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*Review Article*

Bridging Defense Studies and Disaster Risk Reduction: Comparative Perspectives from the Former Yugoslavia

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ABSTRACT

In contemporary crises that threaten lives, infrastructure, and the functioning of states, armed forces have become central actors in disaster response. As their roles expand beyond traditional defense, the question arises: how prepared are they—educationally—for these responsibilities? Higher education plays a crucial role in disaster risk reduction (DRR) by developing knowledge, institutional capacity, and trained professionals. In particular, defense studies programs are essential for embedding DRR as a strategic competency. This paper examines the integration of DRR into defense education across the successor states of the former Yugoslavia. Drawing on the shared legacy of Total People's Defense education in Yugoslavia, the research uses qualitative curriculum analysis to compare institutional frameworks and course content across selected universities and military academies. The analysis covered seven higher education institutions across five countries, providing comparative insight into how DRR principles are embedded in defense education. The findings suggest that credible defense education depends on the integration of DRR principles, positioning disaster preparedness and resilience as core competencies for defense graduates. The paper argues that aligning defense education with DRR is essential for building national resilience, enhancing civil–military cooperation, and preparing future professionals for complex 21st-century security environments.

KEYWORDS

Defense studies; disaster risk reduction; disasters; emergencies; armed forces; education.



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1. Introduction

Disaster Risk Reduction (DRR) is a defining challenge of the twenty-first century. In the former Yugoslavia, this challenge has tangible implications. In Serbia, the reform of civil defense and protection systems over the past decade has aligned national practice with EU disaster management standards, while still reflecting institutional continuities from the Yugoslav period. Through this process, the country has also advanced the implementation of global disaster risk reduction frameworks — most notably the Sendai Framework and UNDRR strategies — demonstrating how international norms are translated into regional practices shaped by local histories and institutional legacies (Wall, Chu & Dimitrijević, 2008; Cvetković, 2024).

In this broader context, disaster frequency, intensity, and impact have risen due to climate change, unsustainable urbanization, and poor development policies. Over the past two decades, more than 7,300 disasters have claimed 1.2 million lives and affected over 4 billion people. In 2024, 393 natural disasters resulted in 16,753 deaths and affected over 167 million people (Centre for Research on the Epidemiology of Disasters, 2025). The economic cost is equally concerning, with annual direct losses exceeding US\$200 billion and global costs—including indirect socio-economic and environmental impacts—reaching over US\$2.3 trillion (UNDRR, 2025). Earthquakes, floods, storms, droughts, and heatwaves cause most damage, highlighting the need to embed risk governance and resilience in defense education and practice.

The international community increasingly recognizes that education is central to building societies resilient to disasters. The Sendai Framework for Disaster Risk Reduction (2015–2030) explicitly identifies education and knowledge as key tools for building disaster-resilient societies. UNDRR emphasizes education as a “pillar for a disaster-resilient future” (De Angeli, 2024). These frameworks reinforce the need for higher education to adapt to the imperative of DRR.

However, effective risk management in practice requires engagement beyond the academic sector. During crises that threaten lives, infrastructure, and essential state functions, specialized state agencies assume additional responsibilities. Organizations such as NATO, the UN, and the EU highlight that disasters and climate change are “threat multipliers,” expanding the mandate of security institutions (NATO, 2021a; United Nations, n.d.; European External Action Service, 2022). In recent years, the armed forces have played a central role in this context. Research indicates that, due to their discipline, hierarchical structure, resources, and logistical capabilities, militaries are often considered the last line of defense when civilian infrastructure fails (Nicolas, 2023). In practice, the military frequently serves as the initial responder (DCAF, 2020). Therefore, the question arises as to how much DRR is represented in the education of armed forces—specifically within defense studies.

The case of the former Yugoslavia specifically illustrates how defense education and DRR have historically intersected. Civil protection constituted a strategic component of the defense system and was operationalized through the education system, specifically via the subject named General People’s Defense and Social Self-Protection. Instruction occurred at all educational levels, from pre-school to secondary school. That is why “a broader higher education programs aimed at academic education started in early 1970s in the former Yugoslavia, as a part of comprehensive education of all citizens with the goal of raising awareness and preparedness for wartime and peacetime threats during the Cold War” (Kešetović et al, 2018, 11). In 1975, a notable development occurred when civil faculties in five Yugoslav republics established academic programs in Total People’s Defense, marking a shift toward higher education (Dimitrijević, 2014). After the country and system’s dissolution in the 1990s, states varied in their preservation of this legacy.

This study examines the extent to which Disaster Risk Reduction (DRR) has been systematically integrated into defense studies curricula across the former Yugoslav states. By comparing institutional frameworks and curricular content, the research seeks to identify where DRR principles are effectively embedded and where notable gaps persist. The study argues that credible regional and global defense education increasingly depends on the comprehensive integration of DRR, positioning disaster preparedness and resilience as essential competencies for future defense professionals.

While global frameworks offer a universal agenda for building resilience, their practical translation into regional contexts depends on specific historical and institutional legacies. In the post-Yugoslav region, these legacies—shaped by the former Total People's Defense system and its emphasis on civil protection—continue to influence how defense education addresses disaster preparedness and response. Ultimately, the findings aim to contribute to broader discussions on aligning defense education with the evolving security environment defined by complex risks and recurrent disasters. The study also seeks to conceptually bridge defense studies and DRR, acknowledging that their interconnection is already evident in practice but remains underexplored in theory.

2. Natural Disasters in the Former Yugoslav States: Interlinked Risks and Shared Challenges

The countries of the former Yugoslavia share a geographic space and climatic conditions that expose them to a broad spectrum of natural hazards, whose frequency and intensity are increasing under the influence of climate change. While each nation faces its own unique vulnerabilities, there are strong overlaps in the types of disasters they experience, particularly floods and earthquakes, which represent shared regional threats. In this section, based on analyses from the World Bank's Development Reports, the World Bank's Climate Risk Country Profile Reports, and the UNICEF's Country Disaster Risk Profile Reports, a brief overview will be provided of the impact of natural disasters on all former Yugoslav states, with particular attention to the resulting consequences. Additionally, the final section will examine the role of the armed forces in preventing and mitigating disaster risks.

In Serbia, hydrometeorological and seismic risks are the primary concerns. These include floods, landslides, droughts, heatwaves, wildfires, and earthquakes—events that inflict severe damage on the economy, infrastructure, and vulnerable communities. The 2014 floods, among the worst in recent history, caused €864 million in damages, €648 million in losses, and claimed 27 lives. Without significant investment in adaptation, climate projections suggest that annual economic losses could reach 16.1% of GDP by 2050 (World Bank Group, 2024a).

Moving south, North Macedonia faces a similar set of climate-related threats—floods, heatwaves, droughts, and wildfires—yet with an added dimension of water scarcity that poses a threat to public health and rural livelihoods. Since 2000, damages from extreme events have totaled approximately US\$667 million, disproportionately affecting small family farms lacking irrigation and hail protection systems. In 2016, flash floods claimed 22 lives and resulted in US\$100 million in losses. As in Serbia, the absence of adaptation investments could result in losses of approximately 4% of GDP by 2050, underscoring a shared regional need for improved water management and agricultural resilience (World Bank Group, 2024b).

Bosnia and Herzegovina, situated between Serbia and Croatia, has repeatedly felt the compounding effects of floods, droughts, heatwaves, landslides, and earthquakes. The catastrophic floods of May 2014 affected a quarter of the population, triggered over 3,000 landslides, caused economic losses equivalent to nearly 15% of GDP, and resulted in 22 fatalities. More recently, in October 2024, floods and landslides claimed 26 lives. Earthquake risk is also significant, with present-day exposure estimates indicating that a major event could cause over 400 deaths and more than US\$4 billion in damages. The scale and recurrence of these disasters highlight Bosnia's interconnected vulnerabilities with its neighbors, particularly in river basin management and seismic risk (World Bank Group, 2021a).

Across the border, Croatia faces a hazard profile that mirrors Bosnia's in many respects—floods, droughts, heatwaves, storms, wildfires, and earthquakes—yet with additional economic stakes due to its tourism industry. Nearly a quarter of Croatia's economy, or about €9.23 billion annually, depends on sectors highly vulnerable to climate change. Between 2000 and 2007, extreme weather events caused an average annual loss of €173 million in agricultural production. The 2014 floods resulted in three deaths and displaced over 9,000 people, while the 2020 Zagreb earthquake caused €11.3 billion in losses, including €10.66 billion in destroyed physical assets. Given the regional inter-

connectedness of weather systems and shared seismic zones, Croatia's experience underscores the need for coordinated disaster risk reduction strategies across borders (World Bank Group, 2021b).

Further south, Montenegro stands out for its exceptionally high exposure to floods and earthquakes. Annually, floods affect approximately 10,000 people and cause \$ 90 million in losses, while earthquakes impact 9,000 people and result in \$ 70 million in damages. The country also contends with flash floods, landslides, and wildfires—hazards that it shares with its Adriatic neighbors—yet limited local response capacity highlights the need for stronger municipal-level disaster management (Magheru, 2022).

Finally, Slovenia, located at the northern edge of the former Yugoslav space, faces severe risks from both earthquakes and floods. On average, floods affect approximately 70,000 people annually and cause \$ 1 billion in damages, while earthquakes impact 80,000 people, resulting in \$ 200 million in capital losses and around 50 fatalities each year. By 2080, damages from a 1-in-100-year flood could rise to US\$7–20 billion, and from a 1-in-250-year earthquake to US\$40–150 billion, driven by urbanization and increasing asset exposure. These trends parallel those in Croatia and Bosnia, reinforcing the argument for a transnational approach to disaster preparedness in the northern Balkans (World Bank Group, 2015).

In sum, the region is bound together not only by its shared history but also by its common vulnerability to natural disasters. Floods and earthquakes emerge as universal threats, while droughts, heatwaves, storms, wildfires, and landslides vary in intensity across countries. Climate change is projected to intensify these hazards, thereby amplifying existing socio-economic vulnerabilities and testing the resilience of infrastructure.

From the perspective of this study's topic, it is important to emphasize that, in addition to their shared history and vulnerability to natural disasters, these states also share a tradition of armed forces' involvement in disaster response. The defense of Yugoslavia was based on the concept of total, or all-people's, defense, which encompassed the protection of the fundamental values and strategic interests of society through the integrated and coordinated engagement of all actors within the defense system and the state's overall defense capacities. One of the strategic components of this defense system was civil protection, which was implemented, among other means, through the education system via the subject "All-People's Defense and Social Self-Protection" (Miletić & Pejić, 2018). Education was implemented across all levels of the system, ranging from preschool to secondary schooling. A significant shift toward higher education emerged in 1975, when civil faculties in five Yugoslav republics introduced academic programs in Total People's Defense. These included: the Department of Defense Studies at the Faculty of Social Sciences in Ljubljana; the Total People's Defense track at the Faculty of Political Sciences in Zagreb; the Department of Total People's Defense at the Faculty of Political Sciences in Sarajevo; the Institute for National Defense / Department of Social Sciences and National Defense at the Faculty of Natural Sciences and Mathematics in Belgrade; and the Total People's Defense track at the Faculty of Philosophy in Skopje (Dimitrijević, 2014).

Following the dissolution of Yugoslavia during the 1990s, the concept of social self-defense, along with its integration into educational curricula from preschool to secondary education, was discontinued. Nevertheless, institutions of higher education continued to operate. On the contrary, they adapted and evolved in response to changes in the security and political landscape. Today, these institutions function either as independent faculties, such as the Faculty of Security Studies at the University of Belgrade, which emerged from the Faculty of Natural Sciences and Mathematics in Belgrade, or as institutes and departments within faculties of political science, philosophy, and social sciences. These faculties, among others, will constitute the focus of our research.

During the existence of the former Yugoslavia, the civil protection system operated under the jurisdiction of the Ministry of Defense, which meant that the armed forces were regularly engaged in crisis response. The institutional foundation for disaster management as a state responsibility was first established in 1932, when the Yugoslav Ministry of the Army and Navy issued *General Instructions for the Work for the Protection of the Country in Case of Enemy Air Attack*. Later, on January 1, 1963, the Civil Protection Service—together with Fire Protection—was officially transferred to the Ministry of Defense, further strengthening the link between military structures and civil emergency

response (Wall, Chu & Dimitrijević, 2008). This integration was reflected in practice: the Yugoslav People's Army (JNA) was the first to respond to the catastrophic 1963 earthquake that destroyed 80% of Skopje (now in North Macedonia), killing more than 1,070 people (BBC News na srpskom, 2023). The JNA also led the initial response to the devastating 1979 earthquake in Montenegro (Račetić, 2025) and played an essential role in containing the 1972 smallpox epidemic (Rokvić & Dimitrijević, 2023).

After the dissolution of Yugoslavia, in most successor states, the civil protection system came under the jurisdiction of the Ministry of Interior or the Ministry of Security (e.g., Serbia, Croatia, Bosnia and Herzegovina, Montenegro), or, as in the case of North Macedonia, under the authority of an independent state agency. The sole exception is Slovenia, where civil protection and disaster relief services are organized by the Ministry of Defense, tasked with protecting citizens in cases of natural and other disasters (Jelušić, 2025). Although in most countries civil protection and disaster relief services fall under the jurisdiction of the Ministry of Interior, this does not preclude the engagement of armed forces personnel in times of crisis. On the contrary. The armed forces of all former Yugoslav states continued to play an active role in supporting civilian authorities in mitigating the consequences of disasters. For example, during the 2010 floods in Montenegro, 80 soldiers were deployed to assist in post-flood recovery efforts and to help prevent the spread of infectious diseases (Vlada Crne Gore, 2010). Significant military engagement in other countries was recorded during the 2014 floods. In Serbia, there were 10,949 daily deployments of personnel from the Ministry of Defense and the Serbian Armed Forces, carrying out tasks such as evacuating the affected population, receiving them, delivering food and water, decontaminating areas, and other activities (Rokvić, 2017). That same year, the Armed Forces of Bosnia and Herzegovina were also heavily involved, with an average of more than 1,100 personnel engaged daily throughout the duration of the floods and the subsequent recovery efforts (SodaLive, 2017), while Croatia deployed 1,207 members of its armed forces (Vlada Republike Hrvatske, 2016). North Macedonia and Slovenia have been no less active. During the flash floods of 2016 in North Macedonia, which claimed 20 lives, the armed forces were mobilized to assist in response operations (Al Jazeera, 2016). In Slovenia, during the 2023 floods, 100 soldiers were deployed to rescue people by helicopter from inundated villages, construct pontoon bridges where existing ones had been swept away by torrents, and deliver food to isolated areas (Slovenska Vojska, 2023).

Given the discontinuation of formal education for disaster preparedness in the former Yugoslav states, the aim of this study is to evaluate how and to what extent programs related to disaster risk reduction (DRR) are incorporated within higher education, particularly those designed for defense purposes. This study specifically seeks to assess the presence and content of DRR within defense-focused academic programs at selected universities in the region. Before presenting this analysis, the following sections will outline the importance of higher education for DRR and the interconnections between defense studies and DRR.

3. Education as a Tool for Disaster Risk Reduction

Education at all levels, especially higher education, is globally recognized as critical for building disaster resilience and managing risks (Ivanov & Cvetković, 2014; Domingo Dela Cruz & Ormilla, 2022). The Hyogo Framework for Action (2005–2015) already stressed the need to “use knowledge, innovation and education to build a culture of safety and resilience at all levels” (United Nations International Strategy for Disaster Reduction [UNISDR], 2007, 6). The Sendai Framework for Disaster Risk Reduction (2015–2030) builds on this priority by emphasizing the need to strengthen countries' technical and scientific capacities and encouraging academic collaboration to understand and reduce risks (United Nations, 2015).

The Sendai Framework not only addresses structural measures for risk reduction, but also explicitly includes the goal of “enhancing knowledge and awareness” as an integral part of each priority for action. It emphasizes that understanding disaster risk (Priority 1) requires education and access to information, while strengthening disaster risk governance (Priority 2) involves reinforcing insti-

tutions such as universities (UNDP BiH, 2024). The Framework encourages states to integrate disaster risk reduction (DRR) topics into curricula at all educational levels and to promote research, innovation, and the adoption of new technologies through the academic sector (Sakurai & Sato, 2016).

Several Sustainable Development Goals (SDGs) are directly linked to disaster risk reduction (DRR) and education. SDG 4 – Quality Education requires inclusive, quality education, including learning on sustainability and resilience. SDG 11 – Sustainable Cities and Communities aims to reduce the number of people affected by disasters and associated losses by 2030, which depends on an educated workforce and a risk-aware population (Mendoza, 2025). SDG 13 – Climate Action focuses on efforts to mitigate the impacts of climate change. Its objectives include advancing risk knowledge, improving education and public awareness, building the capacity of stakeholders and institutions, and fostering adaptation, resilience, and mitigation measures.

Both UNESCO and UNDP stress that progress toward other goals—such as poverty eradication, health, and climate action—may be undermined by disasters if knowledge about risk reduction is not widely disseminated (Binagwaho, 2022; United Nations, 2020). Consequently, global reports call for the mainstreaming of DRR into educational policies and development strategies (UNDRR, 2025). The contribution of universities and higher education institutions (HEIs) to sustainability, through curriculum development, research initiatives, and community engagement, has been extensively examined. HEIs play a pivotal role in advancing sustainable development by fostering innovation and providing leadership in sustainable practices (Shaw & Oikawa, 2014). As emphasized in a UNESCO report, achieving the 2030 Agenda will be extremely challenging, if not impossible, without the active commitment and participation of HEIs (Binagwaho et al., 2022).

In other words, investment in education and knowledge is considered a prerequisite for a country to be “productive, prosperous, and resilient” in the face of disasters (Halloway, 2015). Beyond raising general awareness, education is also crucial for training specialists in disaster risk management. Through secondary vocational education, particularly at the university level, professionals with specialized expertise are developed, such as earthquake engineers, meteorologists, urban planners, ecologists, climate change experts, civil protection specialists, and others. An increasing number of universities worldwide offer dedicated programs and courses in disaster management and risk reduction. This formal training produces professionals who are able to assess risks, design mitigation measures, and respond effectively when disasters occur (Halloway, 2015). Analyses emphasize that higher education devoted to this field is “essential for promoting a culture of prevention” and relevant across a wide range of sectors, including agriculture, urban planning, public health, and emergency management (Halloway, 2015).

Higher education institutions (HEIs) play a particularly significant role in all phases of disaster risk management, ranging from planning and prevention to response and recovery. According to a United Nations Development Programme (UNDP) report, “universities and research institutions serve as key actors in the implementation of disaster risk reduction programs” (Halloway, 2015). They fulfill this role by generating knowledge, training human resources, and participating in strategic initiatives. Unlike primary and secondary education, which primarily fosters general awareness, higher education prepares experts capable of analyzing complex risks and managing them in practice.

Universities also serve as knowledge networks and training hubs that extend beyond their campuses. For instance, at the university level, Japan has established several research centers dedicated to disaster risk reduction (DRR)—such as the International Research Institute of Disaster Science (IRIDeS) at Tohoku University—which bring together interdisciplinary teams (engineers, natural scientists, and social scientists) and work closely with government institutions to improve early warning systems and emergency preparedness plans (Sakurai & Sato, 2016). At the same time, through international and regional initiatives, higher education institutions (HEIs) exchange experiences and jointly strengthen capacities. For example, the African university network Periperi U has connected multiple institutions with the aim of advancing DRR education and building local resilience capacities (Halloway, 2015). Similarly, in Asia, universities collaborate through initiatives such as the Asian University Network of Environment and Disaster Management (Shaw, 2011), while in America and Caribbean, the campaign Sustainable and Resilient Universities (launched in 2016

with UNDRR support) has promoted the integration of disaster risk reduction into higher education (Lemus, 2019). All these initiatives stem from the idea that the role of universities goes beyond classrooms—they are active community actors and natural partners to governmental institutions in building resilience.

Although HEIs are widely recognized as key actors in promoting knowledge, research, and resilience in the face of disasters, it is important to acknowledge that, in practice, effective risk management extends beyond the academic sector. In crisis situations, particularly when lives, infrastructure, and core state functions are at risk, additional responsibility falls on specialized state capacities—among which, in recent years, the armed forces have played a central role. In many countries, the armed forces are legally mandated to support civil authorities during emergencies. The armed forces play a significant role in disaster preparedness and response by providing personnel, logistical support, and planning capabilities. The military is frequently tasked with maintaining public order during disasters and emergencies, implementing disaster response measures such as lockdowns, and protecting critical infrastructure that supports essential public services, including electricity and water supply. This role can be undertaken at both the national and international levels, including humanitarian disaster relief operations (DCAF, 2020). According to Oslo Guidelines (Guidelines on the Use of Military and Civil Defense Assets in Disaster Relief), armed forces and defense assets „can only be considered as a means of last resort“ (UNHCR, 2024). Other studies also demonstrate that, due to their specific characteristics - discipline, hierarchy, available resources, and logistical capabilities- militaries are often regarded as the “last line of defense” when civilian infrastructure fails (Nicolas, 2023).

In reality, however, the “last line of defense” frequently becomes the first. Evidence demonstrates that in many states, the deployment of armed forces during disasters constitutes the “first assistance” to civil authorities—that is, the first recourse of governments (DCAF, 2020; Vij et al., 2020; Nicolas, 2023; Kumar & Dimiri, 2018; Ferris, 2012). The states of the former Yugoslavia are no exception, where military engagement in disasters has become nearly routine. Examples include the deployment of armed forces during the catastrophic floods that struck Serbia and Bosnia and Herzegovina in 2014, the flash floods in North Macedonia in 2016, and the floods in Slovenia in 2023. Similarly, the armed forces of all countries in the region provided diverse forms of support to health systems and civil authorities in their efforts to combat the COVID-19 pandemic (Đokić, 2020). To improve disaster response, many states and international organizations run civil-military cooperation exercises to build capacity and strengthen coordination. For example, “North Macedonia 2021,” jointly organized by NATO’s Euro-Atlantic Disaster Response Coordination Centre (EADRCC) and the Macedonian Crisis Management Center, included forces from 27 NATO countries (including Serbia and Bosnia and Herzegovina) and 16 other organizations (NATO, 2021b).

The armed forces’ involvement in disaster response, both regionally and globally, demonstrates their role extends beyond security and defense. The military’s growing role in disaster risk reduction underscores the need to assess its preparedness, encompassing both practical training and formal education. In summary, the evolving and complex role of the armed forces in disaster risk reduction demands that educational systems—especially higher education and defense studies—proactively address these contemporary challenges. By assessing how disaster risk reduction principles and content are embedded in defense studies curricula, this analysis aims to clarify existing gaps, highlight best practices, and identify targeted opportunities to enhance the education and training of armed forces personnel for effective disaster response and resilience-building.

4. The Link Between Disaster Risk Reduction (DRR) and Defense Studies

At the outset, it is necessary to note that the relevant literature does not identify any work that theoretically or conceptually examines and positions Security Studies, Defense Studies, and Military Studies. Nor does it address their shared characteristics and distinctions. Some authors note that distinctions among these disciplines have persisted for more than fifty years, while the terms “defense” and “military studies” are often used interchangeably (Blagojević, Starčević, & Zogović, 2019). An

analysis of study programs at leading universities—such as King’s College London, the University of Calgary, the Swedish Defense University, and the University of Ottawa—shows the convergence and complementarity of these disciplines (KCL, n.d; UoC, n.d; SDU, n.d; UoO, n.d.).

They share many common concerns. All three engage with war and peace, the use of force, and the protection of states or societies. However, they approach these issues at different levels and with varying emphases. Each discipline maintains a distinctive focus despite these overlaps. Security Studies provides the broad conceptual and policy framework for understanding threats and maintaining peace. Defense Studies links these concepts to the practical realm of state defense and military strategy. Military Studies delves into the operational aspects of military forces and warfare. Leading universities structure their curricula to reflect these distinctions while encouraging interdisciplinary crossover. Each field has its unique lens, but in practice, they complement and enrich one another, contributing to a deeper understanding of the complex security environment.

A similar situation exists at faculties across the region. At many universities, security and defense themes intersect, often without clear demarcation. For this study, only institutions with a clear distinction between Defense and Security Studies will be considered. Military Studies (at military academies) will also be analyzed, because they often overlap with Defense Studies. The following section will highlight the development of Defense Studies as a distinct discipline and its connection to Disaster Risk Reduction (DRR). Future research should clarify distinctions between these disciplines in theory and concept. This is beyond the present study.

Defense studies as an academic field originated with the establishment of the Imperial Defense College in the United Kingdom in 1927. Since then, it has evolved into a discipline dedicated to examining how states prepare for, deter, avoid, and engage in armed conflict. The field stands at the intersection of military-technical considerations and political economy. It addresses the formulation, implementation, and evaluation of national defense policies, while considering the interplay between domestic and international factors (Galbreath & Deni, 2018; Ayan et al., 2025). Over the decades, its analytical scope has expanded in response to shifting power structures, strategic imperatives, and technological advancements.

Despite its evolution, tracing the intellectual and institutional development of defense studies remains challenging. The literature is fragmented. Much of the scholarship focuses on specific historical periods or national contexts. These works often do not link early strategic thought, Cold War-era institutionalization, and contemporary transformations into a coherent framework (Bueno, 2018; Milevski, 2016; Tomes, 2012). Debates about the field’s scope and disciplinary boundaries persist. Some scholars emphasize a narrowly military-technical orientation, while others advocate for a more interdisciplinary and policy-oriented approach (Traversac, 2020; Bueno, 2019). This fragmentation has created a knowledge gap that limits the ability of defense studies to adapt and meet contemporary policy demands.

Evidence supports this. A bibliometric analysis of 896 articles (1975–2024) by Ayan et al. (2025) revealed that the most common keywords are defense spending and economic growth, indicating a significant focus on economic issues. The largest group of publications is from economics (248), then political science (144) and international relations (138). This focus shows depth, but reveals little crossover with other fields and few works on disaster risk reduction (DRR) or non-traditional security.

The latter is especially relevant in the post-Cold War era, when the concept of security has undergone significant broadening. Modern security discourse encompasses a range of risks, including natural disasters, climate change, cyberattacks, terrorism, pandemics, and other unconventional threats (Krause & Williams, 1996). In this context, Anderson (1994) examines the military’s evolving role in disaster management. This shift reflects both the increasing frequency of disasters and a changing geopolitical landscape. As disasters—natural and complex—increase due to greater human susceptibility and environmental decline, recognition of the military’s relief role has grown. The U.S. Department of Defense classifies climate change as a threat multiplier, highlighting its potential to worsen security challenges (Cho, 2023). Similarly, NATO (2021a) described climate change as “one of the defining challenges of our era” and a threat multiplier with significant security im-

plications. The United Nations Secretary-General shares this view, noting that climate change exacerbates instability, conflict, and terrorism, although it is not the sole cause of global crises (United Nations, n.d.). Supporting this, Vogler (2023) surveyed 310 white papers and national security strategies from 93 countries (2000–2020) and found that since 2007, over 70% of them have referenced environmental and climate issues. Reflecting these findings, some authors argue that climate change and extreme events destabilize economies, undermine social stability, and create new security vulnerabilities within states (Rokvić & Stanojević, 2024).

Consequently, the field of security and defense studies has begun to converge with DRR. Security and defense studies traditionally focused on defense against armed threats. DRR addresses the prevention and management of risks from natural and other hazards. This wider threat landscape has reinforced the role of armed forces in domains once managed by civilian authorities, such as disaster management. Today, military forces often serve as first responders in large-scale disasters and humanitarian crises, particularly when civilian agencies lack the necessary resources or capabilities. Within the Sendai Framework for Disaster Risk Reduction 2015–2030, Gromek (2023) outlines five main roles for armed forces in DRR: (1) mitigating hazard intensity through early warning systems and risk assessment; (2) reducing vulnerabilities through community-based resilience; (3) limiting exposure via evacuation plans and land-use regulation; (4) enhancing resilience with training and capacity building; and (5) strengthening disaster response with protocols and rapid resource deployment. These roles show the growing operational and conceptual overlap between defense studies and DRR. They also highlight the need for academic frameworks that integrate both domains. However, Gromek's study remains one of the few that examines the role of the armed forces in DRR.

Higher education institutions have begun to respond by developing interdisciplinary programs. These combine defense studies with risk management, environmental security, climate policy, and emergency management. In Serbia, this trend is evident at the Faculty of Security Studies, the Military Academy, and the Police Academy. These institutions have added courses such as Emergency Management, Disaster Preparedness, and Environmental Security to their curricula. As a result, DRR principles are now incorporated into traditional security education (Rokvić & Stanojević, 2024). Similar curricular innovations are emerging in other countries. This reflects growing recognition that future security professionals must manage crises that go beyond conventional military training. As scholars note, modern officers, analysts, and security managers require knowledge of climate dynamics, technological innovation, and socio-political processes, in addition to traditional defense competencies. This integration is only achievable through interdisciplinary higher education (Rokvić & Stanojević, 2024). The convergence of DRR and defense studies is not only conceptual but also operational. In practice, civil–military cooperation in disaster response is now routine across the former Yugoslav region. The so-called “third mission” of the armed forces—supporting civil authorities in emergencies—shows that disaster management is central to defense education. It is now a field where theoretical knowledge of defense policy meets practical risk reduction skills. This reinforces the necessity of embedding DRR into the academic study of defense. This growing convergence between defense studies and DRR raises important questions. It is essential to examine how academic programs—particularly those offered by civilian and military higher education institutions—reflect this shift in their curricula. In the context of the former Yugoslavia, a systematic analysis of curricula can reveal how well educational programs prepare graduates for both traditional defense and modern risk management.

The next section presents the results of this analysis, examining the structure, content, and integration of defense studies programs at civilian and military higher education institutions in the region.

5. Methods

This study employed a comparative qualitative document analysis to assess the extent to which Disaster Risk Reduction (DRR) is represented in the curricula of defense studies programs at civilian and military higher education institutions across the former Yugoslav states. The qualitative ap-

proach was adopted as the most suitable methodological framework for exploring the complex and context-specific relationship between defense education and DRR. As Hollstein (2014) underlines, qualitative inquiry enables the researcher to grasp the meanings, interpretations, and interactional processes that underlie institutional structures and educational practices—dimensions that remain beyond the reach of purely quantitative indicators. In this study, qualitative curriculum analysis served to uncover underlying thematic patterns and identify implicit values that shape the evolving nexus between education, defense, and DRR. Rather than seeking numerical generalization, the focus was placed on analytical and interpretive understanding, allowing for the examination of similarities and differences across diverse national and institutional settings within the post-Yugoslav context. The comparative dimension of this approach proved particularly valuable, as it enabled the identification of both shared historical legacies and divergent institutional trajectories across national contexts—patterns that a purely quantitative design would likely obscure. This methodological choice was therefore made to ensure a deeper and contextually grounded understanding of how tradition and institutional diversity shape the integration of DRR principles into defense education.

The dataset comprised curricula and syllabi obtained from official university and academy sources. The analysis covered seven higher education institutions across five countries, providing comparative insight into how DRR principles are embedded in defense education. These materials were systematically collected between April and August 2025 and cross-verified with institutional publications to ensure methodological transparency, data reliability, and overall validity of the research process. Selection was guided by three criteria: (1) institutions offered defense studies as a distinct program, department, or unit; (2) publicly accessible curricula or course descriptions existed; and (3) programs were state-recognized and formally linked to defense or military education. Private institutions with only general security studies were excluded because they lacked dedicated defense studies units.

A two-step coding process was applied. First, courses were identified by title as either DRR-focused (explicitly dedicated to disaster risk reduction and management) or DRR-inclusive (embedding DRR-related content within broader topics). Second, course descriptions were analyzed to confirm categorization and assess the depth of integration. This allowed for a systematic mapping of DRR representation across institutions. The choice of qualitative document analysis is particularly appropriate, as it enables a systematic examination of curricula when standardized quantitative data are unavailable. Given the diversity of institutional structures and lack of harmonized statistical reporting across the region, qualitative analysis offers the most reliable way to capture the presence and depth of DRR integration. By focusing on the interpretative dimension of course content, this approach identifies thematic overlaps, omissions, and critical gaps that purely numerical indicators would miss.

Nevertheless, the study had limitations. One of the principal limitations of the study lies in its methodological scope, as the analysis relies exclusively on publicly available curricula and institutional documents rather than on empirical data gathered through interviews, surveys, or focus groups with faculty and students. This approach restricts insight into how DRR content is actually implemented in teaching practice and whether intended learning outcomes are achieved. Furthermore, the absence of quantitative indicators—such as the number of students enrolled in DRR-related courses, their performance, or systematic course evaluations—limits the ability to draw broader generalizations about the effectiveness of DRR integration. An additional weakness concerns the uneven availability of curricular data across the region; in countries such as Bosnia and Herzegovina, Croatia, and Montenegro, detailed syllabi are not accessible, which forces the analysis to rely on general program descriptions. This lack of uniformity not only complicates cross-national comparison but also raises the risk that DRR content may be underestimated or obscured within broader subjects, thereby diminishing the accuracy of the comparative findings.

6. Results

Based on the defined limitations and research criteria, the analysis covered several higher education institutions. The analysis included: (1) in Serbia – the Faculty of Security Studies, University of Belgrade – Department on Strategic and Defense Studies, and the University of Defense, Military Academy; (2) in Slovenia – the Faculty of Social Sciences, University of Ljubljana - Department of Political Science, the Academic Unit of Defense Studies (Katedra za obramboslovje); (3) in North Macedonia – the Faculty of Philosophy, St. Cyril and Methodius University of Skopje - the Institute for Security, Defense and Peace, and the “General Mihailo Apostolski” Military Academy; (4) in Croatia – the University of Defense and Security “Dr. Franjo Tuđman”; (5) in Bosnia and Herzegovina – the Faculty of Political Sciences, University of Sarajevo - Department of Security and Peace Studies.

6.1. Serbia

As noted in the previous research, Serbia has many private faculties in the field of security studies (Rokvić & Stanojević, 2024). Although these institutions cover topics related to DRR, they do not have dedicated units or departments specializing in disaster risk reduction (DRR) studies. Thus, as in other countries, they were excluded from this research. The only state-owned faculty in Serbia is the Faculty of Security Studies at the University of Belgrade. This faculty is a successor to the Department of General People’s Defense, established in 1975 (Dimitrijević, 2014). It hosts a department dedicated to defense studies—namely, the Department of Strategic and Defense Studies. In addition, the Faculty has established a separate Department of Emergency Management Studies and Environmental Security. During the first two years of study, all students follow a common curriculum before choosing one of four elective tracks: national security, corporate security, emergency situations and environmental security, or strategic studies. The elective track on emergency situations and environmental security is of great importance for DRR education. However, in line with the research question and methodology, the curriculum analysis focuses exclusively on courses within the strategic and defense track—those offered by the Department of Strategic and Defense Studies.

In addition to the Faculty of Security Studies, the University of Defense Military Academy also offers a master’s program in Risk Management in the Case of Natural Disasters, the courses of which will be included in the curriculum analysis.

6.1.1. Curriculum Content Analysis



According to the criteria, within the Department of Strategic and Defense Studies, none of the eleven undergraduate courses are explicitly focused on DRR. However, based on course titles and descriptions, two can be identified as DRR-inclusive: Defense Management and Geospatial Data in the Defense Management. The Defense Management course introduces students, at a theoretical level, to the military’s role in responding to natural disasters—often referred to as the “third mission” of the Serbian Armed Forces. The Geospatial Data course highlights how geoinformation technologies can support the implementation of the military’s third mission. All other courses are focused mainly on issues of strategic studies, military operations, defense policies, and related topics (Fakultet bezbednosti, n.d.). At the master’s and doctoral levels, none of the department’s courses meet the defined criteria.

The University of Defense Military Academy was originally established to provide professional education tailored to the needs of the Ministry of Defense and the Serbian Armed Forces. However, changes in the security environment, new threats, and military reforms in the early 21st century broadened the mission of the Serbian Armed Forces. They now include support for civil authorities in responding to natural disasters, technological accidents, and other emergencies (Rokvić & Stanojević, 2024). In response, military education was reformed, culminating in the accreditation of a master’s program in Natural Disaster Risk Management in 2019. The program aims to strengthen environmental protection through advanced education and contributes to achieving the Sustaina-

ble Development Goals. It comprises four compulsory and seven elective courses. The curriculum mostly focuses on developing broad professional competencies. The program emphasizes an understanding of environmental security, emergency management, climate change, and disaster risk reduction. It generally adheres to a traditional pedagogical model. The main innovation appears in practical risk management courses, where the use of GIS, simulation models, and CBRN technologies for field decontamination is prioritized. This curricular orientation shows the institution's commitment to equipping graduates with transferable competencies and specialized skills for contemporary security and disaster management challenges (Univerzitet odbrane Vojna akademija, 2020; Rokvić & Stanojević, 2024).

6.2. Slovenia

As in Serbia, several faculties in Slovenia offer programs in security studies, such as the Faculty of Criminal Justice and Security, University of Maribor. These institutions were excluded based on the research criteria. The analysis focused solely on those with programs that explicitly include defense studies. The only faculty meeting these criteria is the Faculty of Social Sciences (Fakulteta za družbene vede, University of Ljubljana). Within its Department of Political Science, the Academic Unit of Defense Studies (Katedra za obramboslovje) - successor to the Department of Total People's Defense, established in 1975 - offers defense studies at the undergraduate, master's, and doctoral levels.

Slovenia does not have a traditional military academy that provides higher education to cadets, unlike some other countries. Future officers of the Slovenian Armed Forces typically pursue their higher education in civilian institutions, primarily at the Faculty of Social Sciences. They then continue professional training at the Military Schools Centre within the Slovenian Armed Forces. These professional development courses cover topics related to emergency situations, with a primary focus on practical training. There is no specific elective or compulsory subject within the Slovenian military education system titled "Disaster Management" or similar. Instead, relevant content is integrated into various segments of training, as academic education is undertaken in civilian institutions.

According to the research criteria, the curriculum analysis focuses solely on courses offered by the Faculty of Social Sciences, specifically within the Academic Unit of Defense Studies. No publicly available syllabus book with detailed teaching units exists; only course lists with brief descriptions are accessible.



6.2.1. Curriculum Content Analysis

The Academic Unit of Defense Studies was established in 1975 as part of the Department of Political Science. The defense studies program is offered at all levels, including undergraduate, master's, and doctoral. It addresses challenges in national and international security and defense, including natural and technological disasters such as earthquakes, floods, fires, hurricanes, and nuclear incidents. At the undergraduate level, ten courses are offered. Several can be highlighted based on the criteria: 1. Disaster Management – This course examines various types of disasters, whose consequences are increasingly complex. It demands coordinated action from institutions, authorities, and organizations at both national and international levels. The course links disaster study to general theories and concepts of crisis and crisis management, addressing the security, political, legal, administrative, economic, social, psychological, organizational, and communication dimensions of disasters. 2. Crisis Management and Contemporary Security – The course examines the definition of crisis, crisis management and leadership, as well as characteristics of the contemporary security environment. It also examines the complexity of crises and concepts of complex crisis management, including crisis coordination and crisis response networks. 3. Defense Geography – This course focuses on the geography of crisis hotspots, with physical and socio-geographical analyses. 4. Non-Military Warfare – This course studies non-military forms of security threats and the concept of civil protection (Fakulteta za družbene vede, Univerza v Ljubljani, n.d.a).

At the master's level, Disaster Management is the only course that fully aligns with the defined research criteria based on its coverage of key topics: the definition and classification of disasters, disasters as security threats, disaster management processes, communication during disasters, Slovenia's disaster protection and relief system, and empirical analyses of selected disasters using a cognitive-institutional approach. The course also covers psychological and social aspects of disasters, the military's role in disaster response, and evacuation procedures in nuclear disasters (Fakulteta za družbene vede, Univerza v Ljubljani, n.d.b). At the doctoral level, alongside traditional topics in defense studies, course selection is based on candidates' engagement with the principles of military and civil defense, search and rescue operations, contemporary crises, crisis management, and social dimensions (Fakulteta za družbene vede, Univerza v Ljubljani, n.d.c). The curriculum and detailed course descriptions are not available.

6.3. North Macedonia

As in Serbia and Slovenia, numerous higher education institutions in North Macedonia (both public and private) offer programs specializing in security studies, including the Faculty of Security, the Faculty of Criminal Justice and Security, and the Faculty of Security, Criminology, and Financial Control, among others. However, defense studies are available solely at the Faculty of Philosophy, Ss. Cyril and Methodius University of Skopje, where the Institute for Security, Defense and Peace operates. Like the Faculty of Security in Belgrade and the Academic Unit of Defense Studies at the Faculty of Social Sciences in Slovenia, this institute was founded in 1975 as a successor to the unified Total People's Defense educational model from former Yugoslavia. Training and developing personnel in this field, along with organizing teaching and research activities in total people's defense, first followed a standardized nationwide curriculum.

Additionally, the "General Mihailo Apostolski" Military Academy in Skopje directly incorporates emergency management into its curriculum. The Academy expanded its offerings to adopt an integrated approach to the security sector, leading to the introduction of a specialization in Crisis Management, Protection, and Rescue. This program, delivered at the undergraduate (first cycle) level, is accessible to both cadets and civilians interested in the field, running concurrently with traditional military pathways. The curriculum addresses key aspects of disaster management, such as risk assessment of natural and human-made hazards, crisis response planning, organizing protection and rescue systems, and the military's role in supporting civilian populations. The Academy also operates a Crisis Management Laboratory and boosts its training infrastructure through international projects, establishing itself as a regional leader in emergency management education.

6.3.1. Curriculum Content Analysis

At the undergraduate level, within the Faculty of Philosophy, the Security, Defense, and Peace program (three years) integrates both political science and sociological perspectives on security. The master's level enables further specialization with programs such as Security Risk Management, Peace Studies, or Strategic Defense Management. At the doctoral level, social and human sciences programs also offer specializations in security studies. These programs are academic and frequently conducted in partnership with state institutions—such as the Ministry of Defense—but are delivered in a civilian faculty setting.

Within the Security, Defense, and Peace program, students choose one of the programs: security, peace, or defense. In the context of this research, the courses of the defense study program (2023) were analyzed. Several courses in the curriculum stand out: 1. Crisis Management – Covers theory and North Macedonia's crisis response capacities, including national crisis management, organization, prevention, early warning, decision-making, resource allocation, communication, coordination, planning, and financing. 2. Non-Military Aspects of Security – Explores health threats and disasters as security risks. 3. Civil protection – Gives fundamental knowledge of civil protection's role in the broader security and defense framework. It introduces the legal framework for protection

and rescue and the theoretical foundations for safeguarding people and materials. The course covers both peacetime and emergencies, preparing students for risk assessments and protection plans. 4. Civil defense – Introduces civil defense core concepts and the legal/practical frameworks states and international organizations use to address risks and threats. It covers history, current practices, and the analysis of modern challenges, emphasizing national responses in peace, crisis, and war. 5. Civil crisis management – Offers an overview of key civil crisis management concepts, focusing on legal and practical approaches of international organizations, especially the EU. Other courses, like Critical Infrastructure Protection, meet research criteria by name. However, due to a lack of course descriptions, they were excluded from the analysis.

Unlike civilian faculties that prepare specialists for the armed forces, the Military Academy of North Macedonia distinguishes itself with a standalone program—Crisis Management, Protection, and Rescue—accredited in late 2016 and conducted in partnership with Goce Delčev University in Štip. Unlike the Military Academy in Serbia, this program is offered at the first cycle (undergraduate) level and, based on the available curriculum and course outlines, provides more in-depth preparation and education of armed forces personnel for emergency response.

Over the course of four years, students complete 27 compulsory and 21 elective courses. Although, as indicated by the program's title, many of these courses meet the defined research criteria, this analysis highlights only courses unique to North Macedonia and directly related to preparing armed forces for emergency response. Furthermore, only courses with detailed curriculum descriptions are considered: 1. Management of Technical Resources – Training in the correct use, maintenance, and management of technical equipment for effective application in civil emergencies and disaster response; 2. Crisis Management and Protection Systems – Introduction to theoretical foundations and structures of crisis management and protection/rescue systems, including comparative overviews from international, regional, and neighboring countries, as well as within North Macedonia; 3. Typology and Risk Assessment of Disasters – Study of disaster categories and assessment methodologies, damage estimation, and spatial mapping with tools like ArcGIS; 4. Standard Operating Procedures in Crisis Management – Development and application of SOPs for integrated emergency management, including risk assessment and vulnerability analysis regarding climate change; 5. Disaster Management and Risk Reduction – Review of disaster management standards and principles, focusing on preparedness, prevention, mitigation, response, and recovery, and emphasizing system stakeholders, resources, and approaches to reduce vulnerability; 6. Operational Planning – Practical instruction in planning as a management tool for crises and disasters, equipping students to develop operational response plans for civil hazards; 7. Rescue, Evacuation, Shelter, and Care of Affected Populations – Advanced understanding of civil protection, concentrating on evacuation, rescue, shelter, and assistance for people impacted during peacetime, emergencies, and wartime (University „Goce Delčev“ Štip, Military Academy „General Mihailo Apostolski“ – Skopje, 2017).

6.4. Croatia

In Croatia, several faculties offer programs in security studies. The most prominent is the Faculty of Political Science at the University of Zagreb, which offers a program in Political Science specializing in National Security. This track evolved from the Total People's Defense curriculum established in 1975. However, this specialization does not treat defense studies as an independent discipline and was thus omitted from this research. Notably, none of Croatia's civilian faculties offer standalone defense studies programs. Previously, the University of Zagreb offered Military Studies for future members of the Croatian Armed Forces. However, since April 16, 2025, these programs have been overseen by the University of Defense and Security “Dr. Franjo Tuđman,” now the main higher education center for officer education and defense studies in Croatia (Sveučilište u Zagrebu, 2025).

At the Croatian Defense Academy “Dr. Franjo Tuđman” in Zagreb, emergency-related topics appear in the curriculum. In the integrated undergraduate Military Engineering program (technical cadet track), coursework includes civil protection and disaster management. This program encompasses safeguarding people and property, civil protection, and the roles of organizations supporting

civilian authorities during crises, including natural or technological disasters. However, the course syllabi are not publicly available, so their adherence to the defined research criteria cannot be assessed (Sveučilište odbrane i sigurnosti „Dr Franjo Tuđman“, n.d.).

6.5. Bosnia and Hercegovina

The Faculty of Political Sciences in Sarajevo established the Department of Total People's Defense in 1975, which is now known as the Department of Security and Peace Studies, offering programs at all levels. The curriculum combines defense-related courses (e.g., Introduction to Security and Defense Studies, Leadership in Security and Defense) with DRR-relevant topics (Civil Protection, Environmental Security). Due to the unavailability of detailed syllabi, assessment against research criteria is not possible.

Other faculties, such as the Faculty of Security and Protection in Banja Luka and the Faculty of Criminology, Criminalistics, and Security Studies in Sarajevo, offer security studies. However, their programs do not meet the research criteria.

Bosnia and Herzegovina lacks its own military academy for officer cadet training, sending candidates to partner countries such as Turkey, North Macedonia, Serbia, and Croatia; thus, curricula are externally determined. Consequently, there is no dedicated domestic emergency management course. Knowledge of disaster response is primarily gained through practical training in the Armed Forces and cooperation with civil protection, rather than academic study.

6.6. Montenegro

Montenegro did not establish a higher education institution for defense studies. Security studies are now offered at the University of Donja Gorica's Faculty of Humanities, featuring some relevant courses (e.g., Defense Policies, Crisis Management), but lack a dedicated program and public syllabi, so these courses are excluded from analysis. Security topics are also present at the Faculty of Political Science in Podgorica, within the fields of Political Science and International Relations; however, these do not meet the study's research criteria.

Montenegro, like Bosnia and Herzegovina, does not have a national military academy; therefore, cadets train abroad (e.g., Greece, Austria, and Croatia in 2019), with varying curricula. There is no local compulsory emergency management course; officers gain relevant experience after returning, mainly through training and exercises in cooperation with civil structures. These topics are addressed in professional training and doctrine rather than as academic courses within Montenegro.

7. Discussion

The comparative analysis highlights significant differences in the institutionalization and curricular integration of Disaster Risk Reduction (DRR) across the region. Three dimensions guided the comparison: institutional framework (the existence of dedicated defense studies departments or units), curricular content (the presence of DRR-focused or DRR-inclusive courses), and transparency (the availability of detailed syllabi) (Table 1).

Serbia, Slovenia, and North Macedonia show the strongest institutional continuity with the former Yugoslav model of Total People's Defense, maintaining dedicated structures and integrated DRR courses. Serbia retains both a Faculty of Security Studies and a Military Academy, while Slovenia, despite lacking a military academy, embeds DRR within its Faculty of Social Sciences. North Macedonia stands out for its systematic embedding of DRR in both civilian and military tracks, with the Military Academy offering an undergraduate specialization in Crisis Management, Protection, and Rescue.

In contrast, Croatia, Bosnia and Herzegovina, and Montenegro reveal weaker DRR integration. Croatia consolidates its approach in the Defense Academy with limited DRR content. Bosnia and Herzegovina offers some DRR-related material in the Faculty of Political Sciences, but its reliance on foreign academies for officer education limits local DRR curricular integration. Montenegro represents the least integration: without a faculty or military academy, it relies entirely on foreign education and ad hoc professional training.

Overall, the comparison demonstrates that countries preserving dedicated academic departments achieve the strongest DRR integration. Those fragmenting or outsourcing defense education, or narrowing it to military-technical training, show the weakest curricular presence of DRR. The divide between these models highlights key regional contrasts in institutional commitment and educational scope.

Table 1. Comparative analysis

Country	Institutional Framework	Departments / Chairs / Institutes	DRR Focus	Type of Integration	Transparency
Serbia	Faculty of Security Studies (University of Belgrade); Military Academy (University of Defense)	Department of Strategic and Defense Studies	High (dedicated Master's in DRR, DRR-inclusive courses at undergraduate level)	Combination of DRR-focused and DRR-inclusive courses	High
Slovenia	Faculty of Social Sciences (University of Ljubljana)	Academic Unit of Defense Studies (Katedra za obramboslovje)	Moderate-High (Disaster Management at BA/MA)	Embedded in civilian defense studies curricula	Moderate
North Macedonia	Faculty of Philosophy (Ss. Cyril and Methodius University, Skopje); Military Academy "General Mihailo Apostolski"	Institute for Security, Defense and Peace; Programme in Crisis Management, Protection and Rescue (Military Academy)	High (systematic DRR integration)	Comprehensive, includes DRR-focused courses	High
Croatia	Croatian Defense Academy "Dr. Franjo Tuđman" (since 2020 part of University of Defense and Security)	No independent defense department in civilian faculties; defense education consolidated within the Academy	Low-Moderate (civil protection modules)	DRR integrated into technical cadet training (Military Engineering)	Low
Bosnia and Herzegovina	Faculty of Political Sciences (University of Sarajevo)	Department of Security and Peace Studies	Low (limited DRR-related subjects such as Civil Protection, Environmental Security)	Partial, mostly thematic modules	Low

Montenegro	No national faculty or academy dedicated to defense studies; cadets trained abroad (e.g., Greece, Austria, Croatia)	—	Very Low	DRR present only in professional training and exercises	Low
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Legend: DRR – Disaster Risk Reduction; HEI – Higher Education Institution.

Source: Authors' analysis of institutional curricula (2025).

The findings confirm that all former Yugoslav states share high exposure to natural hazards and a tradition of military involvement in disaster response. However, their educational systems have evolved along divergent paths since the 1990s. Where institutional continuity has been maintained—such as in Serbia, Slovenia, and North Macedonia—DRR is more firmly embedded in defense studies curricula. Elsewhere, institutional fragmentation and reliance on external education have hindered the integration of DRR. From a broader perspective, these results highlight the expanding importance of linking DRR with defense studies during an era of multidimensional security challenges. Defense education was once centered on armed conflict. Now, it faces the need to address climate change, pandemics, and technological hazards. Increasing deployment of armed forces in disaster response demonstrates the practical convergence of defense and risk reduction. At the same time, the study underscores persistent fragmentation across the region. The former Yugoslav states largely pursue nationally framed reforms. This isolation limits opportunities to harmonize curricula, share expertise, and build collective resilience.

The discussion suggests three key implications. First, defense studies in the region have yet to fully adapt to the broadened security agenda, which includes non-traditional threats. Second, meaningful integration of DRR requires both curricular reform and regional academic cooperation. Third, closer collaboration between civilian universities and military academies is essential. This cooperation can overcome institutional fragmentation and ensure future officers and professionals are equipped for both traditional defense missions and disaster risk management.

8. Conclusion

This study shows that the integration of DRR into defense studies across the former Yugoslav states remains partial and uneven. It is shaped by divergent institutional trajectories since the dissolution of Yugoslavia. Serbia, Slovenia, and North Macedonia have preserved or adapted the legacy of the 1975 Total People's Defense programs. They embed DRR into their curricula through specialized courses and departments. In contrast, Croatia, Bosnia and Herzegovina, and Montenegro show weaker institutionalization. They rely on fragmented or externally provided education.

The analysis confirms that DRR is most systematically represented where stable academic units in defense studies continue to operate. Examples include the Faculty of Security Studies in Belgrade, the Military Academy in Skopje, and the Faculty of Social Sciences in Ljubljana. These institutions have begun to align defense education with the broader security agenda, which includes resilience, prevention, and civil-military cooperation. In contrast, the absence of consolidated academic structures in Croatia, Bosnia and Herzegovina, and Montenegro has limited DRR integration. Its role is reduced to peripheral modules or practical training exercises.

From a broader perspective, these findings highlight the need to strengthen the link between DRR and defense studies in a region highly exposed to natural hazards and climate-related risks. Modern security challenges—like floods, earthquakes, pandemics, and technological hazards—require interdisciplinary expertise. This expertise must bridge traditional military competencies with disaster preparedness and resilience-building. Without this integration, defense education remains

narrowly focused and less capable of responding to complex contemporary crises. The future credibility and relevance of defense studies in the former Yugoslav states depend on their ability to embrace DRR as an essential part of security education and practice. By embedding DRR in curricula, aligning with global resilience frameworks, and fostering regional cooperation, defense studies can move beyond traditional boundaries. This positions them as key contributors to the security and resilience of societies facing twenty-first-century challenges.

While this study provides insights into the presence and scope of DRR within defense, security, and military studies programs, several limitations should be acknowledged. Conceptually, the research highlights the lack of a clear theoretical framework that systematically differentiates Security Studies, Defense Studies, and Military Studies. As well as the lack of studies that link defense studies and DRR. This constrains the depth of analysis. Methodologically, the reliance on qualitative document analysis of curricula offers breadth but limits the capacity to assess the actual implementation and learning outcomes of DRR education. Furthermore, the uneven availability of curricula across the region, particularly in some countries where detailed syllabi are not publicly accessible, has created gaps in empirical coverage. The comparative approach offers a limited exploration of the political, institutional, or societal factors that explain differences among states. Finally, the engagement with critical academic debates on the nexus between security, defense, and DRR could be expanded to strengthen the theoretical contribution. These limitations suggest avenues for future research. A mixed-method approach combining curriculum analysis with interviews, surveys, and outcome assessments could offer a more comprehensive understanding of how DRR can be effectively integrated into defense education. Importantly, advancing this line of inquiry has both scholarly and practical significance. These insights are not only academically relevant but also of considerable practical significance. They provide valuable guidance for policymakers aiming to modernize educational curricula and align them with contemporary resilience and security imperatives. By systematically embedding Disaster Risk Reduction (DRR) principles into defense education, regional academic institutions can cultivate a generation of professionals equipped to manage complex emergencies and actively contribute to strengthening national resilience.

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Appendix A

The appendix is an optional section that can contain details and data supplemental to the main text.

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