z rozwiązań amerykańskich i przeniesione na grunt ochrony ludności pod koniec lat 90. XX wieku. Celem artykułu jest zatem zaprezentowanie strukturalnego przeglądu badań dotyczących *zarządzania kryzysowego w* latach 1945-2023. Przedstawiono genezę zarządzania kryzysowego w Polsce oraz dokonano analizy bibliometrycznej dorobku publikacyjnego znajdującego się w bazie SCOPUS.

Słowa kluczowe: zarządzanie kryzysowe; nauki o bezpieczeństwie; analiza bibliometryczna; trendy badawcze.