

BEST PRACTICES IN CIVIL PROTECTION MANAGEMENT: IDENTIFYING CHALLENGES, RECOMMENDATIONS, AND INTERNATIONAL CASE STUDIES

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Abstract: Civil protection management is crucial in mitigating risks and ensuring effective emergency response. This article explores the identification and analysis of challenges and obstacles, provides recommendations for improving the civil protection management system, and presents international case studies showcasing best practices. By adopting a scientific approach, this article emphasises the importance of collaboration, continuous education and training, system evaluation, technological advancements, and interdisciplinary engagement. Through synthesising knowledge and practical experience, civil protection management can enhance its ability to protect communities, minimise damage, and promote resilience in the face of diverse challenges.

Key words: civil protection, management, resilience

1. INTRODUCTION

Effective civil protection management requires an understanding of challenges and obstacles. By examining risk factors and vulnerabilities, stakeholders can develop innovative and efficient strategies to protect communities. The article presents an overview of best practices, focusing on risk assessment, continuous monitoring, multidisciplinary collaboration, and implementing preventive measures. The fact is that number of high-profile crises and disasters have driven the EU to increase cooperation among its member states in civil protection and to enhance its capacity to conduct civil protection operations in Europe and around the world. The EU's expanding role in civil protection mirrors its increased involvement in other security areas, such as fighting organised crime, combatting terrorism, and countering cyber threats. However, in the light of recent transboundary crises in the EU, manifested by the refugee crisis, terrorist attacks, and natural disasters, it is far from clear how effective such cooperative EU

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arrangements can be due to differences in the way national civil protection has been organised and due to the question of whether sufficient trust exists within and between the involved organisations. (Parker et al., 2019) During the COVID-19 outbreak, it is evident that civil protection mechanisms play an essential role in protecting the population. For the first time in the history of humanity, the world encountered a global emergency that showed all the weaknesses of emergency management and the unwillingness of states to respond to that challenge adequately. (Strbac et al., 2022) After the outbreak, every country should reconsider the role of civil protection management in it.

2. IDENTIFICATION AND ANALYSIS OF CHALLENGES AND OBSTACLES

Comprehensive risk assessments are highlighted as a valuable practice, enabling the identification of potential threats and vulnerabilities. By involving experts from diverse fields, civil protection management can better understand the impact of these challenges on infrastructure, populations, and the environment. Additionally, establishing a system for continuous monitoring and analysis of information is emphasised, utilising advanced technologies for data collection and analysis. Engaging experts from various disciplines and fostering multidisciplinary cooperation is crucial for analysing complex problems and developing innovative solutions. Identifying and analysing challenges and obstacles in civil protection management is vital to understanding and effectively managing risks. Examples of good practice in this segment illustrate how these challenges are recognised and analysed innovatively and effectively. One example of good practice is the application of comprehensive risk assessments. In this case, civil protection management collaborates with experts from different fields to identify potential threats and vulnerabilities that may affect the community. Through detailed analysis, key challenges and obstacles are identified, as well as their potential impact on infrastructure, population, and environment. Another example of good practice is establishing a system for continuous monitoring and analysis of information. Civil protection management uses advanced technologies, such as sensors, data collection systems and analytical tools, to monitor relevant parameters and trends. This enables quick identification of new challenges and obstacles, as well as timely decision-making and taking of measures. Also, an example of good practice includes hiring experts from different disciplines. Civil protection management establishes cooperation with experts in technology, medicine, urban planning, sociology, and other relevant fields to understand challenges and obstacles better. Teams analyse complex problems together through a multidisciplinary approach and develop innovative solutions. (Indjic et al., 2013) Introducing preventive measures in response to identifying challenges and obstacles is also an example of good practice. Civil protection management recognises potential risks and actively takes steps to reduce their impact. Actions may include establishing early detection systems, educating the population, improving infrastructure, or implementing technological innovations. Through examples of good practice in identifying and analysing challenges and obstacles, civil protection management demonstrates the ability to approach complex situations systematically and efficiently. Through innovative approaches, multidisciplinary cooperation and the application of preventive measures, civil protection management ensures that the community is adequately prepared and resistant to various challenges.

3. RECOMMENDATIONS FOR THE IMPROVEMENT OF THE CIVIL PROTECTION MANAGEMENT SYSTEM

This section provides recommendations to enhance the efficiency and effectiveness of civil protection management systems. Establishing integrated mechanisms for cooperation and coordination among relevant actors is crucial, ensuring effective communication, information sharing, and joint planning. Continuous education and training for all stakeholders are vital to improving skills, knowledge, and emergency management capabilities. Regular evaluation and improvement of the system enable the identification of weaknesses and facilitate targeted enhancements. Strengthening technical infrastructure and technological capacities, such as advanced data collection systems and communication networks, are also recommended. Lastly, engaging experts and partners from diverse fields foster innovation and the development of advanced strategies and technologies for emergency response. Improving the civil protection management system requires careful consideration and application of appropriate recommendations to ensure the system's efficiency and effectiveness. Professional aspects highlight several critical recommendations for improving the civil protection management system. First, it is essential to establish integrated mechanisms for cooperation and coordination between all relevant actors. An integrated mechanism implies close cooperation between the government, local governments, civil protection management, the private sector, civil society, and other relevant institutions. Regular communication, information sharing, and joint planning are crucial for effective emergency response. (Dragisic, 2022) The second recommendation refers to continuous education and training of relevant actors. Civil protection management should provide regular training, exercises and simulations for all employees and associates to improve skills, knowledge and abilities related to emergency management. Also, educating citizens on how to act in emergencies and raising awareness of risks and preventive measures is essential. The third recommendation refers to the continuous assessment and improvement of the civil protection management system. Regular evaluations of the design, analysis of procedures during previous emergencies and feedback from relevant actors enable the identification of weaknesses and potential improvements. Based on these findings, civil protection management should improve plans, procedures, and capacities. (Indjic et al., 2013) The fourth recommendation refers to the strengthening of technical infrastructure and technological capabilities. Introducing advanced specialised tools, such as data collection systems, analytical software, sensors, and warning systems, can significantly improve emergency monitoring, identification and response. Also, improving infrastructure, such as communication systems, warehouses, and logistical support, enables a faster and more efficient response to crises. (Indjic et al., 2013) The last recommendation refers to the continuous engagement of experts and partners from different fields. Cooperation with scientific institutions, experts from various disciplines and partners from the private sector provides access to the latest knowledge, resources, and innovations in civil protection management. This cooperation can contribute to developing advanced strategies, techniques and technologies for protection and response to emergencies. Implementing these recommendations can significantly improve the civil protection management system and increase society's ability to face emergencies.

4. INTERNATIONAL CASE STUDIES

This section highlights international case studies that exemplify best practices in civil protection management. Italy's well-organised civil protection system, integration of different actors, and emphasis on training, exercises, and preventive measures are showcased. Norway's holistic approach, integration of all levels of government, and technological advancements contribute to its successful emergency management. Australia's comprehensive planning, use of advanced technology, community collaboration, and international cooperation are

highlighted. Japan's effective response to natural disasters, technological innovation, and cooperation with the population demonstrate its exemplary civil protection management system. The Netherlands' advanced flood warning system, infrastructure development, and stakeholder cooperation provide valuable insights into managing specific risks.

4.1. Italy

Italy stands out as an example of good practice in civil protection management. Their approach and experience in emergency management can serve as an inspiration and model for other countries. Italy has established a well-organised and coordinated civil protection system consisting of different levels of government, institutions, and organisations. In the Government of Italy, Minister for Civil Protection and Maritime Policy coordinates the relations between the government and Italian Civil Protection. At the national level, the Department for Civil Protection (Protezione Civile) has a crucial role in coordinating and managing emergencies. This agency is responsible for gathering information, analysing risks, planning and implementing preventive measures, and coordinating reactions in crises. (Allegretti, 2021) One of the critical features of the Italian system is its ability to integrate different actors and organisations in the decision-making and crisis management process. Strong cooperation exists between national, regional, and local authorities, the military, the police, health institutions, firefighters, the Red Cross and other civil protection organisations. This cooperation enables effective coordination of resources, information, and actions during emergencies. Italy also shows excellent attention in training, exercises, and simulations. Through regular training and exercises, civil protection management actors continuously improve their skills and prepare for different scenarios of emergencies. These activities provide an opportunity to test the system, identify deficiencies and improve efficiency in responding to crises. Italy also shows a strong commitment to preventive measures. In addition to a reactive approach, the country strongly focuses on identifying potential risks, planning and implementing measures to prevent them or reduce their consequences. This strategy reduces vulnerability and increases resilience to emergencies. An example of Italy's good practice can inspire other countries to improve their civil protection management systems. The Italian Department of Civil Protection (CP) encourages the participation of volunteer organisations in civil activities and emergency responses. They include psychosocial activities; social welfare activities, as assistance to the most vulnerable people (young people, the elderly, the sick, the disabled); the garrison of the territory; logistics and organisational support in case of natural or human-caused disasters, administrative and secretarial activities; prevention and an active fight against forest and interface fires; non-specialist site restoration activities and preparation and administration of meals; driving special vehicles; activities in the field of radio and telecommunications; diving activity; canine activities). More than one million people throughout Italy and more than 5000 organisations are registered on the National Civil Protection Department list (Roncone et al., 2021). Key lessons drawn from the Italian experience include strong cooperation between different actors, a focus on training and exercises, preventive measures and continuous system improvement based on identified deficiencies. These practices can help strengthen preparedness and manage crises in different countries more effectively.

4.2. Norway

Norway stands out as another example of good practice in civil protection management. Their holistic approach, high level of organisation and efficiency in responding to emergencies make them a model for other countries. One of the critical features of the Norwegian civil protection system is the integration of all levels of government, from national to local, as well as a wide range of relevant actors. The National Agency for Civil Protection (Directorate for Civil

Protection) coordinates and supports regional and local civil protection authorities. This agency provides guidance, training, and resources to ensure preparedness and effectiveness in responding to emergencies. (Morsut et al., 2020) Norway also has a well-developed preventive culture. The focus is identifying potential risks and implementing measures to prevent them or reduce their consequences. Preventive measures include clearly defined protocols and plans, regularly holding exercises and simulations, and intense supervision over critical sectors such as energy, telecommunications, transport, and health. Norway also shows high responsiveness and flexibility in responding to crises. Quick mobilisation of resources, good coordination between different sectors and effective communication are vital to their success. In addition, great attention is paid to psychosocial support for vulnerable communities, providing them with support and resources for post-disaster recovery. Norway also actively participates in international cooperation in the field of civil protection. Exchanging experiences, knowledge and resources with other countries contribute to global preparedness and efficiency in crisis management. Norway is an example of effective civil protection management that can be adapted to different scenarios and emergencies. Their holistic and comprehensive strategy, preventive measures, good organisation and quick response represent valuable lessons that can be applied in other countries to improve their civil protection management systems.

4.3. Australia

One additional example of good practice in civil protection management is Australia. Australia stands out for its comprehensive approach, advanced technology, and effective emergency management system. One of the critical features of the Australian system is a high degree of planning and preparation. The country has clearly defined protocols and plans for various disasters, including fires, floods, droughts, and other natural disasters. These plans include all levels of government and relevant actors and are regularly updated and practised to ensure efficient response to emergencies. Australia also uses advanced technology in civil defence management. It includes the Emergency Alert System, using drones for terrain monitoring and damage assessment, satellite monitoring of weather conditions and the spread of fires. These technological solutions enable faster decision-making, more accurate assessment of the situation and more efficient allocation of resources. An essential element of the Australian system is cooperation with the community. There is a strong focus on educating the population about disaster preparedness, evacuation, and self-protection. Local communities are encouraged to have contingency plans and participate in decision-making. It enables a faster and more efficient reaction in crises, with the support and engagement of the citizens themselves. Also, Australia is known for establishing international cooperation and exchanging experiences in civil protection management. Through international agreements, training and exercises, Australia contributes to global progress in emergency management and supports other countries in building their capacity. (Thomae, 2022) Australia's example of good practice highlights the importance of comprehensive planning, technological solutions, community collaboration and international cooperation in civil protection management. These practices can be an inspiration and model for other countries in improving their systems and increasing resilience to emergencies.

4.4. Japan

Another example of good practice in civil protection management is Japan. Japan is known for its practical approach to managing natural disasters, especially earthquakes, tsunamis, and typhoons. The Japanese civil protection management system is characterised by a high degree of planning, training, and technological innovation. The country has clearly defined disaster response procedures, which are integrated across all levels of government and sectors. These plans are regularly updated and rehearsed to ensure effectiveness in response. The Japanese

government also invests significant resources in the research and development of technologies that help predict and reduce the risk of natural disasters. An example is developing an early warning system for earthquakes and tsunamis, which enables faster notification and evacuation of the population before the disaster strikes. An earthquake early warning (EEW) system is designed to detect an event, determine its parameters (hypocenter, magnitude, and origin time), and alert sites/areas where necessary actions should be taken before destructive seismic energy arrivals. At present, large-scale EEW systems are operational in several countries around the world. The most extensive nationwide EEW system has been operating in Japan since 2007 and could issue alerts broadly when the magnitude (Mw) 9 Tohoku-Oki earthquake hit in 2011. This technology is critical to reducing loss of life and property damage. An essential element of the Japanese system is strong cooperation between the government, the private sector and citizens. There is an awareness that disasters are a common challenge and that all actors need synchronised action. The government actively cooperates with local communities, providing support and training for self-help and post-disaster recovery. Also, there is a culture of solidarity and willingness to help others in difficult times. Japan also shares its knowledge and experience with other countries through international cooperation. Japan contributes to global preparedness and disaster risk reduction through information sharing, training and technical support (Ishiwatari, 2021).

4.5. Netherlands

The Netherlands is known for its long-standing fight against floods and a developed civil protection system that focuses on warning and protecting the population from this natural risk. One of the elements of this system is the flood warning system, which is based on advanced technological solutions and a vast network of sensors distributed along rivers and coasts. These sensors continuously monitor water levels and transmit real-time data to crisis management centres. Based on the collected data, the system automatically analyses potential flood threats and generates warning messages distributed to many users, including local authorities, residents, businesses, and the media. These messages are sent through various communication channels, including mobile applications, SMS, email, television, radio and social media. It enables quick and efficient notification of people about the possible risk of flooding and provides them with guidance on the necessary protection and evacuation measures (Iwamoto, 2022). In addition to warning systems, the Netherlands has invested significant efforts in flood protection infrastructure, such as dams, levees, canals and reservoirs. It also continuously improves the regular maintenance and inspection design to ensure these protective systems' reliability and efficiency. The Netherlands flood warning system is an excellent example of the synergy between advanced technologies, infrastructure and cooperation with the population. This system results from many years of experience and learning from past floods, enabling quick reaction and efficient emergency management. This good practice is often recognised as a model for other countries facing similar flood risks.

5. CONCLUSION

Civil protection management plays a crucial role in strengthening the resilience of communities and effective response to all emergencies including outbreaks. The involvement of civil society, cooperation with the government and local self-governments, partnership with the private sector, identification of challenges and obstacles, and recommendations for improving the civil protection management system are critical factors for successful risk management. The involvement of civil society in civil protection management enables the creation of sustainable partnerships, raising awareness of risks and preparing citizens for emergencies. Cooperation with the government and local governments ensures coordination and efficiency in responding to crises. Collaboration with the private sector brings the

resources, expertise, and technical capacity necessary for effective risk management. Identifying challenges and obstacles enables a better understanding of the weakness of the civil protection management system. Based on this, the system improvement recommendations offer guidelines for improving integrated mechanisms, education and training, system evaluation, technological infrastructure, and expert engagement. Civil protection management can effectively manage emergencies, minimise damage, and protect citizens' lives and property through these strategies and measures. Building resilient communities requires continuous work, cooperation and exchange of knowledge and experiences between all relevant actors. Only through joint efforts can we build a society ready to face the challenges and unpredictability of the future. Civil protection management has a crucial role in preserving the safety and well-being of the community. A systematic approach, inclusiveness and continuous improvement are the basic principles that will ensure the efficient functioning of the civil protection management system in facing the challenges of today's world. Only through the synergy of actors and best practices can we create a resilient society that can quickly and efficiently recover from emergencies and protect its citizens. By adopting scientific principles and implementing best practices, civil protection management can enhance its ability to anticipate, respond to, and recover from emergencies. Collaboration among stakeholders, continuous education and training, system evaluation, technological advancements, and interdisciplinary engagement are vital for success. Applying these practices and lessons learned from international case studies, civil protection management can effectively protect lives, reduce damage, and promote resilience in the face of diverse challenges.

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